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AGENDA ITEM 1046 & 1047 TESTIMONY REGULAR AGENDA

Adopt a set of priority values, expectations, and the Recommended Option to guide the design and implementation of the City of Portland's Bull Run Filtration Projects

If you wish to speak to Council, please print your name, address and email

	Name (PRINT)	Address and Zip Code (*Optional*)	Email (*Optional*)
✓ 31	Jeff KNAPP		
✓ 32	ELIZA LINDSAY (Staff) on behalf of Portland Utility Board		
✓ 33	SCOTT FERNANDEZ		
34	Majgi		
35	~~Leanne~~		
✓ 36	LAUREN COURTER		
✓ 37	CAROL BARTHA		
✓ 38	BRENT LEATHERS		
✓ 39	LINDA LEATHERS		
✓ 40	~~Dee White~~		

Date 11-13-2019

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37460

AGENDA ITEM 1046 **TESTIMONY** **REGULAR AGENDA**

Adopt a set of priority values, expectations, and the Recommended Option to guide the design and implementation of the City of Portland's Bull Run Filtration Projects

If you wish to speak to Council, please print your name, address and email

	Name (PRINT)	Address and Zip Code (*Optional*)	Email (*Optional*)
✓11	Floy Jones	97215	
✓12	Pat Meyer ←	Dee Whitesa (read on behalf of)	
13	John Edmondson		

Date 11-13-2019

Bull Run TREATMENT PROJECTS | **Bull Run Filtration**

Meeting Q&A

Nov. 13 City Council Meeting
Implementation Resolution

1. **What is a Confidence Rating and how does it work? When will we have better accuracy range on cost estimates?**
   - Cost estimates in the early stages of all City projects use a Project Estimate Confidence Level Rating Index whenever Council approval is necessary before the project scope and specifications are fully known. Identifying a specific level of confidence on project estimates helps to better reflect the uncertainties that go with various levels of project development.

   - When the design and engineering phase is less than 50% complete, the term "low confidence estimate" is used and project contingencies (including project management, design, engineering, plus construction) may range up to or exceed 50%.

   - As the project scope and specifications become more defined, total project contingencies are reduced, and the range of project costs narrows. Project estimate contingencies are 10%-15% when the project reaches 90% or greater completion of the design and engineering phase.

   - It is normal to have a low confidence estimate at the beginning of a major construction project, before the project has been designed. The first estimates given to Council for the Powell Butte Reservoir and later the Kelly Butte Reservoir were both low confidence.

   - The Water Bureau is nearing completion of the planning phase of the project, which includes a full year of engineering studies, investigations, analyses, workshops, and tours of other cities' water treatment facilities. The purpose of this work is to determine the right scope of the project, consistent with Water Bureau and customer values, and to serve as a basis for the first substantive cost estimate as well as the beginning of the design phase. The resulting recommendations and estimate are before the Council for consideration and direction.

   - The Confidence Level Rating Index applies to estimates during planning and design. The design contract for the Bull Run Treatment Project includes a not-to-exceed maximum ceiling, this portion of the project total will be fixed and not subject to future escalations. The construction contract will have a guaranteed maximum price, coming in 2022, at which point all project costs will be known.

   - Resources:
     - ADM-1.13 - Assigning Confidence Ratings to Project Cost Estimates
     - Resolution No. 36430, adopted by City Council July 26, 2006, link to the efiles archive

2. **Why has the cost changed so dramatically from 2017?**

   - The original range provided in 2017 was based on the best information obtained from other communities that had built plants in the recent past.

   - When the Oregon Health Authority (OHA) revoked the variance from treatment the Water Bureau did not have an existing planning study nor time to prepare a planning study on which to base a more detailed estimate. Filtration technology, site location, and capacity of the facility had not been evaluated at the time.

   - In 2018, evaluations of technology, site, and capacity were completed and confirmed by the Council. In 2019, more detailed planning work was completed to develop the project options and costs.

   - The Portland construction market continues to be very busy with many projects paying a premium for labor; this is reflected in the updated costs.

3. **What is the difference between UV and Filtration? What alternatives does the City have to comply? Pros and cons?**

   - UV, or ultraviolet light, is a disinfection technique with a single purpose: to inactivate micro-organisms in water such as *Cryptosporidium*. After UV treatment, the micro-organism is still in the water but is no longer infectious. Filtration works by removing *Cryptosporidium* and other micro-organisms from the drinking water.

   - UV and filtration were presented to City Council as options to comply with the Long Term 2 Enhanced Surface Water Treatment Rule, in 2017. The comparison evaluated costs and benefits of the two options to comply with state and federal water quality rule. Estimates included $105M for UV and $500M for filtration. Both estimates were based on earlier plans and comparisons to what other utilities have spent.

   - Filtration, in addition to removing Cryptosporidium, provides many other significant water quality benefits: provides best pathogen protection, reduces disinfection byproducts, addresses high turbidity events (fire or storms), helps address algae concerns, keeps sediment out of the distribution system, reduces reliance on groundwater, and better prepares us to addresses future regulations or emerging contaminants.

   - These benefits were the reasons for selecting filtration in 2017 and they are still valid today.

   - The Portland Water Bureau is required to have the Bull Run Filtration Facility online by September 2027 as part of the bilateral compliance agreement with the OHA.

   - Ozone and chlorine dioxide had been evaluated as stand-alone treatments for C*ryptosporidium*.

- Ozone was considered in the past as a stand-alone *Cryptosporidium* treatment but would require very high doses in the cold water from Bull Run to meet the required disinfection credit.

- Chlorine dioxide has been evaluated in the past as an alternative for *Cryptosporidium* inactivation. The required contact times for cold water cannot be achieved without exceeding disinfection byproducts rules for chlorite and would require huge amounts of storage to be constructed.

4. How does this facility compare to others around the country?

- The recommended option will address many types of risks and contaminants including harmful algal blooms. The recommended option includes ozone, flocculation, sedimentation, and filtration to achieve this goal.

- Salem had an algal event in 2018. They have a slow sand filtration plant. Slow sand filtration systems are cleaned manually, and the algae event clogged the filters requiring continuous cleaning. Slow sand filtration does not provide a good barrier against algal toxins and therefore they were not sufficiently removed. Salem is now adding ozone ahead of their filter to deal with the algal toxins and improve filtration performance.

- Resources:
    - See attached list of what other utilities with unfiltered supplies have done to comply with LT2.

5. What is being done to address the reliability of the rest of our system (both in town and between watershed and town)?

- The Water Bureau is continuously enhancing the resilience of its system. Many projects that are part of the planned capital program work toward this goal.

- The Water Bureau has been investing in seismic improvements to meet the goals of the Oregon Resilience Plan. This work will continue as the filtration facility is built.

- Pipes have been damaged and taken out of service by landslides. In 1996, two pipes near headworks were damaged by a landslide. These pipes had to be shut down while repairs were completed. Water continued to town in the third pipe.

- This project includes replacement of some vulnerable pipe segments.

6. What is the difference between using consultants on this project vs. internal staff?

- Consultants are needed for two reasons: 1) since the Water Bureau does not have a filtration facility now, internal expertise is limited; 2) the Water Bureau does not have enough employees to design a project of this size; since this is a one-time project it is most efficient to hire consultants.

- Design costs are similar for all the filtration facility options. The number and type of processes are similar in all the treatment options and it is the number and type of processes that drive costs, not size. The smaller facilities still require the same number of plan sheets and specifications as a larger facility.

7. What is PWB doing to reduce the rate impacts?

- Applying for low interest loan from the Environmental Protection Agency through the Water Infrastructure Financing and Innovation Act (WIFIA).
- Enhancing low income assistance programs.
- Delaying other projects to smooth rate impacts.
- Looking at planning and design opportunities, such as decreasing the capacity from 160 mgd to 145 mgd, throughout for cost savings opportunities.
- The projected typical residential monthly water bills over time:

Water Bill Increase	FY20-21	FY21-22	FY22-23	FY23-24	FY24-25	FY25-26	FY26-27	FY27-28
Current Forecasted Water Bill	45.76	49.70	53.97	58.62	63.66	69.13	75.08	81.53
***Recommended Option Increase**	0.51	1.09	1.77	2.55	3.44	4.46	5.62	6.93
Total Estimated Water Bill	$ 46.27	$ 50.79	$ 55.74	$ 61.17	$ 67.10	$ 73.59	$ 80.70	$ 88.46

- The projected extreme low-income residential monthly water bills over time:

Water Bill Increase	FY20-21	FY21-22	FY22-23	FY23-24	FY24-25	FY25-26	FY26-27	FY27-28
Current Forecasted Water Bill	9.15	9.94	10.79	11.72	12.73	13.83	15.02	16.31
***Recommended Option Increase**	0.1	0.22	0.35	0.51	0.69	0.89	1.12	1.39
Total Estimated Water Bill	$9.25	$10.16	$11.14	$12.23	$13.42	$14.72	$16.14	$17.70

**Recommended Option Increase (after absorbing 25% per Mayor's budget directive*

8. What are the benefits of doing the Recommended Option now compared to the Minimum Compliance option?

- Ozone improves filtration resilience to and recovery from forest fires, turbidity, algal toxins, and other water quality events.

- Longer finished water pipes replace aging infrastructure.
- Longer raw water pipes ensure adequate gravity flow through the facility.
- Two finished water and raw water pipes enhance resilience against something happening to one pipe and allow one pipe to be taken out of service for maintenance.
- Completing all the work at one time is the lowest cost option. To come back and add to or update an operating facility later increases costs and complexity.
- Phasing the project over a longer period has a much greater impact in the neighborhood.

9. How will this project include DMWESB contracting opportunities?

- This project will have a Community Benefits Agreement to support creating opportunities for DMWESB firms on the construction of the filtration facility and pipelines.
- The professional services contracts are working to achieve the City's aspirational goals. The Program Management consultant has committed to achieve 23% participation. The Design consultant has committed to achieve 20% participation.
- The Water Bureau is achieving, on average, 22% participation across all projects.

10. Why the change from a capacity of 160 to 145 million gallons per day (mgd)?

- It has been part of our process to find opportunities to save costs and reduce rate impacts.
- The Water Bureau evaluated future demand projections in 2017, this forecast looked at 20-year projections for demand.
- These demand projections were used to evaluate the size of a filtration facility and determined that a peak day capacity range of 145 mgd to 160 mgd would meet these future projections.
- During the September 2019 Council work session, three options were presented, two that included 145 mgd and one at 160 mgd.
- Building to the lower end of the range provides the best balance of capacity and cost benefit.

11. What chemicals or other treatment processes will be used at the filtration facility and why?

- Chlorine will continue to be used. Chlorine is a proven, widely used, strong disinfectant that is very effective at removing viruses and many pathogens (but not Cryptosporidium) and can do so relatively quickly, meaning smaller contact basins are needed.
- Ammonia will continue to be used. Ammonia is added to form chloramines which help maintain a chlorine residual longer as water travels through PWB's distribution system to keep the water safely disinfected. This has been done since the 1930s.
- Ozone as proposed is not a redundant treatment process to filtration. Ozone is included in the Recommended Option for its proven benefits to oxidize organics (including those released post-forest fire) which reduces disinfection byproducts and improves taste and odor. Ozone also improves filtration performance, reduces overall chemical use, and addresses algal toxins.
- Metal salts (based on aluminum or iron) and polymers are widely used in drinking water treatment to promote coagulation and flocculation, which allows very small particles to come together so they can be removed by sedimentation and filtration. All chemicals used in water treatment are regulated by EPA and OHA, which reference the NSF International (formerly National Sanitation Foundation) Standard 60 (Drinking Water Treatment Chemicals – Health Effects), including maximum allowable doses and limits in the finished water.
- Municipal drinking water residual solids are not hazardous waste. Solids are typically sent to non-hazardous landfills where they are used as daily cover or incorporated in a beneficial use program.

12. What is the status and purpose of the Site Advisory Group?

- The Site Advisory Group was started in October 2019 to help develop a Bull Run Filtration Good Neighbor Agreement by providing an independent community perspective on the facility design, construction, and ongoing operation.
- In November 2019, eight of the 16 Site Advisory Group members sent a letter to the Portland Water Bureau and City leadership stating they would no longer participate in the process. Prior to their departure, the Portland Water Bureau opened membership to other community members that may be interested. The remaining Advisors will evaluate new membership at their January meeting.
- The Water Bureau is committed to keeping site neighbors informed and involved throughout the project and will continue the monthly Site Advisory Group meetings as information-sharing opportunities if a formal Good Neighbor Agreement can't be reached.

13. When were neighbors contacted about this project?

- Adjacent neighbors received a letter in January 2018 informing them that a site selection process was underway. In October 2018, a newsletter mailer on the project, timeline, and an invite to attend the November 2018 community forum was sent to adjacent neighbors with encouragement to notify other interested community members.

- On November 8, 2018, the Water Bureau hosted a community forum with Commissioner Amanda Fritz, Water Bureau staff, and community partners followed by a small information session on November 30, to dive deeper into the details with adjacent neighbors. Nearly all adjacent neighbors attended.

- Outreach and communication efforts have highlighted various project milestones, beginning in early 2018 and increasing throughout the end of 2018 and this year. We acknowledge we could have done more with initial outreach, and we have worked hard to increase communication with community members. This is reflected in our long timeline of outreach and communications activities since August 2018.

