PFAS Management Plan

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Agenda

- What are PFAS
- Regulation and results
- City response
- Management Plan

State and EPA Regulation Levels

PFAS Contaminant	WA SALs 2022 (ppt)	Water Stations Exceeding	EPA Proposed MCL 2023 (ppt)	Water Stations Exceeding
PFOA	10	WS14	4	WS1,3,4,8,9,14,15
PFOS	15	WS4,8,9,14,15	4	WS1,3,4,7,8,9,14,15
PFHxS	65	-	9	-
PFNA	9	-	10	-
PFBS	345	-	2000	-
GenX	-	-	10	-

Ellsworth WS below WA SALs and EPA proposed MCLs

PFAS Response

- Treatment Design and Cost Estimates
- PFAS Source Investigation
- Communications
- Adjusted Ops
- Pilot Testing
- Funding
- Water Rights
- Legal

DEPARTMENT OF ECOLOGY
State of Washington

Washington State Department of HEALTH

A QUARTERLY NEWS UPDATE FOR THE COMMUNITY — JULY 2023 | VOLUME 1 | ISSUE 1

Introducing your new city newsletter

These days information moves fast. While there are a lot of advantages to sharing information online, there are some things that deserve more than a tweet. This is why we've created a new newsletter to send information about City programs, services and initiatives directly to your home.

We hope this publication will become a valued way for you to stay informed about what is going on in your hometown.

The newsletter will be mailed to you once a quarter if you live in Vancouver or live outside city limits and receive some of your municipal services from the City. You can watch for the next issue later this fall.

Our first issue is mainly focused on summer in Vancouver. Inside you'll find stories about all the exciting events and places to have fun and stay cool in the Couve this summer. Also, as part of our continued work to keep you informed about PFAS, we have a story about this important topic in this issue.

The newsletter is also available in Spanish, Russian, Vietnamese, and Chinese. You can scan the QR code at the bottom of this page to read them. Please let us know if you would like the newsletter translated into a different language. We hope you enjoy the newsletter. If you have any questions, you can send them to Laura.Shepard@cityofvancouver.us.

PFAS and water quality: why it matters

Protecting public health and providing a safe water supply is a top priority for the City of Vancouver. To that end, we are monitoring, researching and planning how to resolve the challenge of PFAS in our water supply.

What are PFAS?

You've probably heard of "forever chemicals." Often, this term refers to per- and polyfluoroalkyl substances (PFAS) that have been used since the 1940s in many water-resistant, stain-repellent and non-stick products such as outdoor clothing, carpeting, upholstery, non-stick cookware, food packaging and other common household products.

Like many communities, Vancouver has been monitoring and testing for these human-made chemicals in our water supply, and here's what we've found.

Spring testing

Earlier this year, we shared the results of PFAS testing with the community. We've recently conducted another round of testing and detected PFAS above the State Action Levels (SAL) for optimal health.

The City's extensive water system has 40 wells located at nine wellfields across the community. The latest testing completed in late May showed that one sample result exceeded the SAL for PFAS contaminants. Those results occurred at one of the City's nine wellfields, Water Station 14 (see table below).

Testing results from late May show only one water station above State Action Levels*

Water Station	PFOS Result	PFOS SAL 15 ppt**
Station 14	18 ppt**	Above

*View all testing results using the QR code at right

** ppt= parts per trillion (1 ppt is equivalent to a single drop of water in 20 Olympic-sized swimming pools)

This does not mean that you will get sick or have health problems when you drink or use the water. Risks accumulate over long-term exposure, and water isn't the only potential source for exposure.

If you are concerned about long-term exposure, part of a sensitive population, pregnant, nursing or have an infant who consumes formula mixed with tap water, you can learn how to reduce PFAS exposure at the Clark County Public Health website.

