



Bull Run TREATMENT PROJECTS

*Our water: Safe and abundant
for generations to come*

Portland Utility Board Q&A October 2019

1. How many days can the groundwater system meet Portland's demand in spring? summer? fall? winter?

Groundwater will currently not meet full system demand during the summer (June-September). In winter (November – March), groundwater could meet full system demand for approximately 30-60 days. Spring and fall demand vary year to year, so the ability to meet the full demand during those months depends on weather and supply conditions in the specific year. Demand (retail and wholesale) has been forecasted out to 2045 for purposes of the Supply System Master Plan. We expect full system demand will be lower in both summer and winter when Tualatin Valley Water District goes off the Bull Run system in 2026.

Groundwater is only used to meet full system demand during periods when the Bull Run supply is not available. Historically, this has occurred during storm-induced turbidity events in the wet season (late fall through early spring) or when the Bull Run conduits were damaged by a flood or landslide (most likely in the winter). Groundwater is also used:

- To partially offload system demand during hot dry summers (also known as supply augmentation)
- To reduce demand from Bull Run to allow for releases from the reservoirs into the lower Bull Run River for threatened fish species
- As an important tool for resiliency to climate change, particularly for responding to lower summer streamflows in Bull Run and for flexibility after a wildfire that changes the quality of water flowing to the filtration plant

2. What are the operating and maintenance costs for groundwater and filtration?

The estimated operating and maintenance cost for just the filtration facility is about \$400 per million gallons, based on preliminary estimates in advance of designing the facility. The operating cost (maintenance costs are not readily available) for the groundwater system is approximately \$600 per million gallons. In addition, both facilities would need ongoing rehabilitation/replacement of equipment and other components. It is important to note that the filtration facility would be expected to operate year-round and to meet the full system demand during the winter and most of the system demand in the summer. The groundwater system would be operated less frequently for emergency supply and would continue to meet a portion of the summer season demand.

3. What are the limitations of relying on the groundwater system?

Volume limitations of groundwater with respect to daily demands were described in the 10/14/19 responses to PUB. As noted in the Potential for Seismic Events document, the groundwater system is expected to experience significant damage from a magnitude 9.0 Cascadia subduction earthquake without investment in additional resilience. Some additional risks that could affect the availability of full groundwater system capacity include:

- Columbia River flood (mitigated by regional levee system)
- Chemical contamination of a supply aquifer in the vicinity of a production well (mitigated through proactive groundwater protection, monitoring and remediation programs)
- Degraded water quality from natural causes such as manganese (could be mitigated by treatment)
- Increased demands from other aquifer users
- Mechanical/power failures (mitigated through proactive maintenance and capital replacement)
- Potential for loss of power (ice storms or brownouts)

4. What is the water treatment process at a filtration facility and what are the benefits of the specific components?

This information was captured in a recent presentation at the October 10 Site Advisory Group meeting. The PowerPoint presentation and the entire meeting can be found on the [Site Advisory Group webpage](#). The 24-minute clip of the presentation focused on the treatment process is available at:

<https://www.youtube.com/watch?v=K5gwJsIKzH0&feature=youtu.be>. More information about Ozone is also available at: www.portlandoregon.gov/water/article/744875

5. What are the demographics of the nearby neighbors in terms of languages spoken at home, income, age, race, ethnicity? This information is to help answer the question: Are there communities who live nearby the filtration plant that we, the PUB, are not hearing from and how might they be impacted?

Please see separate data for the [Census tract](#) where the project site is located.

6. How many people will be impacted by eminent domain?

PWB will need to acquire easements or property in fee from some property owners to allow pipeline construction and long-term operations and maintenance. Until the scope of the pipeline work has been determined and design has begun (scheduled for summer 2020), it's not possible to provide a precise estimate of the number of affected property owners. However, we expect at this time that easement acquisitions could be on the order of 20-30 parcels.

The City Council has authorized the use of eminent domain related to scores of property and easement acquisitions, but in the last twenty years, it has only needed to initiate

condemnation twice. We are hopeful that the City's practice of appraising and fairly compensating property owners for the value of easements will preclude the need for eminent domain.

7. Is a fully redundant system of two pipes necessary? Could there be significant cost savings from having only a partially redundant system?