14. What actions has the City/PWB taken so far to exercise eminent domain?

- No actions have been taken to exercise eminent domain related to the filtration facility.

- To date the Water Bureau has only worked with willing sellers.

- Eminent domain actions may be needed in the future along pipeline routes. The Water Bureau is working to first evaluate options in public rights-of-way and easements. However, additional easement acquisition may be needed and City Council will decide whether to authorize eminent domain, as is done for other City projects.

- The Water Bureau expects to determine pipeline corridors in 2020 and final alignments and additional property needs in 2021.

15. What does PWB plan to do if private property is damaged in project activities?

- Property owners will be compensated for damage caused by the Water Bureau or their contractors.

- The Water Bureau continues to work with the family referenced in the Oregonian article and as indicated by the family in the article, there is a positive working relationship to resolve this issue.

16. What is the burden to rate-payers if wholesalers do not renew contracts with the Water Bureau?

- We want to retain our wholesale customers and value our relationship with them. We are starting discussion with a group of wholesale customers on the next contracts. We would like to offer a menu of services, including being their suppliers in an emergency.

- At this time only Tualatin Valley Water District (TVWD) has given us clear indication that they are departing and forecasted rates include the impact of anticipating their departure June 2026.

- Wholesaler revenue currently makes up 10 percent of water sales revenue. With TVWD's departure, wholesaler revenue will only make up 6 to 7 percent of water sale revenue. If other wholesalers were to depart, the financial impact would be manageable.

- According to the PSU Population Center, between 2010 and 2035, Portland is projected to add approximately 231,0001 new residents (110,148 households) to the roughly 620,000 people who live here. This project will ensure safe and abundant water for Portlanders for generations to come.

17. Can the Water Bureau obtain required land use permits for the project at this site?

- Applicable land use codes allow the proposed use as a conditional use upon a showing that the project meets the approval criteria, which generally relate to consistency with the area and imposing conditions of approval related to any construction and operational impacts on surrounding areas, primarily focused on impacts such as: noise, odor, traffic, visual, and farm operational impacts, if any.

- The proposed facility, once constructed, will not generate noise above County noise standards, will not generate any significant odors, will have insignificant traffic impacts, and will be designed with site grading, screening, landscaping, and architecture to fit within the rural area. The conditions imposed will ensure best practices are used to mitigate any identified impacts during construction and operation of the facility.

- The Portland Water Bureau is committed to implementing best practices to limit impacts and are working with the local community on a Good Neighbor Agreement and other measures to address them. Because the external impacts of the proposed facility are minimal, we believe the proposed use and development will be approved under the county land use codes.

18. Is the site selection still valid?

- Six potential sites for the filtration facility were evaluated in 2017-18 using siting criteria that included: works for gravity flow; reasonably close to existing and future pipelines; adequate area, reasonable slopes, and suitable geologic conditions; already owned by the City of Portland; and ability to meet the compliance schedule. The Carpenter Lane property was selected for the new filtration facility site because it was the only property that met all siting criteria.

- The Portland Water Bureau purchased the Carpenter Lane site in 1975 to use for future water system facilities. The analysis can be found in the Bull Run Filtration Project Preferred Alternatives Report.

McClymont, Keelan

37460

From: Jeff Knapp <jeffkn@designlab62.com>
Sent: Wednesday, November 27, 2019 7:55 AM
To: Council Clerk – Testimony
Subject: Written testimony for Agenda items 1093 and 1094 Water filtration
Attachments: Observations of a concerned Citizen 20191127.pdf

Dear Council Clerk,

Can you please add this material to the testimony for the Water filtration items 1093 and 1094?

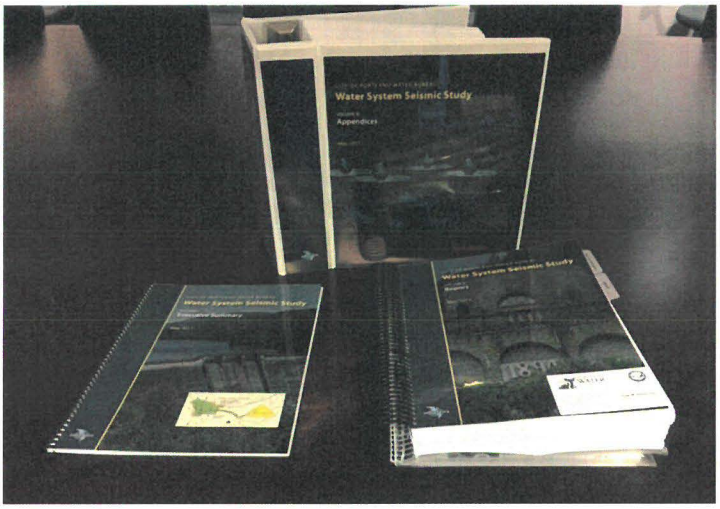
Thanks,

Jeff Knapp

Observations of a concerned Citizen

Seismic

2017 Water System Seismic Study



Executive Summary

City of Portland Water Bureau

Water System Seismic Study

Volume 1

Prepared by:
InfraTerra, Inc.
Date: May 2017

InfraTerra

Seismic Executive Summary (pgs E13-E14)

What this means:

Filtration plant budget includes money for replacing section of very low risk conduits but has no funds for the CRITICAL pipelines that are 100% going to break.

ES5.1 CONDUITS

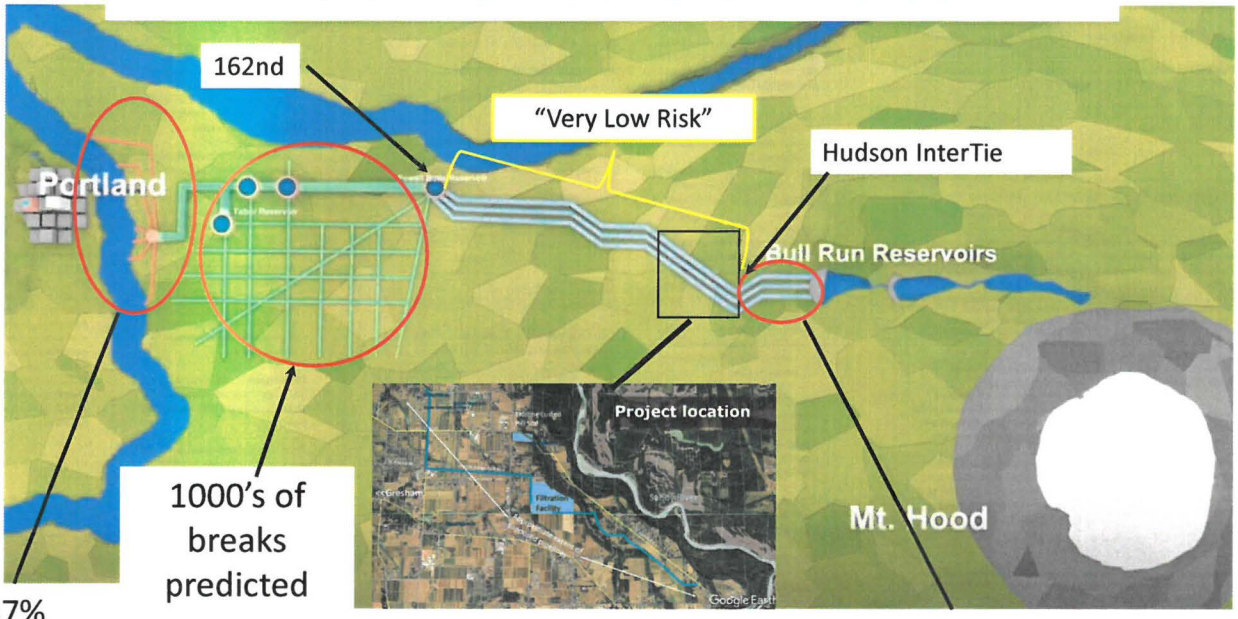
At least 14 historic landslides have occurred in the vicinity of the conduit alignments, and reactivation of ancient landslides is a major hazard that impacts all three

... procedures, and PGA was used to perform Monte Carlo simulation with 10,000 iterations to compute the overall failure probabilities of the conduits. These results show that there is nearly a 100 percent probability of 10 or more failures for each conduit between Headworks and Hudson. However, the risk of earthquake-induced damage from Hudson to the 162nd Avenue Intertie is very low.

ES5.3 WILLAMETTE RIVER CROSSINGS

All of the existing Willamette River crossings would be subjected to excessive lateral spread displacements (on the order of 5 to 10 feet) in the M_w 9.0 CSZ earthquake. Structural analysis of the river crossings show that there is an 87 percent probability of all five existing pipeline crossings failing in the M_w 9.0 CSZ earthquake. The probability is even higher for the failure of each individual pipeline crossing.

Seismic Vulnerabilities



87% Probability All 5 fail

1000's of breaks predicted

~$200 Million to replace a section within "very low risk" conduits

100% Probability All 3 fail in 10 or more places

Rates & Costs

Water Bureaus Own Data...

Bull Run TREATMENT PROJECTS

Bull Run Filtration

The Bull Run Filtration Project will remove *Cryptosporidium* and other contaminants from the Bull Run water supply, producing cleaner, safer water for the nearly one million people who use our water today and for future generations. The project is required by the federal Safe Drinking Water Act and must be completed by September 30, 2027, per a bilateral compliance agreement with the Oregon Health Authority.

Learn More

Visit
portlandoregon.gov/bullrunprojects

Contact
Ibrita Oswald
Portland Water Bureau
Project Communications
503-865-6039
bullrunproject@portlandoregon.gov

Updated: Nov. 15, 2019

Bull Run Filtration Projects Implementation Resolution

At the Nov. 13 Portland City Council Meeting, the Portland Water Bureau (PWB) presented a Resolution to City Council to adopt a set of priority values, expectations, and the Recommended Option to guide the design and implementation of the City of Portland's Bull Run Filtration Projects.

- Between 2012 and 2017 PWB operated under a unique variance for *Cryptosporidium* regulations.
- After multiple *Cryptosporidium* detections between January – May 2017, the Oregon Health Authority (OHA) notified PWB they would be revoking the variance.
- In August 2017 PWB presented treatment options, including comparative costs, to City Council.
- City Council selected filtration to treat the Bull Run Water supply (Resolution No. 37309) to comply with the Oregon Health Authority order to treat for *Cryptosporidium*.
- A Bilateral Compliance Agreement with OHA was signed in December 2017 which included a schedule for the filtration facility to be in operation by September 2027.
- In December of 2018, City Council approved Resolution 37402 acknowledging granular media as the filtration technology, with a capacity of 145 to 160 million gallons per day (mgd), and site located in east Multnomah county.
- After extensive planning work, PWB presented a range of options and cost estimates, from minimum compliance to full implementation, at a September City Council work session.

The City of Portland is committed to providing meaningful access. To request translation, interpretation, modifications, accommodations, or other auxiliary aids or services, contact 503-865-6039.

- The Resolution presented at the Nov. 13, 2019 City Council meeting included a Recommended Option that will provide PWB further direction on how to proceed with the Filtration Projects.
- The Recommended Option included:
  - **Target capacity of 145mgd** to meet most projected peak day demands through 2045
  - **Conventional treatment** including flocculation, sedimentation, and filtration to best handle turbidity events
  - **Ozone** for enhanced water quality and protection from a wide range of current and future risks
  - **Clearwell (on-site water storage) sized for operational flexibility**
  - **Two pipelines into and out of the filtration facility** to maximize gravity flow, reduce future impacts to the filtration facility neighborhood, and provide a more resilient, easier to maintain system
- The difference between the Recommended Option and Full Implementation (presented at the September 2019 Council work session) is capacity – reducing the size by 15mgd and the cost estimate by $30 million.
- City Council will continue discussions about the resolution at the Nov. 20, 2019 Council meeting.
- sign up to be notified by email about project updates including meetings and events at: www.portlandoregon.gov/water/BRTPnews
- The cost estimate for the Recommended Option is $820 million.
- PWB is smoothing the rate impact of this project over the next 8 years – gradually increasing each year to avoid rate spikes.
- The projected typical residential monthly water bills over time:

Water Bill Increase	FY20-21		FY27-28
Current Forecasted Water Bill	$ 45.76		$ 81.53
Recommended Option Increase	$ 0.51	Gradually increasing to	$ 6.93
Total Estimated Water Bill	$ 46.27		$ 88.46

- The projected extreme low-income residential monthly water bills over time:

Water Bill Increase	FY20-21		FY27-28
Current Forecasted Water Bill	$ 9.15		$ 16.31
Recommended Option Increase	$ 0.10	Gradually increasing to	$ 1.39
Total Estimated Water Bill	$9.25		$17.70

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- We have a robust and expanded financial assistance program to be responsive to our community's needs including:
  - A dedicated financial assistance service team to provide customer service, data gathering, and analysis. Increase face-to-face outreach with the communities we serve.
  - Recently expanded income qualifications, and greater discounts are available for people experiencing extreme poverty.
  - Increased the amount on the crisis vouchers to help a household get through an unexpected financial crisis that can disrupt any household budget.
  - Up to $500 assistance annually to income-qualified customers living in multi-family dwellings at risk of eviction, administered through Home Forward's rental assistance program because utility bills are already included in rent.
- PWB continues to seek efficiencies in bureau operations and programs and explore financing options to manage rate impacts.
- The recommended filtration facility will provide multiple barriers for potential contaminants including microorganism *Cryptosporidium*.
- Decisions on the Bull Run Treatment Program are guided by community values established through community engagement.
- Interviews with stakeholder groups, focus groups, statistically significant telephone surveys, online surveys completed by more than 1,800 water customers, open houses, and community forums. More than 183,000 people were reached through social media during the values engagement process and feedback continues to inform the program.
- Top community values include:
  - WATER QUALITY - Provide safe, reliable, drinking water to a large population in the metropolitan area.
  - RESILIENCE - Advance the Water Bureau's ongoing efforts to provide a more resilient system.
  - COMMUNITY & ENVIRONMENT - Implement the project in a manner that is sensitive to community and environmental impacts.
  - COST & VALUE - Provide best value for customers

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Skyrocketing Rates

Source: Portland Water Bureau Nov 15, 2019

Water Bill Increase	FY20-21		FY27-28
Current Forecasted Water Bill	$ 45.76		$ 81.53
Recommended Option Increase	$ 0.51	Gradually increasing to	$ 6.93
Total Estimated Water Bill	$ 46.27		$ 88.46

8.5% yr/yr is gradually?!