What we're doing about PFAS

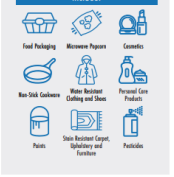
As we work on a PFAS Management Plan, we are taking action by:

- **Evaluating treatment options**: Water quality engineers are testing four different treatments to determine which is the most effective at removing PFAS from our water supply. Results will determine the full-scale treatment system design.
- **Identifying the source**: Engineers and hydrogeologists are using groundwater modeling and sampling to determine potential sources of PFAS and the extent of PFAS in local groundwater.
- **Reducing costs**: The City is pursuing grants and loans to reduce ratepayer impacts. We've already received $12.8 million in funding through the State Revolving Fund program to help finance the first treatment system installation.

Scan the QR code with your phone's camera or visit **cityofvancouver.us/pfas** to learn more about PFAS and view all sampling results.

PFAS do not break down easily and can remain in the environment, including groundwater, for a long time. That's why they're a top concern for water providers across the nation.

Products commonly containing PFAS include:



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PFAS Management Plan

Key Objectives

- Evaluate long-term mitigation alternatives and update cost estimates
- Treatment goals
- Mitigation Implementation Schedule for Compliance
- Interim Measures

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Long-Term Mitigation Alternatives

Challenge at full scale

System not configured to support

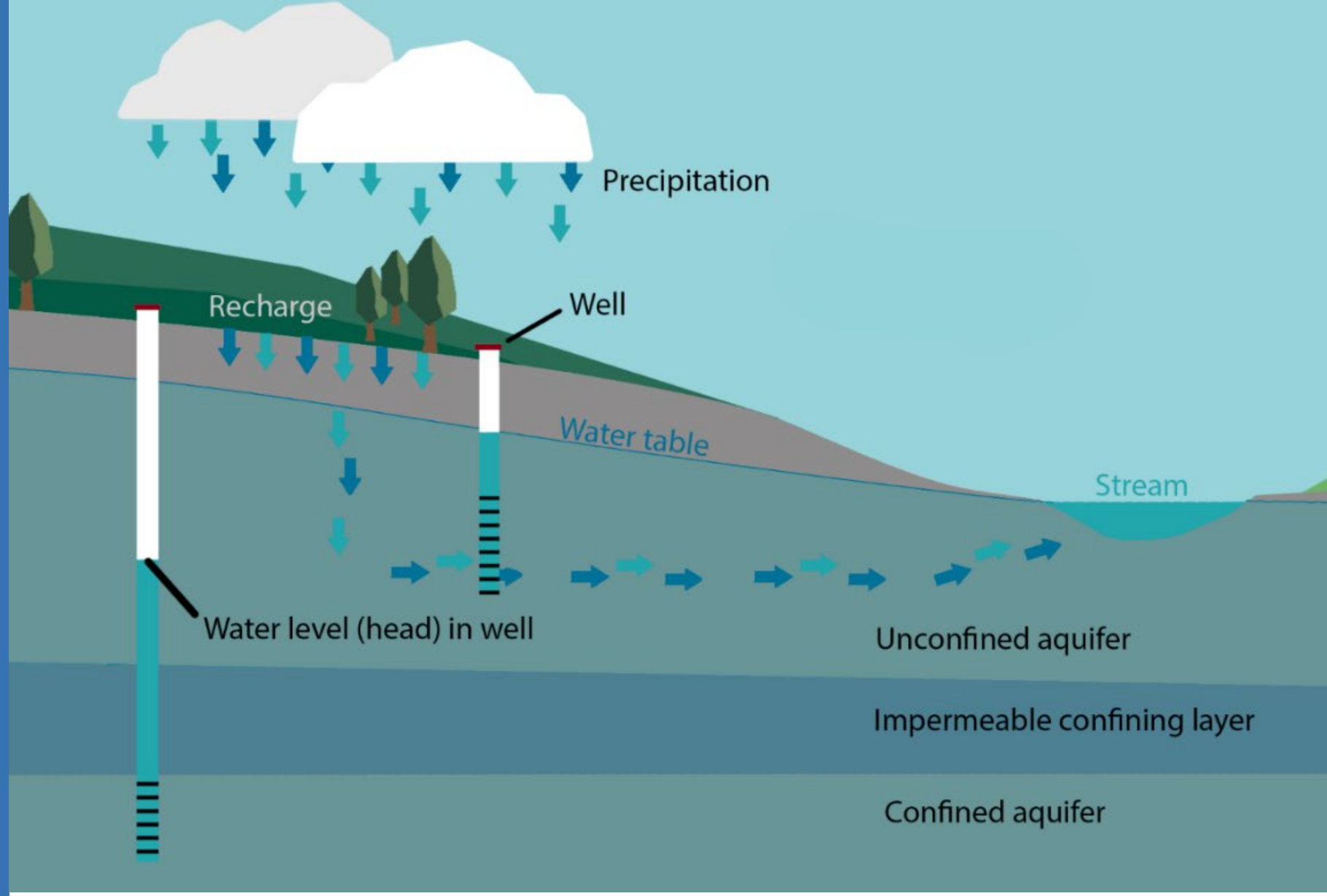
Source treatment for PFAS

- **Granular Activated Carbon**
- **Ion Exchange**

Develop new supply source in deep aquifer

Clark County Aquifers

- Upper aquifer prolific, but higher risk to contamination
- Deep aquifer confined and lower risk



Source: [Land, Air, Water Aotearoa (LAWA) - Groundwater basics]

Mitigation Options

Stay in Upper Aquifer with PFAS Treatment	Develop New Source Deeper Aquifer

• Not only cost-based decision
  • Water availability
  • Time to implement
  • Wells already planned for replacement
• Proposed plan
  • Most sites stay in the upper aquifer and treat to remove PFAS
  • WS 15 – deep aquifer
  • WS 8 – under evaluation	

Treatment Goals

Protect public health including sensitive populations

PFAS Compound	Proposed EPA MCL (ppt)	Proposed Treatment Target Goal (ppt)
PFOA	4	3
PFOS	4	3
PFNA	Hazard Index < 1.0	Hazard Index < 0.75
PFHxS		
PFBS		
GenX		

- Meet Maximum Contaminant Levels
- Ensure Operational Flexibility & Blending
  - Reduces treatment system size, cost
  - WS 1, WS 7