PWB has relied on multiple pipelines as a key resilience strategy to provide reliable service even when a pipeline is down - either due to an emergency or for planned inspection and maintenance. While building a second pipeline in the future is a viable alternative, it will cost more to re-mobilize teams for planning, permitting, design, construction, and management and will bring additional disturbance to the community.

The construction costs for the options shared with Council and PUB are below:

Option	Cost	Description
Minimum Compliance	\$71M	single pipelines in/out on shortest routes
Phased Implementation	\$120M	two pipelines in (except in tunnel)/single long pipeline out
Full Implementation	\$178M	two pipelines in and out on longer routes

8. What information was presented to City Council regarding values and the risks to community?

Please see separate memos on the risks of harmful [algal blooms](#), [wildfire](#), and [seismic activity](#).

9. What outreach has been completed so far:

The outreach schedule is available at <https://www.portlandoregon.gov/water/article/738331>

10. Is any information available about plans and/or touch points that would engage around environmental impacts such as through land use process?

PWB will obtain all required land use and environmental permits from Multnomah and Clackamas County, the State of Oregon, and the Federal government. As part of this process, we will be meeting with representatives from various agencies and conducting applicable studies. The construction of the project work will be done in accordance with all resulting permit conditions. In addition, PWB staff have contacted the following organizations to better understand their potential concerns: Johnson Creek Watershed Council, Sandy River Watershed Council, and East Multnomah Soil and Water Conservation District.

11. Is there any information regarding increased traffic and trip analysis?

We have initiated a traffic impact analysis of the post-construction traffic generated by the new filtration facility that will be available in early 2020. As part of the Site Advisory Group

process we are conducting with local neighbors and stakeholder agencies through 2020, we will also be studying construction-related traffic impacts.

12. How long would the ground water system water supply last in a major event?

Some extended groundwater-use modeling has been done for the Supply System Master Plan. As part of this, PWB modeled a “wildfire scenario” where the groundwater system was operated at 68 million gallons per day (mgd), the 2045 winter average demand projection, during winter/spring and at a summer/fall rate similar to 2015 operations for three consecutive years. Under these scenarios, the aquifer system can sustain these levels of withdrawal. However, the combination of (1) significantly greater regional interference (from other draws on the aquifer) and (2) incomplete recovery between supply events does increase the number of wells that are vulnerable to interrupted pumping because drawdowns approach the Low-Level Cut Offs (LLCOs). PWB has never operated the groundwater system at full capacity for longer than 32 days.

The findings above relate primarily to the capacity of aquifers feeding the CSSWF wells and not necessarily the reliability of the groundwater infrastructure. Currently for the Seasonal Supply Plan, which assumes sustained mechanical reliability for 22 of 25 wells and no shut-offs due to LLCOs, groundwater capacity is rated as:

- 81 mgd for less than 30 days operation
- 73 mgd for 30 to 90 days of operation
- 65 mgd for more than 90 days of operation

13. What is the businesses and economic impacts of a water service disruption – is that data in a form that could be helpful for this conversation?

See attached memo from ECONorthwest, “[Economic Effects of a 2-day and 2-week Boil Water Notice](#)”.

14. Is there any data/report regarding Salem algae issues?

Please see the following articles about the Salem water crisis and its aftermath:

<https://www.npr.org/2018/09/03/641606668/as-climate-warms-algae-blooms-in-drinking-water-supplies>

<https://www.statesmanjournal.com/story/news/2019/05/15/salem-water-crisis-defence-algae-bloom-cyanotoxins-drinking-water/1120319001/>

15. How can someone get notice of public meetings on the Bull Run Treatment Projects?

Individuals can sign up to be notified of meetings and project updates by email at:

<https://portlandoregon.us7.list-manage.com/subscribe?u=a3da13f52bdf252c7be416927&id=2391d9cf33>

16. What City Council actions are coming up next?

PWB must bring the Filtration Facility design contract to Council as soon as possible to keep the schedule in the Bilateral Compliance Agreement. To start work January 2, the latest the first reading for the design contract could occur is November 27. The Treatment Projects

will require other council actions. Foreseeable at this point are authorization for purchase of property for pipe alignment, spring 2020 CM/GC PTE contract, summer 2020 pipeline design contract.