$506/yr = 91%!

→ = +8.5% per year

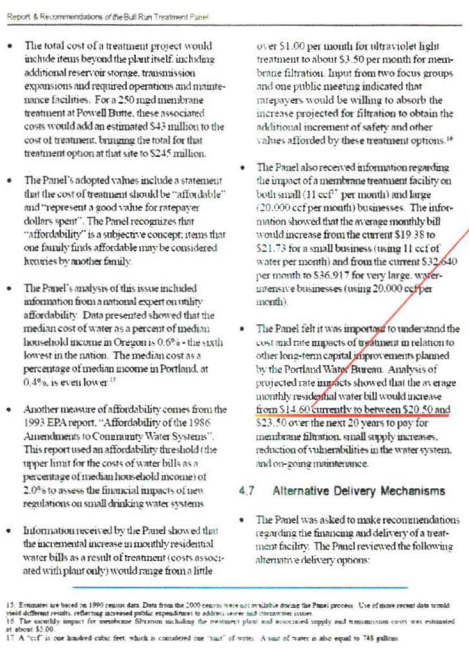
Inflation is ~2%/yr

Doesn't even include:

- **Effects from loss of some wholesale customers (40% of the base)**
- **Costs increasing beyond $820M (Possible 50%)**

= High probability rates are higher than this estimate

Rates already more than 2X predicted



Report & Recommendations of the Bull Run Treatment Panel

- The total cost of a treatment project would include items beyond the plant itself, including additional reservoir storage, transmission expansions and required operations and maintenance facilities. For a 250 mgd membrane treatment at Powell Butte, these associated costs would add an estimated $43 million to the cost of treatment, bringing the total for that treatment option at that site to $245 million.
- The Panel's adopted values include a statement that the cost of treatment should be "affordable" and "represent a good value for ratepayer dollars spent". The Panel recognizes that "affordability" is a subjective concept; items that one family finds affordable may be considered luxuries by another family.
- The Panel's analysis of this issue included information from a national expert on utility affordability. Data presented showed that the median cost of water as a percent of median household income in Oregon is 0.6% - the sixth lowest in the nation. The median cost as a percentage of median income in Portland, at 0.4%, is even lower.[15]
- Another measure of affordability comes from the 1993 EPA report, "Affordability of the 1986 Amendments to Community Water Systems". This report used an affordability threshold (the upper limit for the costs of water bills as a percentage of median household income) of 2.0% to assess the financial impacts of new regulations on small drinking water systems.
- Information received by the Panel showed that the incremental increase in monthly residential water bills as a result of treatment (costs associated with plant only) would range from a little over $1.00 per month for ultraviolet light treatment to about $3.50 per month for membrane filtration. Input from two focus groups and one public meeting indicated that ratepayers would be willing to absorb the increase projected for filtration to obtain the additional increment of safety and other values afforded by these treatment options.[16]
- The Panel also received information regarding the impact of a membrane treatment facility on both small (11 ccf[17] per month) and large (20,000 ccf per month) businesses. The information showed that the average monthly bill would increase from the current $19.38 to $21.73 for a small business (using 11 ccf of water per month) and from the current $32,640 per month to $36,917 for very large, water-intensive businesses (using 20,000 ccf per month).
- The Panel felt it was important to understand the cost and rate impacts of treatment in relation to other long-term capital improvements planned by the Portland Water Bureau. Analysis of projected rate impacts showed that the average monthly residential water bill would increase from $14.60 currently to between $20.50 and $23.50 over the next 20 years to pay for membrane filtration, small supply increases, reduction of vulnerabilities in the water system, and on-going maintenance.

4.7 Alternative Delivery Mechanisms

- The Panel was asked to make recommendations regarding the financing and delivery of a treatment facility. The Panel reviewed the following alternative delivery options:

15. Estimates are based on 1990 census data. Data from the 2000 census were not available during the Panel process. Use of more recent data would yield different results, reflecting increased public expenditures to address income and conservation issues.
16. The monthly impact for membrane filtration including the treatment plant and associated supply and transmission costs was estimated at about $2.00.
17. A "ccf" is one hundred cubic feet, which is considered one "unit" of water. A unit of water is also equal to 748 gallons.

PG 232, cost in 2002 $14.60

Avg	Year	Actual 6.2%	What Inflation would Predict 2.0%
$14.60	2002	$15.51	$14.89
	2003	$16.47	$15.19
	2004	$17.49	$15.49
	2005	$18.57	$15.80
	2006	$19.72	$16.12
	2007	$20.95	$16.44
	2008	$22.24	$16.77
	2009	$23.62	$17.11
	2010	$25.09	$17.45
	2011	$26.64	$17.80
	2012	$28.30	$18.15
	2013	$30.05	$18.52
	2014	$31.91	$18.89
	2015	$33.89	$19.26
	2016	$35.99	$19.65
	2017	$38.22	$20.04
	2018	$40.59	$20.44
	2019	$43.11	$20.85
	2020	$45.78	$21.27

Quick Calcs showing the difference between what std. 2% inflation adjusted would predict

vs.

what actually happened: rates grew at rate 3X of inflation even without adding a filtration plant

Water Bill Increase	FY20-21
Current Forecasted Water Bill	$ 45.76

Costs

Future infrastructure repair & improvement costs will be far higher in the city/suburbs because with the growing density in the city/suburbs, there will simply be more built assets (houses, roads, businesses) & economic disruption to upgrading infrastructure as time goes on.

By contrast,
the area where the PWB wants the filtration plant is outside the UGB and thus "built-up" assets and property values in this constrained area will occur at drastically lower rate than in the metro area.

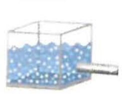
So, if faced with the choice between build a filtration plant now because "its only going to get more expensive in the future" it should be contrasted with "repair and improve the known vulnerable and aging inner infrastructure in denser areas now" because those costs will be growing disproportionately more expensive than the non-developing rural areas later.

UV + Ozone

UV + Ozone Combination

When they want to play down UV they use this tactic; "well yeah, UV is the least cost... but it only does one thing..." (even that is not accurate)

It can be combined with Ozone like Seattle has done to get all of the additional benefits
(even Filtration plant wants to add Ozone)



Contaminant	Ozone
Turbidity	
Pathogens	●
Dissolved Metals	●
Organics	●
Tastes and Odors	●
Algae / Algal Toxins	●
Forest Fires	●

From PWB slides

www.waterworld.com

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DRINKING WATER WASTEWATER WATER UTILITY MANAGEMENT ENVIRONMENTAL TECHNOLOGIES GLOBAL THOUGHT LEADERS

Seattle opens nation's largest UV water treatment plant

Officials from Seattle Public Utilities dedicated the new Cedar Water Treatment Facility at the Lake Youngs Reservoir with a ribbon cutting ceremony and tour. Mayor Greg Nickels raised a glass of water treated at the CH2M Hill-designed facility to "toast" the grand opening...

Oct 13th, 2004

SEATTLE, WA, Oct. 8, 2004 -- Seattle-area residents now receive even higher quality drinking water that has been treated with state-of-the-art ozonation and ultraviolet (UV) treatment. Officials from Seattle Public Utilities dedicated the new Cedar Water Treatment Facility at the Lake Youngs Reservoir with a ribbon cutting ceremony and tour. Mayor Greg Nickels raised a glass of water treated at the CH2M Hill-designed facility to "toast" the grand opening.

The new facility is among the first and is the largest facility in the United States to combine the new technologies to treat drinking water, ensuring that Seattle Public Utilities' customers receive the highest quality water at the best price.

The Cedar Water Treatment Facility will treat 70% of the drinking water for Seattle and suburban water customers, and will disinfect 180 million gallons of water per day. It will ensure that the water supply meets or surpasses current and expected new federal water quality standards.

"Seattle is leading the way in making smart investments that provide long-term benefits," said Mayor Nickels. "Every time they turn on the tap, our children, our grandchildren, and generations to come will enjoy the best tasting drinking water in the nation."

2004 = ~$101M

Based on using 2.5% compound Inflation adjustment

2019 cost would be ~$150M

UV + Ozone Combination

Seattle Public Utilities
Mami Hara, General Manager/CEO

Services | Environment & Conservation | Construction & Development | Businesses & Key Accounts

MY ACCOUNT | RECYCLING | GARBAGE | FOOD & YARD | WATER | DRAINAGE & SEWER | RATES

Home > Services > Water > Water System Overview > Cedar Treatment Facility

- WATER
- WATER RATES
- WATER METERS
- REDUCE WATER USE
- WATER SYSTEM OVERVIEW
- CEDAR TREATMENT FACILITY
- WATERSHED PROTECTION
- WATER INTAKE SYSTEM
- OZONE GENERATION/INJECTION

Ozone Generation/Injection

The heart of the Cedar Water Treatment Facility is a coupled ozone/ultraviolet (UV) process. This two-step process both disinfects and improves taste and odor in a highly efficient and cost-effective manner.

Water is pumped from Lake Youngs and piped to the ozone injection facility. Here liquid oxygen is transformed into a gas and a portion of the oxygen is converted to ozone. The ozone is transferred to the water by diffusing the gas into the flow within concrete injection chambers. The water must stay in contact with the ozone for about 10 to 15 minutes to complete the oxidation and disinfection processes that improve the taste and odor of the water and disinfect bacteria, viruses, and Giardia.

In operation for about ~15 years now

Seattle Public Utilities
Mami Hara, General Manager/CEO

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- WATER INTAKE SYSTEM
- OZONE GENERATION/INJECTION
- ULTRAVIOLET LIGHT DISINFECTION

Ultraviolet Light Disinfection

The Cedar Water Treatment Facility is among the first and is one of the largest facilities in the United States to use UV technology to disinfect drinking water. The UV light disinfection facility exposes water to high intensity light to inactivate the pathogens. UV light is the primary disinfectant barrier for Cryptosporidium and an additional disinfectant barrier against bacteria, viruses, and Giardia. UV light has many benefits: it is effective against chlorine-resistant pathogens such as Cryptosporidium, limits the amount of chemicals needed for disinfection, and it is not known to produce any byproducts. Following UV disinfection, chlorine is added to the water to provide an additional and residual disinfection barrier during water distribution. Lime also is added to make the water less corrosive.

In operation for about ~15 years now

The budget has now virtually doubled (& margin of error suggests maybe triple cost $$)

Playing: BBC Business Daily

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Local News Water

Portland Weighs $500 Million Water Treatment Plant

by Amelia Templeton (Follow)

With just a few weeks to make the decision, two key members of Portland's City Council say they are undecided on whether the city and its ratepayers should spend up to $500 million building a new water filtration plant or choose a more affordable ultraviolet light system estimated at $110 million.

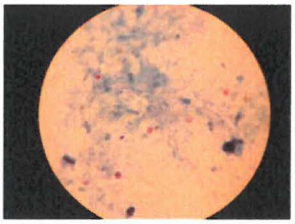
UV design exists, we paid for it, could undoubtedly be enhanced with Ozone (as proven by Seattle), could be in place YEARS sooner and still would not prevent the PWB from later adding a filtration plant if the need truly dictates must have one.

Due to rushing to do Filtration plant and corresponding design uncertainty, the cost over-runs and inefficiencies of hurried design, change orders, etc... would likely pay for the cost of UV + Ozone plant.

Seattle and San Fransisco have built ultraviolet plants to comply with the EPA's LT2 rule, and five years ago, the Portland City Council directed the Water Bureau to develop plans for a UV system as a hedge in case the city didn't receive its waiver.

"What you see in front of you here, on this table, is 700 pages of drawings. And what you see behind you, on a stack that is knee-high, are the specifications for a UV plant," Water Bureau Director Mike Stuhr told the council.

"This pile of paper is worth $16 million, so you have a UV design on the shelf," he said.



Cryptosporidium parvum
Michael Wunderli Flickr

Thanks to those existing plans, Stuhr said the city could complete construction on a UV plant at the Bull Run's headworks facility within five years, at an estimated cost of $105 million.