Mitigation Implementation

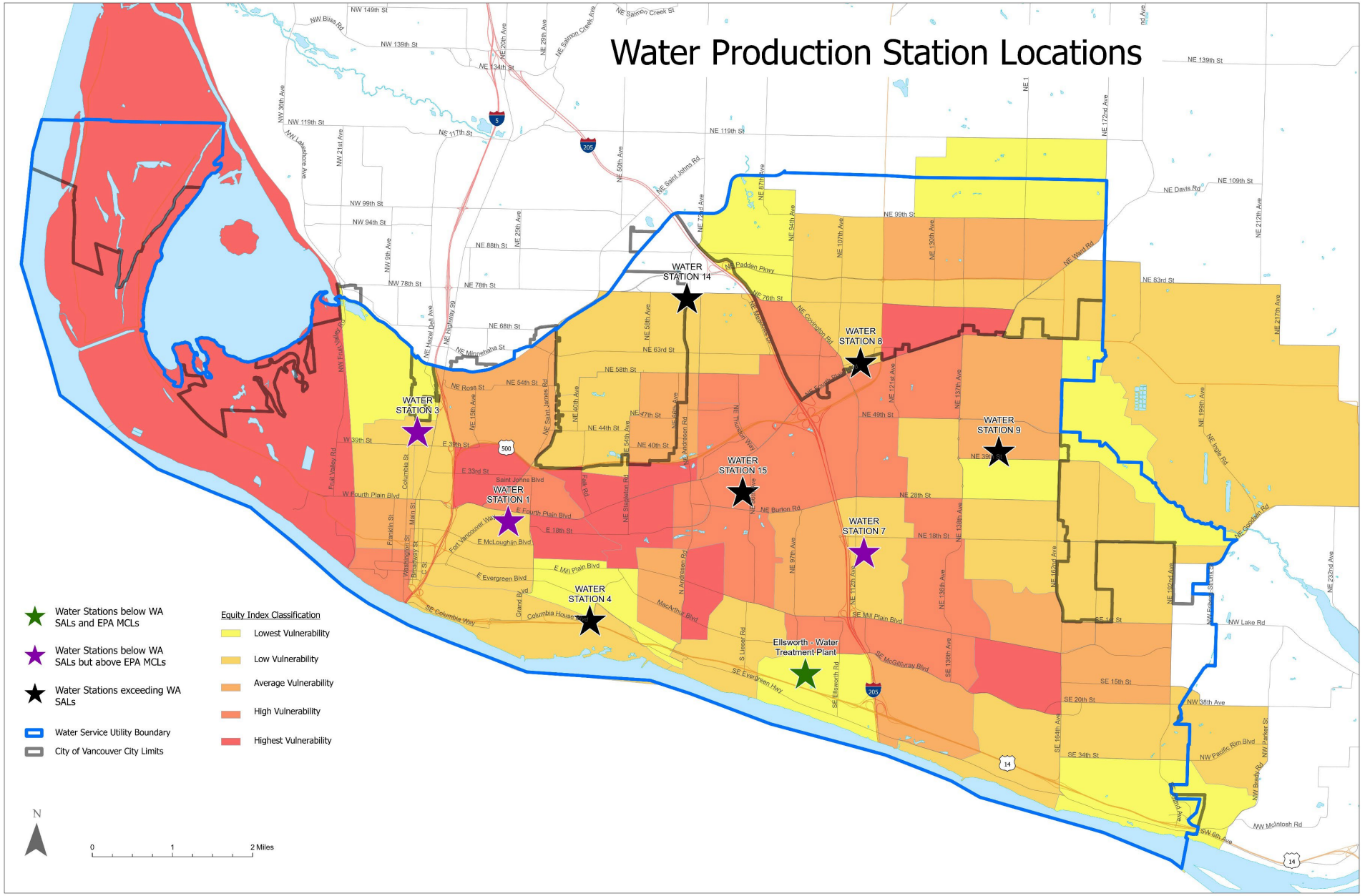
Water Stations Sorted by Average PFOS Levels					
Water Station	Average PFAS (ppt)				
	PFOS	PFOA	PFBS	PFHxS	PFNA
WS14	21.7	13.6	7.1	4.7	ND
WS4	18.8	7.6	4.5	5.7	0.5
WS15	17.4	4.9	5.0	4.7	ND
WS8	16.0	7.3	5.4	3.1	0.6
WS9	13.9	6.5	4.5	3.4	ND
WS3	9.3	3.3	4.3	5.6	ND
WS7	6.2	1.3	1.9	3.4	ND
WS1	4.4	2.7	3.0	4.2	ND
Ellsworth	ND	ND	ND	ND	ND