The bureau's second option, a water filtration plant, would take longer to design and build: 10 to 12 years. It would cost an estimated $350 to $500 million, depending on the type of filtration technology.

A filtration system would also incur higher maintenance costs, $4 to $5 million annually, compared to $2.5 million annually for the UV plant.

UV was good solution for 9 million people

Also was on time and budget....

New York's Ultraviolet Titan

Angelle Bergeron

By April, the power will go on in the $1.4-billion, 2-billion-gallon-per-day Catskill/Delaware Ultraviolet Disinfection Facility, the world's largest. The plant is being built by the New York City Dept. of Environmental Protection in a county to the north to deliver safe drinking water to the city's nine million residents.

Photo: Courtesy of Welsbach Electric Corp.

Up to 2 billion gallons of water can pass through the plant's four UV galleries every day. Welsbach is using 3D CAD to weave the 370,000 ft of conduit and 4.5 million ft of wire required to support the 36,480-volt UV units.

"We are supposed to begin operation in March 2012 and put the entire facility online by May 2012," says Mark Hanson, project director for the Malcolm Pirnie-CH2M Hill joint venture performing $82 million in construction management services. "On both dates we are about five months ahead of the consent- order schedule, and we have less than 2% change-order costs," he says. "[The project] is on budget, on time and will help nine million people. What could be better than that?"

The New York City facility, which will be funded by water and sewer rates, will treat water from the Cat Dei watershed to meet federal Environmental Protection Agency surface-water-treatment rule requirements. Those requirements dictate that all systems not using filtration

Fire

37460

Bull Run Fires tend to be Severe

James K. Agee and Frederick Krusemark, College of Forest Resources, Box 352100, University of Washington, Seattle, Washington 98195

Forest Fire Regime of the Bull Run Watershed, Oregon

Abstract

Forest fire history of the Bull Run watershed in northwestern Oregon was established using the natural fire rotation technique. The average NFR over the last 500 years is 347 years, but the record is heavily influenced by a few large events. Fire severity is generally high, with most large fires occurring in summer to fall. Fires that appear to have entered the watershed from its edge significantly influence the historic record. Because the Bull Run receives much more precipitation than watersheds directly north or south, its high-severity fire regime contrasts with the moderate-severity fire regime observed in these adjacent areas.

Introduction

In 1891, the Bull Run watershed (Figure 1) in northwestern Oregon was included as part of a national system of forest reserves in the United States and the next year was established as a water source for the Portland metropolitan area. The 26,000 ha watershed has almost twice the precipitation of watersheds directly north and south (Figures 1 and 2). Quantity and quality of water has varied over past millennia, due to long-term climate change, shorter-term periods of wetter and drier weather, and natural disturbances such as fire and wind. Water balance data from Luchin (1973) suggest that runoff in the Bull Run could possibly increase by as much as 90 cm (40%) if a stand replacement disturbance affected the entire watershed. Swanson (1981) summarizes the effects of large-scale disturbance by fire on geo-

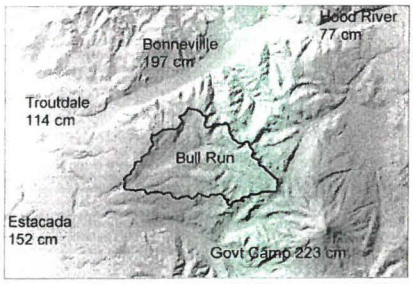


Figure 1. Location of Bull Run watershed in northwest Oregon. The Bull Run is located just south of the Columbia River, flowing in this figure from Hood River west to Bonneville and Troutdale. Annual precipitation for neighboring weather stations shown (Website http://www.wrcc.dri.edu/summary/climsmorbnd). Mount Hood is the obvious peak in the southeast corner of the frame. Data for figure supplied by Diana Smith.

The overall NFR for the Bull Run watershed is 347 years (Table 2). The literal interpretation of this number means that roughly every 350 years, an area equal in size to the watershed has burned. Obviously there is considerable variation in this number: NFR's calculated by century show a range from roughly 100 years for the century encompassing the 1493 fire event to centuries for which

1493 Entire watershed burned

"When fires occur in the Bull Run, they tend to be high-severity events. The three independent sources of data analyzed consistently identified the major fire class as "high"…

Summary: Bull Run is predisposed to major fires. Sure filtration can *help* with fire (so does Ozone…) but can also be completely overwhelmed by fires. Smarter money would be spent on resources and planning that provide effective, rapid, and assertive response to putting fire down while small rather than trying to filter a wasteland that was an old growth forest.

Emphasis on Prevention

Seattle Public Utilities
Mami Hara, General Manager/CEO

Services | Environment & Conservation | Construction & Development | Businesses & Key Accounts

OUR WATERSHEDS | OUR CITY | MY HOME | PROJECTS | EDUCATION | LAWN & GARDEN | GET INVO

Home > Environment & Conservation > Our Watersheds > Cedar River Watershed

- OUR WATERSHEDS
- PROTECT OUR WATERS
- URBAN WATERSHEDS
- CEDAR RIVER WATERSHED
- EDUCATION CENTER
- PROGRAMS & TOURS
- RATTLESNAKE LEDGE
- RATTLESNAKE LAKE
- FACILITY RENTALS
- HISTORY
- BIODIVERSITY
- WATER SUPPLY TREATMENT
- SCHOOL PROGRAMS
- FIRE CREW
- TOLT RIVER WATERSHED

Wildland Fire Crew

The SPU Wildland Fire Crew provides initial attack on fires within the Cedar and Tolt watersheds. The goal is to contain all fires to less than 10 acres in size.

SPU fire crews provide support to the Department of Natural Resources (DNR), who ultimately is responsible for wildland fire suppression throughout the state and can bring additional firefighting resources if needed.

SPU's Wildland Fire Crew falls under the Watershed Services Division (WSD) and is led by the Watershed Protection Section of SPU during the fire season. The crew is trained and certified following National Wildfire Coordinating Group standards. Qualified Incident Commanders, Crew Bosses and Squad Bosses lead a group of Firefighter 2's for both wildland engine and hand crew operations.

History

Since the early 1900's fire protection has been an important part of keeping Seattle's drinking water supply safe.

Seattle Public Utilities (SPU) owns and operates two protected Municipal Watersheds that supply drinking water to over 1.4 million people in the greater Seattle area. The two watersheds encompass more than 100-thousand acres of pristine forest from the Puget Sound foothills to the crest of the Cascade Mountains.

SPU protects these watersheds from forest fires because the aftermath can lead to the degradation of surface water supplies through increased turbidity, impacts on aquatic species, reservoir storage reduction, City asset losses (timber resource reduction) and compromised public and private safety.

Ounce of prevention is worth a pound of cure…

Seattle has an emphasis on protecting the watershed rather than trying to filter the long term disaster that occurs after one. Good luck trying to replace an Old Growth forest.

The annual operating cost difference between the proposed filtration plant and a UV + Ozone solution (~$5M vs $2.5M) would pay for perpetual cost of Wildland fire crew.

Likely many alternative ways to develop highly effective rapid fire response…

THE GLOBE AND MAIL* ALBERTA

A charred swath of boreal forest, along Highway 63 near Fort McMurray.

IAN WILLMS/NYT

Filtration has been easily over run with Severe / Catstrophic fires and you can't regrow a forest quickly.

Fire and water

Ash and debris from wildfires threaten the water supply – and climate change means it's only going to get worse, writes **Leyland Cecco**

Weeks after a wildfire engulfed Fort McMurray, heavy rains washed ash and burnt debris from tributaries into the Athabasca River. As the slurried water flowed past scorched banks toward the city's treatment plant, its workers moved quickly to blunt an unfolding crisis – shutting off the intake before the plant's filtration systems overloaded.

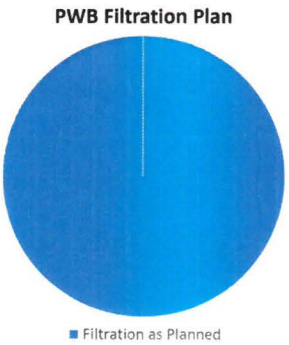
The effect of major wildfires on drinking water supplies can also be severe, as evidenced by fires that burned upstream of places such as Fort McMurray in Canada in 2016; Denver and Fort Collins, Colorado in 2002 and 2012; and Canberra, Australia in 2003. Water treatment plants in those places were overwhelmed by sedimentation, dissolved organic carbon, and chemicals that were released by fire.

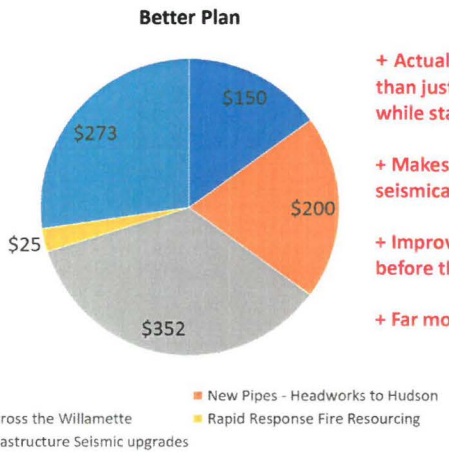
The Billion $ Pie

Better way to divide the Pie

PWB Filtration Plan	$ Millions
Filtration as Planned	$1,000 est
Total	$1,000

Better Plan	$ Millions
UV + Ozone	$150 est
New Pipes - Headworks to Hudson	$200 est
New Pipes - Across the Willamette	$352 est
Rapid Response Fire Resourcing	$25 est
City Water Infrastructure Seismic upgrades	$273 est
Total	$1,000





+ Actually protects the watershed rather than just hoping you bought enough filter while staring at a wasteland after a fire

+ Makes the whole water system far more seismically resilient

+ Improves the Portland infrastructure before the costs become even higher

+ Far more environmentally friendly

374601

McClymont, Keelan

From: Lauren Courter <lauren.courter@mthoodenvironmental.com>
Sent: Tuesday, November 26, 2019 11:15 PM
To: Council Clerk – Testimony
Subject: Request to Delay Stantec Vote
Attachments: PortlandCityCouncil-StantecLetter.pdf

Mayor Wheeler and City Council members,

Please see attached letter regarding a request to delay the $51 Stantec vote tomorrow, November 27, 2019.

Thank you,

Lauren Courter

374601

November 21, 2019

Dear Mayor Wheeler and Portland City Council,

I respectfully request that the City Council delay the vote of the $51 million dollar Stantec design contract for Portland Water Bureau's Bull Run filtration project until all five Council members are present to vote. The large cost of the design contract and the filtration project necessitates that all Council members carefully ask questions, discuss, and collectively deliberate on how to proceed. Ratepayers deserve a fully vetted project with a well-justified rationale before the project proceeds, especially in light of recent dramatic increases in cost projections for the filtration plant.

Sincerely,

Lauren Courter

Ian Courter

37460 1093

McClymont, Keelan

From: Emily Herbert <ewh1960@gmail.com>
Sent: Tuesday, November 26, 2019 5:03 PM
To: Council Clerk – Testimony
Subject: Bull Run Treatment plant discussion in Council

Dear Councilor,
The process used by the PWB in regards to determining what is needed to be done and how much it shall cost was rushed in 2017 and now seen to be woefully inadequate. Rather than throw good public money after a flawed assessment, it's time to reconsider and take another look rather than move forward.
The past election added more protections to our precious clean Bull Run watershed. Given all the other priorities facing our city, our water is the least of these currently and a filtration system is beyond ridiculous.
Please consider and delay endorsing PWB measures in this holiday period.

Respectfully,
Emily Herbert
2120 NE Halsey #29
97232

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"The heart that breaks open can hold the whole universe. Your heart is that large. Trust it. Keep breathing." Joanna Macy

37460 1093

McClymont, Keelan

From: floy jones <floy21@msn.com>
Sent: Tuesday, November 26, 2019 4:54 PM
To: Council Clerk – Testimony
Subject: Bull Run Treatment plant contract, resolution.items 1093,1094
Attachments: Treatment Plant Q&A response.pdf

Attached are responses to the Water Bureau's comments responding to questions from Mayor Wheeler and Commissioner Hardesty.
The comments are submitted for the record, items 1093, previously 1079 and 1094, previously 1080

Floy Jones
Friends of the Reservoirs

To: Mayor Wheeler and Commissioners

From: Floy Jones

November 26, 2019

Why was the PWB so vague in their response to questions from the Mayor and Commissioner Hardesty on November 20, 2019?

POLLUTED WATERSHEDS=FILTRATION PLANTS

When Mike Stuhr says there are thousands of filtration plants around the country what he is not telling you is that thousands exist because there are thousands of polluted watersheds. Tens of millions continue to drink water across the country sans a filtration plant.

There is good reason why the Large Unfiltered Working Group sent pages and pages of substantive, significant critical comments re: the EPA LT2 rule. The LT2 rule is extremely flawed. New York, Boston, Seattle, San Francisco, and Tacoma all signed on to the Unfiltered working group's comments. The ONLY LARGE UNFILTERED SYSTEM THAT DID NOT SIGN ON WAS PORTLAND. Why? Because the PWB had been working backroom, with their cozy consultant and the EPA LT2 lead, Stig Regli, in support of the flawed rule in order to help them in their effort to push through build projects otherwise denied. Emails and other documents made clear that the PWB and the global corporation they brought to the EPA LT2 FACA committee never advocated for the most pristine watershed in the nation, Bull Run. Hundreds of examined volumes of PWB and EPA LT2 material support this. There is good reason why NYC is so proud of primarily remaining unfiltered as recently reported in the NY Times. They like other unfiltered systems are able to focus their efforts and resources more efficiently elsewhere, retain good tasting, smelling water, and limiting chemicals in their water. Boston won a lawsuit against EPA in order to avoid filtration. Seattle and San Francisco are unfiltered.

The Water Bureau avoids the fact that a filtration plant will negatively impact the taste, smell and feel of Portland's water. They avoid releasing their consultant report on the potential public health risks associated with filtration plants and they avoid any public discussion of the common cancer-causing filtration chemicals of alum, aluminum, and acrylamide. Stuhr likes to say they are a public health bureau yet withholds significant risk information related to their projects.

FUTURE REGULATION ARGUMENT DOESN'T HOLD WATER

Evidence does not support the argument that construction of a filtration plant anticipates any future regulations. There are no regulations on the horizon of 15-20 years that would affect the federally protected Bull Run watershed as long as humans and cows are kept out. The PWB knows this that is why they do not mention any particular regulation or issue in the pipeline.

Filtration plants do not remove pharmaceuticals such as those found at the Columbia South Shore Well field (estrogen, psychotropics, pain killers etc.), the most likely target of future regulations. Watershed protections keep these contaminants out of Bull Run.

In that the PWB was the only utility seated at the EPA Federal Advisory Committee table crafting the LT2 rule, and that their water bonds indicate that they stay abreast of regulations they would know of any regulations on the horizon in the next 15-20 years. Since none would in any way impact Bull Run they remain vague in answering questions.

EPA has yet to promulgate regulations they had on the books for future promulgation 25 years or more ago.

CATASTOPHIC TURBIDITY CLOGS FILTRATION PLANTS

Another Stuhr argument was that "filtration" will save us from muddy water during winter storms. Portland's turbidity has been low for years, but muddy water can and does overwhelm filtration systems and they have to shut down and are overwhelmed as evidenced by the disaster in Milwaukee, WI, the basis of the EPA LT2 rule. The EPA rule was promulgated as a result of a **filtration plant failure** in Milwaukee, WI, a highly polluted watershed that includes industry, cities and livestock feedlots providing the sources of human and cow species of *Cryptosporidium.* These two species are the two proven to be infectious to humans and have caused public health problems. The majority of *Cryptosporidium* species (such as the wildlife species in Bull Run) are harmless to humans.

Portland has spent a lot of money to develop several back-up water supplies including multiple interties, the Columbia South Shore Wellfield, the Powell Valley wells. The PWB also volunteered Portland ratepayers to finance the decommissioning of old logging roads that are the financial responsibility of the Forest Service. The decommissioning of the roads has helped reduced high turbidity events.

"FILTRATION SOLVES ALL" - NOT SO

When selling the waste of $16 million spent on UV radiation, the PWB said a chemical-adding filtration plant would solve any and all hypothetical low-probability issue. Now they've slipped in the addition of Ozone, an independent stand alone LT2 compliance option because filtration is not a solve all as they claimed in 2017 before revealing the piping costs.

WIFIA LOAN COMMENTS

Contrary to the PWB implication a WIFIA loan application is not limited to this project, one only has to read the online criteria to see that any project over $20 million is eligible, for example a seventh river crossing, the Willamette River Crossing, yet another project where costs greatly increased after budget approval.

UV COSTS DECLINED OVER TIME

Mike Stuhr suggested that project costs only increase over time. This is not correct. UV Radiation costs have significantly declined over time. PWB project costs increase, in part, because of all of the bells and whistles that the PWB adds to projects after approval. This is exactly the answer David Shaff (Stuhr's predecessor) gave when I asked while touring the Powell Butte II tank, how is it that the Powell Butte II costs climbed so high.

The PWB has consistently chosen the most costly and unnecessary option for regulatory compliance.

Regarding in town storage facilities the EPA LT2 final rule documented public health problems only with buried reservoirs with no science to support a requirement to "treat or cover" open reservoirs. There was no requirement to bury or eliminate open reservoirs. EPA inexplicably eliminated a "risk mitigation" reservoir option included in the draft rule, an option supported by other utilities and community stakeholders, including the majority of the City's 2004 $500,000 (five hundred thousand) reservoir panel that deliberated the issue for three months. The panel outcome resulted in the ultimate termination of the MWH Global Tabor burial contract. In an effort to intimidate the public, the PWB had earlier bought reservoir covers for the Washington Park reservoirs. Then they tried to secretly sell them at a big loss on Ebay. The grill work for the covers was another wasted expenditure.

Utility managers in Rochester, NYC were flabbergasted by the price tag for PBII more than double what such a project would cost there. The cost of the tiny 12.5 million Washington Park reservoir would be even more shocking at $205 million, an increase of 300% over the $67 million in the planning documents.

NEAR HALF A BILLION SPENT ALREADY-WHAT DID WE GET?

What did the community get for the near $500,000,000.00 (five hundred million) spent on "LT2" reservoir burial projects?

1. No measurable public health benefit.
2. A 50 million gallon reduction in in-town water storage. The upgraded open reservoirs stored 50 million gallons more water than the replacement tanks.
3. Gross reduction of the value of the tens of millions of dollars spent on open reservoir upgrades designed to last for 50 years per PWB consultant reports, completed as the PWB fast-tracked burial projects. Immediately after years of construction work on upgrades at the historic reservoirs Mt. Tabor and Washington Park, the Water Bureau pushed a fast-track plan to bury the reservoirs that had just been upgraded.
4. Massive debt, yearly rate increases burdening the middle class
5. Risks from cancer-causing Nitrification, a problem with covered storage.EPA who long ago documented this public health problem with covered storage said they failed to address this issue when promulgating LT2.

The PWB now has to manage this public health problem as discussed at wholesale customer meetings. Los Angeles has installed UV bulbs containing mercury inside buried tanks to remediate Nitrification caused by lack of sunshine.

6. Investigative reporting by KOIN 6 News revealed that the costly CH2MHill built Powell Butte II tank was leaking from the start enough to fill an Olympic-size pool with a highly unusual number of cracks, 3200.
7. Escalation of costs for the smaller, now 12.5 MG Washington Park tank from $67million to $205 million dollars. ($67 planning, $76.3 (Oct. 2013 CIP),$170,063 (Oct. 2014), $190,000 (Oct. 2015), $205,000 million (Oct.2018 CIPAR)

As no drinking water has been served from Washington Park reservoirs for 7 years, the PWB has demonstrated that demolishing two of the City's most significant historic resources was not necessary.

Note: Seattle built a 60 million gallon Maple Leaf tank at the same time PWB was building. Their tank is 10 MG larger than PBII but cost $55 million, nearly two thirds less.

LT2 *Cryptosporidium* Bull Run Treatment Plant

$16 million spent on planning for UV Radiation, with plans for construction of other buildings (cutting trees for Leed buildings) in the Bull Run watershed.

Plus millions spent on consultant contracts to negotiate the LT2 rule, lead a treatment plant panel, UV pre-design work hidden in water main "Flexible Service" contract, evaluate public health risks of filtration, study the open reservoirs, etc.

Now, the PWB wants City Council to ignore their "oops we forgot to mention the pipes" and ravage ratepayers (not Stuhr) with a $1.25 billion bill for little to no benefit.

The middle class want to know when rates will be lowered. The first PUB chair (reconfigured PURB) recommended to Council as she was leaving the state at the end of her year of service that rates go down.

When dealing with the PWB what is most important often is not what they tell you, but what they don't tell you. An omission of $500 million in costs for pipes is but one in a long list of significant omissions by the PWB. Friends of the Reservoirs, the Bull Run Interest Group active in the 70's, 80's, and 90's, Citizen's Interested in Bull Run Inc., and the Portland Water Users Coalition all have experienced this over the entirety of the decades of interaction with the Portland Water Bureau.

374601

Moore-Love, Karla

From: Scott Fernandez <scottfernandez.pdx@gmail.com>
Sent: Tuesday, November 26, 2019 12:52 PM
To: Moore-Love, Karla; Scott Fernandez
Subject: Comments to Karla and Portland City Council

Karla, please have copies for 7 papers below for you, and the Council on record. Thank you, and have a great Thanksgiving.

Thank you,

Scott

November 26, 2019

Portland City Council Summary

- Portland City Council has the ability to provide a cost-effective drinking water solution. The costs of **Chlorine dioxide** providing $20 million-$25 million enable a better monetary consistency as opposed to over a $1 billion. **Chlorine dioxide** has the benefits of consistent public health at all levels, as opposed to the weak form of chlorine currently used.

Chlorine dioxide is an excellent disinfectant. When added to drinking water, it destroys bacteria, viruses and types of parasites such as Cryptosporidium, and Giardia lambli.

Because Bull Run drinking water has NO municipal, industrial, or agriculture public health issues, ***safe, healthy water remains***.

- Our drinking water from the Columbia South Shore Wellfield continues to send 3 types of **Lead,** to the community. Children and pregnant women continue to have high levels of **Lead** present in our drinking water for decades. Portland has the highest levels of drinking water **Lead of large cities in US**.

- Additionally, **Radon** also is involved in our CSSW drinking water. This issue has been ignored. **Radon** found in our homes and drinking water also has a negative public health issue that continues, also impacting children and pregnant women.

37460

Scott Fernandez – public health

37460

Moore-Love, Karla

From: Jane W <justomajane@gmail.com>
Sent: Tuesday, November 26, 2019 10:50 AM
To: Council Clerk – Testimony
Subject: Agenda Item 1079 - Bull Run Filtration

Good Day Portland City Councilors,
I continue to have grave concerns about the direction, community interaction/input and the ever increasing cost to the city and water users.
I am well aware of the need for and the current timeline set for the project. I do not oppose a filtration system. I have heard about the Good Neighbor intent, but have personally witnessed LITTLE to NO actual evidence of the PWB being a good neighbor.
Just a few of the nagging concerns still existing are:
1. The counsel passed a non competitive bid process for the design contract.
2. The counsel is continuing to follow a long standing pattern of awarding contracts to companies employing former PWB management, which reduces the opportunity for new, innovative ideas and a wider discussion of options and solutions. (See attached notes from Friends of Reservoirs)
3. Communications from the PWB have, for the most part, been one-sided, where attendees are given a history of the Bull Run Water, promises of later communications and the generic answer of "We have not made any decision on that as yet. We are still in the planning stages." Questions are most often deflected with this answer or shut down by means of turning off microphones, redirecting questions to after the meeting or promising to answer them later with PWB Bull Run FAQs. There has been no "local neighbor" placed on any committee or invited into early planning stages.
4. The selection of the five possible sights for the Water Treatment Plant which was narrowed to Carpenter Lane did not take into consideration any alternatives outside of already acquired property by the PWB/City of Portland. Those options had been overlooked, rejected or ignored as if horse blinders have been applied to this project.

5. The review and comparisons of existings plants by consultants to the Bull Run Watershed ignored facilities dealing with similar mountain fed water locations and focused on the "Administrative Building" to house administrative and public relations staff.
Case in point, the Green River Filtration facility of Tacoma, Washington. A facility with 150 mgd capacity at the headwaters of an active river.

Green River Filtration Facility

(King County, WA) Landau Associates provided natural resources and geotechnical engineering services as a subconsultant for Tacoma Water's ~ $350 million Green River Filtration Facility in King County, Washington. Natural resources services included delineating two streams and two wetlands on the site, working closely with the engineering design team to ensure critical areas were minimally disturbed, and coordinating all permitting with regulatory agencies, including the King County Department of Permitting and Environmental Review (DPER), Washington State Department of Fish and Wildlife, and US Army Corps of Engineers.

6. Glendale Farm sits on top of existing pipes. Why are we bringing the water to a facility with pipes instead of bringing the facility to the pipes or water source?

There are too many unanswered questions that look to head in the direction of another COSTLY RUSH to decision blot on the reputation of PWB, PDX City Council members and the City of Portland.

The home sale and contracts will still be available two to six months from now, while the real and valid questions can be addressed.

Please press pause and review.

Regards,

Sara Jane Whitehead

40+ year resident along pipelines

374601

Moore-Love, Karla

From:	Lorie McFarlane <lorjmcfarlane@gmail.com>
Sent:	Tuesday, November 26, 2019 7:05 AM
To:	Commissioner Fritz; Commissioner Fish; Wheeler, Mayor; Commissioner Hardesty; Commissioner Eudaly
Cc:	Council Clerk – Testimony
Subject:	ordinances 1093 1094, 11/27/19 - Portland Water Bureau

Dear Commissioners and Mayor Wheeler,

I appreciate your careful consideration of public testimony in the last 2 weeks. I particularly thank Mayor Wheeler and Commissioner Hardesty for their recent, thoughtful questions for the water bureau. I hope Commissioner Fish will be present this time, since he has been an integral leader at water treatment Council sessions.