Order determined by

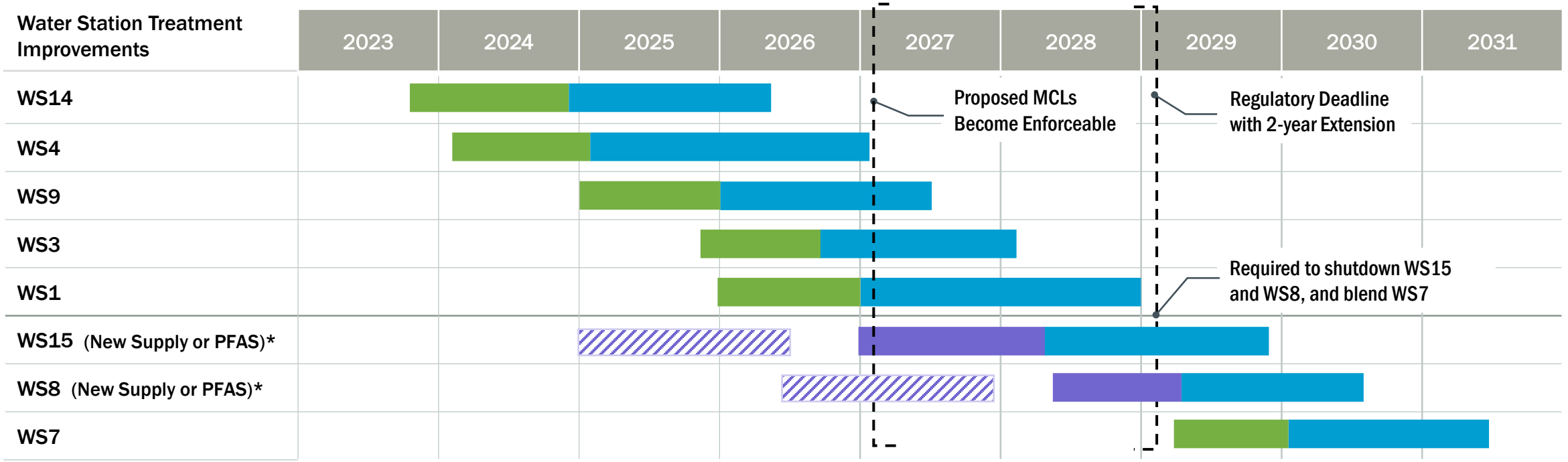
- PFAS concentration
- Loads to distribution
- Balance costs over regulatory implementation period
- Operational considerations
- Impact on vulnerable populations

Table 5-2. Water Stations Sorted by Average Annual PFOS and PFOA Loading						
Water Station	PFOS Average (ng/L)[a]	PFOA Average (ng/L)[a]	Average flow (gpm)	PFOS Load (ppy)[b]	PFOA Load (ppy)[b]	Combined PFOS + PFOA (ppy)[b]
WS9	13.9	6.5	6,090	0.37	0.17	0.54
WS4	18.8	7.6	4,342	0.36	0.14	0.50
WS1	4.4	2.7	10,450	0.20	0.12	0.33
WS14	21.7	13.6	1,716	0.16	0.10	0.27
WS3	9.3	3.3	2,134	0.09	0.03	0.12
WS8	16.0	7.3	755	0.05	0.02	0.08
WS15	17.4	4.9	784	0.06	0.02	0.08
WS7[c]	6.2	1.3	700	0.02	0.00	0.02

Water Production Station Locations



PFAS Mitigation Implementation Schedule



LEGEND: PFAS Treatment Design | Construction | Potential New SGA Well(s) Development | Iron/Manganese Treatment Design or PFAS Treatment Design

– – – Proposed MCL timeline and regulatory deadline is subject to change based on finalization of the National Drinking Water Standard for PFAS.

* Site is a potential candidate for development of a new well supply from the deep aquifer, dependent on on-going water rights evaluation. WS15 is highly likely for SGA development.

Interim Mitigation Options

System-wide

- Shut down sources
- Blending

Customer Specific

- Point of use treatment
- Bottled water
- Rebate program
- Pilot treatment unit
- Water filling station

Interim Mitigation: Three Approaches

Rebate Program

Cost: $3.5M projected (could change if desired)
Customer Participation: Required to apply
Staffing Required: Additional COV staff and time
Sentiment: Empowers customer to decide best option however, may not use for PFAS mitigation; could be difficult for apartments

Pitcher Filters

Cost: $3.5M projected
Customer Participation: Required to apply
Staffing Required: Option to contract with vendor
Sentiment: Effective PFAS reduction with ease of product use

No Action

Cost: No additional
Customer Participation: NA
Staffing Required: None
Sentiment: May perceive negatively due to lack of short-term mitigation

Thank You

Questions

To learn more, visit www.cityofvancouver.us/PFAS

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