With due respect, I feel that PWB Director Stuhr, water Commissioner Fish (2013 -2018) and water Commissioner Fritz (2018-2019) have not accurately or timely or even completely informed the general public. It also is apparent they have not truly considered citizens' knowledge on policy, regulation, health-risk, nor stakeholders' deep concerns - i.e. impact on ***both*** *rural and urban citizens.*

Moreover, our water officials' (in)actions speak louder than their words. In fact, they have neither meaningfully engaged the general public nor used the past 2 years to explain the complete purpose and rationale for exponentially increasing Filtration costs of a now-estimated-$1.2 billion customer-funded public work. We have been offered NO public town halls to inform vis a vis questions, health professional opinions, and water advocate comments ... we have not been allowed to be heard collectively and **publicly**.

I have witnessed broad public confusion on Bureau treatment decisions since 2016.
I have witnessed PUB oversight committee's responsible inquiries (on treatment options for deactivating crypto) deflected, and instead met with rushed, misleading information.
I have witnessed the first $51 million design contract uploaded with "errors" until 1 day before the first public reading, only a few weeks ago.
I have witnessed water officials assuring us:

- "Portlanders are justifiably proud of their drinking water" – Comm. Fish https://www.oregonlive.com/opinion/2016/10/a_fresh_look_at_maintaining_po.html
- "Our water keeps Portland green, clean and hydrated. " - Dir. Stuhr
- "It's delicious water, It's protected. It's a rain forest, so it's its own ecosystem and it provides us with this really amazing drinking water". - Water Comm. Fritz
- "We serve excellent water every minute of every day." PWB Comm's
- "From Forest to faucet, we deliver the best drinking water in the world"- PWB landing page website.

Confusing the public is not convincing the public. 374601

Finally, as an architect, forgetting essential infrastructure -- such as the PWB or their contractor did on pipes, a major element -- would have gotten me fired. Also, designers provide visuals to a client of e.g. a site plan, building footprint, elevations and perspective drawings *before* selling a project — small or gargantuan. Has Stantec yet been to the dais, to explain and show any of their $51 million proposal?

I strongly urge you delay both ordinances 1093 + 1094 on 11/27/19, as long as possible, giving adequate time to correct this faulty process.

Sincerely,
Lorie McFarlane, a Portland citizen

374601 10/6

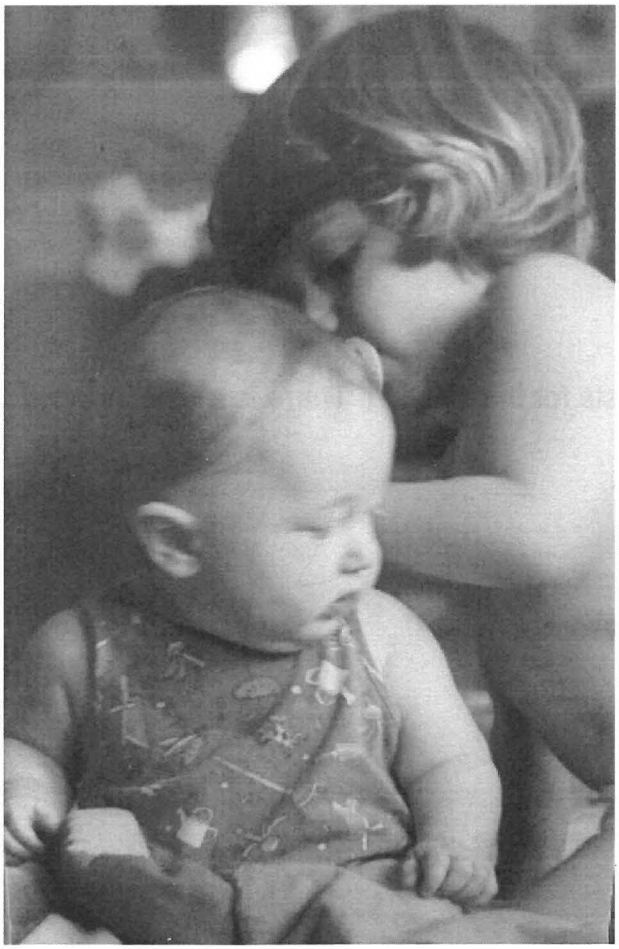
McClymont, Keelan

From: Lorie McFarlane <lorjmcfarlane@gmail.com>
Sent: Wednesday, November 20, 2019 9:42 AM
To: Council Clerk – Testimony
Subject: Fwd: Full vs Optimized CCT?
Attachments: baby boys.jpg

---------- Forwarded message ---------
From: **Lorie McFarlane** <lorjmcfarlane@gmail.com>
Date: Wed, Nov 20, 2019 at 9:30 AM
Subject: Re: Full vs Optimized CCT?
To: Commissioner Fritz <amanda@portlandoregon.gov>, Commissioner Fish <Nick@portlandoregon.gov>
Cc: Commissioner Eudaly <chloe@portlandoregon.gov>, <joann@portlandoregon.gov>, Wheeler, Mayor <mayorwheeler@portlandoregon.gov>

Dear Commissioner Fritz,

This is the reason I ask questions, on behalf of mothers like me :



Why would you discourage citizens who have outstanding questions about our drinking water?! e.g. - how PWB has endangered children through improper corrosion control treatment and techniques that have not prevented lead leaching "to the extent feasible"?
AS to your other question, water officials may respond, but don't answer. If they answer, they leave out key phrases and words. A few of my questions remain unanswered, such as this one to Comm. Fish in July 2017 (with 5 duplicate followups, since he did not respond):

Commissioner Fish,
Why have you not raised similar - if not louder - alarm bells for lead in water, especially after Portland's many lead action level exceedances (ALE's), with recent ALE's in 2016 & 2017?

Instead, PWB and Commissioner Fish said their priority is for the compliance for "crypto", whose purpose and now-up-to $1.2 billion costs have changed over 2 years.
Further, there's been a lack of *genuine* public involvement. Is it fair to move forward with a $51 million contract today 11/20/19 ... for crypto compliance?

Sincerely,
LM

On Thu, Nov 14, 2019 at 12:06 PM Commissioner Fritz <amanda@portlandoregon.gov> wrote:

Hi Lorie,

Talking of not getting questions answered, you have still not responded to mine. Please tell me what your goal is, in asking so many informational questions of the Water Bureau. What do you hope to accomplish in requesting answers?

The Water Bureau has been responsive to many of your requests for information. There is a limit on how much time staff can spend responding to one constituent.

Amanda

Amanda Fritz

Commissioner, City of Portland

Pronouns: she/her/hers

374601 1046

McClymont, Keelan

From: David Shapiro <cascadiadave@gmail.com>
Sent: Tuesday, November 19, 2019 6:50 PM
To: Council Clerk – Testimony
Subject: Water Treatment Facility

Hello City Council

I want to state for the record that I oppose the construction of the costly and unsustainable Bull Run Water Treatment Facility proposed for Carpenter Lane. Please consider our rural living and do not disturb this agricultural area with an industrial size water treatment facility. It's unnecessary and irresponsible. Please consider the wild animals too and protect the habitat as it stands...tree farms, fields and forest. For Multnomah County, for Oregon, for the future, please go back to the drawing board and put this facility closer to Portland and make it smaller and more efficient.

Thank you,

David R Shapiro
36014 SE Lusted Rd
Boring, OR 97009

374601

Moore-Love, Karla

From: Dee White <deewhite1@mindspring.com>
Sent: Tuesday, November 19, 2019 4:15 PM
To: Council Clerk – Testimony
Subject: Testimony 1079 and 1080 Stantec $51M contract and filtration resolution
Attachments: Testimony November 20 2019 stantec contract and filtration resolution.pdf; Screenshot_2019-11-19 Portland City Council Sessions(2).png; Screenshot_2019-11-19 Portland City Council Sessions.png

Hi Karla,
I have attached more testimony along with two pdf screenshots.

Thank you,
Dee White

Testimony from Dee White

Nov. 20, 2019

1079 Adopt a set of priority values, expectations, and the Recommended Option to guide the design and implementation of the City of Portland's Bull Run Filtration Projects (Previous Agenda 1046) 30 minutes requested for items 1079 and 1080

1080 Authorize a contract with Stantec Consulting Services, Inc. for design services for the Bull Run Filtration Project in the amount of $51 million (Previous Agenda 1047)

Item 1080 Approved Substitute Exhibit A

Dear Mayor and Commissioners,

I continue to find inconsistencies throughout this "Bull Run Treatment Projects" project, continuing last week with the major mistake that the water bureau made when they uploaded an almost empty (but for the table of contents) Exhibit A of the $51 M Stantec contract on Friday November 8 – which was the statement of work, scope, deliverables, terms. It was before a three day weekend and the November 13 meeting. I appreciate Comm Fritz acknowledging my catch, but it is of little interest to me to be acknowledged. This was a major mistake and it should not have happened.

Adding to the difficulties that the public faced with only one day to read the contract, the botched up, worthless contract still remains attached to the ordinance, which means that all of the details of the contract that I mentioned above, all of this is not attached to the legislation, which I find very troubling, confusing and messy.

At last week's November 13 meeting, the "Recommended Option" was presented. The only difference between the new "Recommended " option and the old "Full Implementation" option presented to y'all at the Sept 19 work session, was the size was dropped from 160 MG to 145 MB with what looks like a $30 million "savings" – from $850 million to $820 million. I have attached screenshots from the meeting showing this. Here is what I have found upon further examination:

1. The Resolution, agenda item 1079, says 145 MG:

Target capacity of 145 million gallons per day

2. The Ordinance, agenda item 1080, which is the design contract with Stantec, has no mention of size, type, processes etc. Here is a quote from the ordinance, the most detailed description of what Stantec will be doing:

The Portland Water Bureau must retain the professional, technical, and expert

services of an engineering consultant to design and develop plans and specifications for a construction contract for the Bull Run Filtration Project (Project).

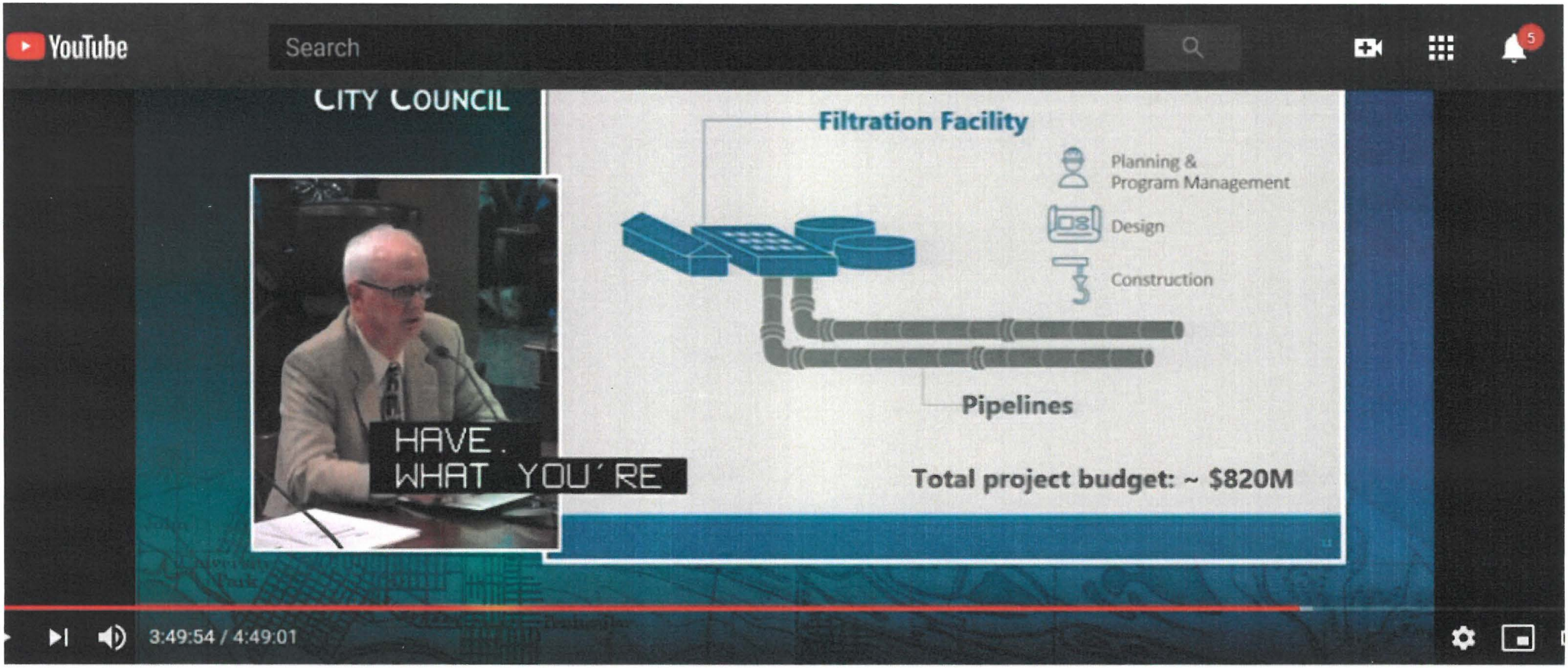
3. The Stantec $51 million design Contract states (my emphasis):

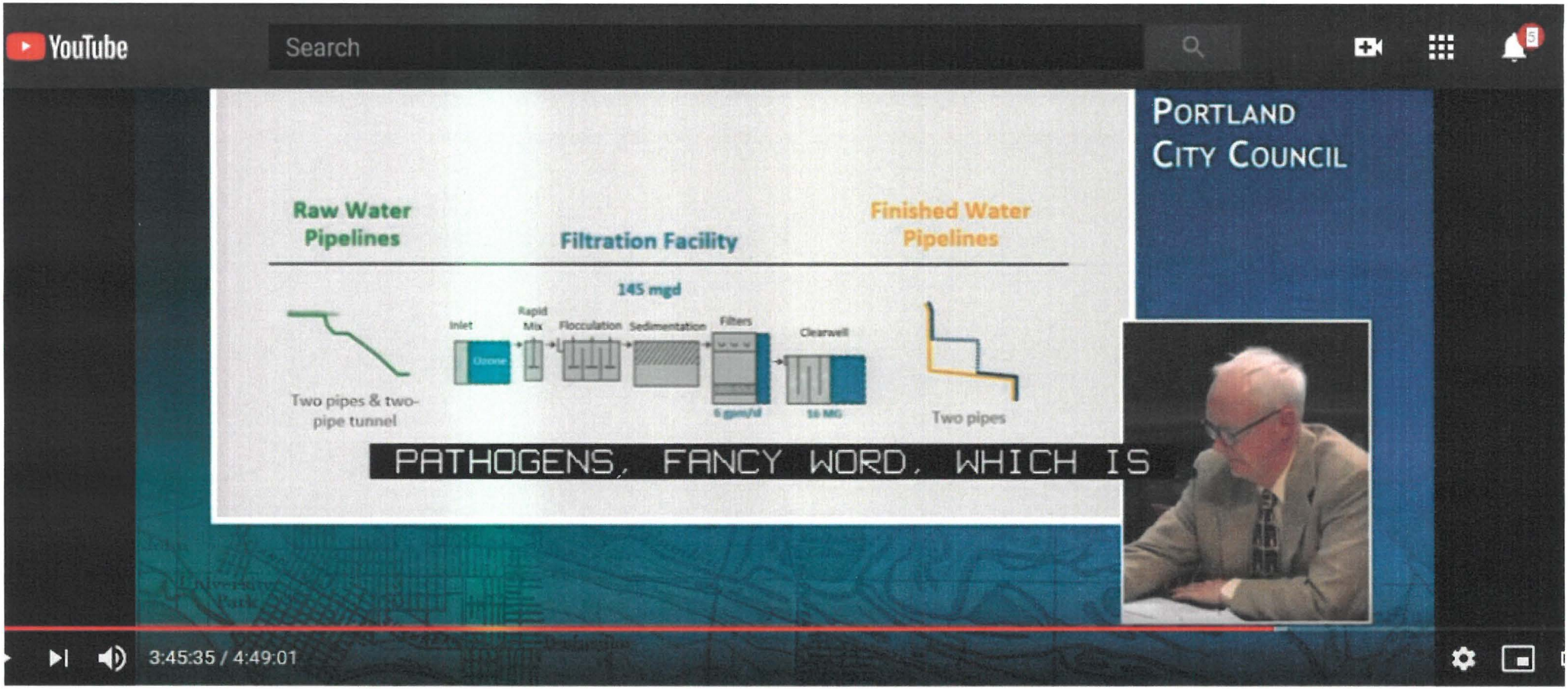
Table 3. Baseline Project Configuration and Design Criteria
Element or Design Criteria Value
Capacity 160 MGD Initial
240 MGD Ultimate

I find it very sad and extremely concerning, that the water bureau continues to lead the public (and the Mayor and Commissioners) down this dark and uncertain path of fiscal irresponsibility and uncertainty with no light whatsoever being shed on the real process, the contracting, and the legislating.

Who is verifying that the contract squares with what the public is being told and what is being legislated? Why is it that so many blunders, discrepancies and omissions are happening with this potential $1.25 Billion project? Not to mention irrational pre-emptive spending?

Enough is Enough. Please move to withdraw from consideration this contract and this resolution. More economical and rational treatment for cryptosporidium should be revisited.


YouTube
Search
CITY COUNCIL
HAVE.
WHAT YOU'RE
Filtration Facility
Planning &
Program Management
Design
Construction
Pipelines
Total project budget: ~ $820M
3:49:54 / 4:49:01


YouTube
Search
PORTLAND
CITY COUNCIL
Raw Water Pipelines
Filtration Facility
Finished Water Pipelines
145 mgd
Inlet
Rapid Mix
Flocculation
Sedimentation
Filters
Clearwell
Ozone
6 gpm/sf
16 MG
Two pipes & two-pipe tunnel
Two pipes
PATHOGENS, FANCY WORD, WHICH IS
3:45:35 / 4:49:01

374601

Moore-Love, Karla

From: Dee White <deewhite1@mindspring.com>
Sent: Tuesday, November 19, 2019 3:14 PM
To: Council Clerk – Testimony
Subject: agenda items 1079 and 1080
Attachments: A Billion Dollar Investment in New York water article from New York Times (1) - Copy.pdf

Testimony from Dee White

This is a quote from the New York Times article that I have attached "A Billion Dollar Investment in New York's Water"

"The city's water system could well be its single most important capital asset — or at least on par with the subway system," said Eric A. Goldstein, a senior lawyer for the Natural Resources Defense Council, an advocacy group.

Why doesn't Portland consider their unfiltered pristine water from our federally protected Bull Run watershed and delivered by our sustainable water system OUR GREATEST ASSET?

Why can't the City of Portland seek a filtration avoidance like New York City has been doing since 2007? Why can't we request help from Senator Merkley, like New York City did with Senator Schumer, and seek a filtration avoidance instead of a WIFIA loan? The WIFIA loan is practically worthless to the ratepayers right now, who are already paying off the staggering debt of the Portland Water Bureau's projects such as Washington Park, Kelly Butte and Powell Butte.

Here is a link to NYC's filtration avoidance agreement. It speaks to the pride that New Yorkers take in their UNFILTERED water. Portland takes pride in our unfiltered water too! Just ask any brewer or distiller!

https://health.ny.gov/environmental/water/drinking/nycfad/

Considering the exploding costs and diminishing (if not void) benefits (including zero health benefit), that this mammoth project is producing, a renewed interest in filtration avoidance by our elected officials, partnered with Senator Merkley, would surely be looked upon with great relief and optimism by everyone who drinks Bull Run water.

Please start this process by voting to withdraw both this resolution and contract from consideration.

37460

Thank you.

Dee White

A Billion-Dollar Investment in New York's Water

New York City's water system moves over a billion gallons a day, nearly all of it unfiltered. A major investment aims to keep it that way.

By Winnie Hu

Jan. 18, 2018

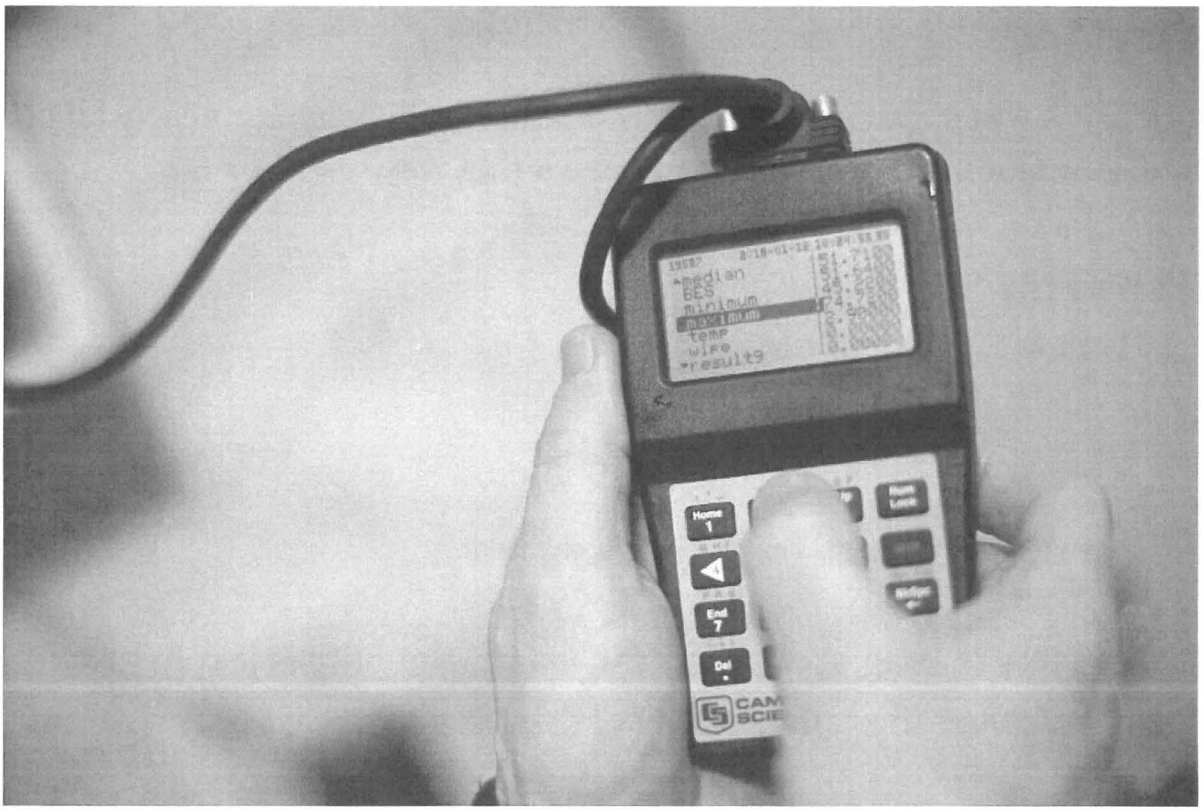
New Yorkers like to brag about their tap water. Not only is it safe to swill, but it has even been called the "champagne of drinking water."

Now, New York City has committed $1 billion to protect the nation's largest municipal water system as part of a far-reaching 115-page agreement with state health officials that makes New York one of the few cities in the country that can provide nearly all of its tap water without being forced to rely on expensive filtration plants.

"The city's water system could well be its single most important capital asset — or at least on par with the subway system," said Eric A. Goldstein, a senior lawyer for the Natural Resources Defense Council, an advocacy group. "Imagine living without clean running water in New York City for even a single day. Life as we know it would grind to a halt."

New York's immaculate water supply is backed by science, lots of it. Every day, dozens of scientists monitor the quality of the city's drinking water, collecting samples by hand that are tested no less than 600,000 times a year for more than

250 variables, including pollutants. They are augmented by a growing army of robotic monitors that have been plunged into far-flung reservoirs, testing the water another 1.6 million times a year.



Every day, dozens of scientists monitor the quality of the city's drinking water, collecting samples that are tested no less than 600,000 times a year. Piotr Redlinski for The New York Times

This enormous monitoring apparatus is one critical part of New York City's drinking water supply, ensuring the safety of more than a billion gallons of water flowing daily through a sprawling network of three pristine lakes, 19 reservoirs, and mile after mile of aqueducts and tunnels. About 90 percent of that water never sees the inside of a filtration plant, flowing from huge reservoirs as far as 125 miles away in the rural Catskill Mountains.

New York has spent more than $1.7 billion to protect this unfiltered water supply since the early 1990s, in return for being granted a succession of federal and state waivers exempting it from costly filtration requirements. It is one of only five cities nationally — along with Boston, San Francisco, Seattle, and Portland,

One — that have an unfiltered water supply. This marvel of water engineering has attracted visits from scientists and government officials from Australia, China, India, Singapore and Colombia.

The financial stakes are high. Vincent Sapienza, the commissioner of the city's Department of Environmental Protection, said that if the city were refused a waiver, it would have to spend more than $10 billion to build a massive filtration plant, and at least another $100 million annually on its operation — which would be "the largest capital project that the city has ever taken on." Water bills would have to rise significantly to cover the cost, he said.

The city already filters 10 percent of its drinking water from a dozen small reservoirs surrounded by development in Westchester and Putnam counties. In 2015, it opened a $3.2 billion filtration plant under a golf driving range at Van Cortlandt Park in the Bronx.

The city's new $1 billion investment in the drinking water system will be used to reinforce and expand a host of programs that protect the one million acres of watershed land surrounding the reservoirs that supply the unfiltered drinking water. The biggest chunk, or $200 million, will be used to maintain and upgrade dozens of wastewater treatment plants. Ensuring the adequate collection and treatment of wastewater, including sewage, is crucial because that wastewater is cleaned and released back into the environment and eventually reaches the rivers and streams that feed the reservoirs.

Allison Dewan, right, and Paul Perri, scientists for the New York City Department of Environmental Protection, gathering water samples from a tributary of the Ashokan reservoir. Piotr Redlinski for The New York Times

Another $180 million will go toward reducing pollution from working farms and managing forests to remove old and dead trees to make room for young trees that absorb more nutrients from rain and snow melt that run into the reservoirs. There will also be $150 million for shoring up eroding streams to improve water quality and support flood mitigation projects.

In addition, $96 million has been allocated for preserving land from development, especially in critical streamside areas, and $85 million will be used to expand a program that repairs or replaces septic systems for homes and small businesses to municipal buildings, churches and other nonprofit groups as well.

The new agreement is the result of more than six months of negotiations

between city and state officials, along with input from environmental and public health advocates, and representatives of upstate residents near the reservoirs.

"New Yorkers have a powerful impact when working toward a common goal — the protection of clean drinking water and lands that provide it," said Dr. Howard A. Zucker, the state health commissioner. "That is the spirit behind this agreement."

New York City's modern water system dates to 1842 when water flowed down from the first reservoir in Westchester — created by building a dam on the Croton River — in what would become known as the Croton system. It replaced a local patchwork of ponds, streams, wells and cisterns that were inadequate for a growing city, resulting in shortages during the Great Fire of 1835 and outbreaks of cholera from contaminated water.

A dam on the Ashokan Reservoir in Ulster County, N.Y.

Piotr Redlinski for The New York Times

The new water system was welcomed with parades, fireworks, and fountains shooting plumes of water 50 feet into the air. Eventually, the Croton system grew to a dozen reservoirs, but it was not enough. So in the early 1900s, city officials looked further north and started building the much larger Catskill and Delaware water systems — an immense undertaking that involved relocating residents and cemeteries and submerging entire villages.

Today, with three water systems, the city no longer has to worry about where to get its water. Yet it has faced challenges in keeping the water from the Catskill and Delaware systems safe enough to drink. The federal government has generally required surface drinking water systems to be filtered since the late 1980s, granting waivers to New York beginning in 1993 as long as the city's unfiltered drinking water met federal and state water quality standards. The unfiltered water is disinfected with ultraviolet light and chlorine.

The New York State Health Department took over direct oversight of the city's drinking water system in 2007, and last month issued the latest waiver for 10 years, including a public review process to be conducted at the five-year midpoint. State health officials said that they regularly review the city's water quality and conduct on-site inspections of the reservoirs and disinfection stations. The new agreement also calls for an independent review of the city's water protection efforts by the National Academies of Sciences, Engineering and Medicine.

"The water continues to be of a very high quality," said Brad Hutton, a deputy state health commissioner.

Mr. Goldstein concurred that the city's water protection efforts have been successful, but added that "this is no time to let down one's guard." He pointed to climate change as a growing problem, leading to more storms and floods and rapid snow melts that could increase the turbidity of the water in the reservoirs.

City environmental officials said they are expanding their efforts to address the

impact of climate change on the watershed, including setting aside more money to buy out homeowners in flood-prone areas and pay for engineering studies of flood hazards in towns and villages.

The city's efforts have not only safeguarded its water system, but also provided tangible economic benefits to residents of upstate towns and villages in the watershed — helping to smooth lingering tensions over the reservoirs, which were built decades ago on land seized by eminent domain. The city's investment in the water system has created local construction jobs, and funded development loans to hospitals, restaurants and small businesses, a far cry from the economic distress in many parts of northern New York.

The Catskill Watershed Corporation, whose board members include local town supervisors, has used city money to reimburse private property owners for treating storm water runoff, and for elevating homes and relocating businesses in flood areas. It has also sponsored school programs about the watershed, including having children raise trout in classrooms that they later release in the Catskills.

But its most popular program may be one that has given out more than $40 million to reimburse a total of 5,200 homeowners and small businesses for the repair or replacement of aging septic systems that they might otherwise have to pay for themselves. Those septic systems now treat 1.7 million gallons of sewage a day.

"Homeowners get a septic system that is working and the city gets 1.7 million gallons of clean water," said Timothy Cox, a lawyer for the corporation. "It has been successful in not only preserving the watershed but also the community character of the watershed."

374601

Moore-Love, Karla

From: Lauren Courter <lauren.courter@mthoodenvironmental.com>
Sent: Tuesday, November 19, 2019 3:10 PM
To: Council Clerk – Testimony
Subject: Written Testimony, 11/20 Agenda Items 1079 & 1080
Attachments: COURTER-Testimony_11-20-2019.pdf

Please see the attached written testimony for the November 20, 2019 City Council agenda items 1079 and 1080.

I respectfully request that my comments be distributed to each City Council member.

Regards,

Lauren Courter

To: Portland City Commissioners
RE: Written public testimony for Agenda items 1079 & 1080

November 19, 2019

Mayor Wheeler and City Commissioners,

Given the growing budget and the evolving rationale for the proposed project, I kindly ask that each of you carefully revisit the fundamental reasons for this project. Ask the Portland Water Bureau:

"What are our options to significantly reduce the budget to treat cryptosporidium?"

A NO vote on the Stantec design contract for $51 million is necessary for the following reasons:

There is time to delay and reevaluate options
Filtration is not required to treat cryptosporidium, therefore a hasty timeline for filtration is unnecessary. Crypto treatment can quickly be addressed by UV, ozone, OR chlorine dioxide by the 2027 OHA deadline. Time exists to carefully consider a phased approach and tailor a detailed budget toward the goal of filtration, if the City deems the project necessary.

Large Project Cost with a -30% to + 50% accuracy
The current $820M results from a 42% budget increase to include pipes. Location must be reconsidered since the major factor attributed to the rising cost is the site. Carpenter Lane does not exist on the current conduits. Other sites are located on the existing conduits. Choosing a site where the conduits exist will save ratepayers this high cost.

The $820M does not include the costs already incurred, the known and unknown additional costs associated. See attached tables.

Community Impacts
NO FILTRATION PLANT OF THIS SCOPE AND SCALE EXISTS WITHIN A COMMUNITY IN NORTH AMERICA. This project will change this rural community.

This project negatively and unnecessarily impacts:

- Residences proximal to the proposed site
- Residences on the proposed pipeline
- Residences on truck routes
- Elementary school and attending children proximal to the proposed site
- School children on bus routes that utilize the arterioles of the project site
- Approximately 20 agricultural businesses and their employees
- Fish and wildlife
- Aquifer under proposed site
- Roads

Sincerely,

Lauren Courter

Known Costs not included in $820M figure:

$51M	Design contract
$41M	Pump station and new conduit (*Jacobs report 2018*)
$185M	General contractor (22.5% of facility costs) (*Jacobs report 2018*)
$1,000/day	EPA fines due to Land Use Appeals and Lawsuits
$21M	Annual operation costs $400/million gallons (145 million gallons @ 365) (*PWB October 2019*)

Unknown Costs remaining

?	Pipe design contract
?	Capital Costs/Property Acquisition (~20-30 parcels)
?	Lifecycle Costs
?	Legal Fees
?	Environmental Impact Assessments, Chemical and Hazardous Materials
?	Environmental Impact Assessments, Fish and Wildlife
?	Environmental Impact Assessments, Aquifer
?	Road Construction & Improvements

Costs to date not included in $820M figure:

$16M	UV plans
$800,000	House purchase (November 2019), Carpenter Lane
?	Engineering contracts for Site Selection process
?	Contractors for initial environmental assessments

37460 1046

McClymont, Keelan

From: Carrie Dahl <carrieadahl@gmail.com>
Sent: Tuesday, November 19, 2019 1:01 PM
To: Council Clerk – Testimony
Subject: Water filtration

To Whom it May Concern,
We recently bought a property off Bluff Rd in Boring, OR. We purchased acreage and a home so that our seven kids would have space to enjoy nature and burn off energy outside. We've adopted 3 kids from foster care, one with special needs, and the acreage and quiet are so good for their needs. I've been informed of the water filtration plant's impact on our small community, specifically the number of large trucks driving that will be driving by our property on what are already dangerous corners.
It's my understanding there are other options for clean water that will not disrupt an entire community's peace and will not cost the rate-payers over a billion dollars (we all know the $850 million is a low estimate).
Please reconsider the impact of this project not only on our community but also for the unnecessary financial burden to rate-payers.
Sincerely,
Carrie Dahl
(503)484-7732

Dee White Testimony on Bull Run Filtration Projects

November 13, 2019

1046 Adopt a set of priority values, expectations, and the Recommended Option to guide the design and implementation of the City of Portland's Bull Run Filtration Projects (Resolution) 25 minutes requested for items 1046-1047

1047 Authorize a contract with Stantec Consulting Services, Inc. for design services for the Bull Run Filtration Project in the amount of $51 million (Ordinance)

Item 1047 Proposed Substitute Exhibit A

My name is Dee White.

I am imploring each of you today to please come together and pull this contract and this resolution, both for the Bull Run Filtration Projects. I respectfully request that each of you reconsider your decision to build filtration and weigh it against what each of you will be doing to the Portland community by moving forward. If you pass this contract and resolution, you will be giving the water bureau an open checkbook, payable by the Portland ratepayer, for the biggest-of-its-kind, high risk, highly contested and financially uncertain treatment facility.

Many of us believe that paying for this treatment plant is going to send hundreds if not thousands of people over the edge financially and most certainly many Portland ratepayers will be faced with a choice of paying for their water or paying for food or medical attention.

We need a robust process where the public participates, is heard and is listened to!

The Portland Water Bureau has been quietly and unconscionably breaking the 1991 federal EPA Lead and Copper Rule for decades while our regulator, the Oregon Health Authority has turned a blind eye to the Portland Water Bureau's legendary, dangerously high lead levels.

Portland including Gresham, has, by far, the highest lead levels in our drinking water of any city in the West. We have exceeded the federal limit 9 times since

1999 and that's about how long the public has been fighting with the water bureau over this gross LT2 policy of build, build, build instead of delivering us safe, lead-free water.

The damage that has been done to this community, to our schools and school children, and to our most vulnerable, by the dangerous levels of this neurotoxin in over 10% of Portland's homes, schools and parks, – that's tens of thousands homes - is inestimable. Enough is enough.

The Oregon Health Authority has given the water bureau free rein over the past two decades to build so far over $500 million of costly infrastructure projects to address an industry driven EPA rule that doesn't even apply to our water supply given our federally protected Bull Run watershed.

Please take a look at the hard copy testimony I just gave you. I presented this material to the Portland Utility Board, which is the water bureau oversight board, on October 1. It's way more than I can say in three minutes. There is so much to be said about the lack of transparency, the 25 years of crony contracting with Montgomery Watson Harza which now goes by Stantec and the unproven corrosion control treatment solution that dates back to 1994 that is currently being built as part of Bull Run Filtration Project.

November 13, 2019

Dee White Testimony

1046 Adopt a set of priority values, expectations, and the Recommended Option to guide the design and implementation of the City of Portland's Bull Run Filtration Projects (Resolution) 25 minutes requested for items 1046-1047

1047 Authorize a contract with Stantec Consulting Services, Inc. for design services for the Bull Run Filtration Project in the amount of $51 million (Ordinance)

Dee White testimony

This packet of material was presented by Dee White to the PUB (Portland Utility Board) on October 1, 2019 for the Bull Run Treatment Project update meeting. 1900 SW Fourth Ave. 3:30

Addresses:

1. OZONE stealth addition

2. CONDUIT 5 withheld information from Mayor and Comm Hardesty

3. 25 YEAR OLD Corrosion Control TREATMENT SOLUTION – NO PILOT PROJECT

4. CRONY CONTRACTING, FAVORITISM

37460]

$ Ozone
$$ UV
$$$$ Filtration > 3 Alternatives to address LT2

Federally protected watershed + Ozone = THE SOLUTION for ~~PWB but they~~ dismissed.

Jump to main content.

Drinking Water Treatability Database

Contact Us

Search EPA: Go

- You are here: EPA Home
- Drinking Water Treatability Database
- Ozone

Ozone

Overview Contaminants References

Ozone (O_3) is one of the strongest disinfectants and oxidants available in drinking water treatment. Ozone must be generated onsite and used immediately. Due to its short half-life, typically less than 30 minutes, a residual is not maintained in downstream processes; therefore, it can only be used as a primary disinfectant. A secondary disinfectant such as chlorine or chloramine must be added to maintain a disinfectant residual within the distribution system. Ozone can be applied at various points in the treatment train, although it is usually applied prior to coagulation (reduces coagulant demand) (Figure 1) or filtration (causes micro-flocculation which improves filterability) (Figure 2).

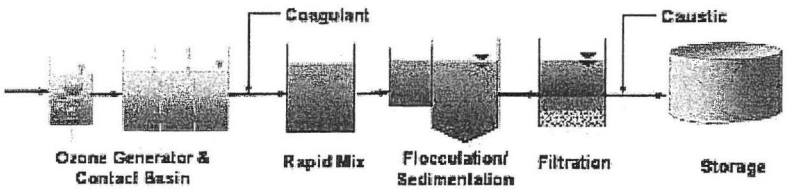


Figure 1: Ozone application as a pre-oxidant.

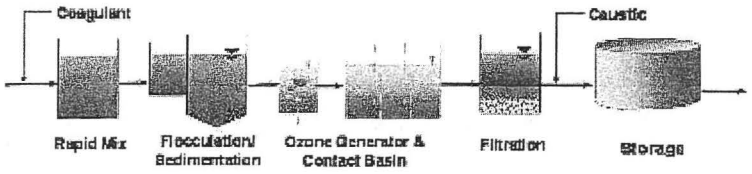


Figure 2: Ozone application prior to filtration.

Ozone is generated onsite by an ozone generator that uses either dried air (requiring air dryers and compressors) or liquid oxygen (LOX). The LOX system is preferred as it produces higher a percent weight concentration of ozone (%wt as O_3) than the dry air system. The solubility of ozone in water

depends on temperature and its concentration in the feed gas. Ozone contactors (diffused bubble or in-line injection systems) are used to dissolve ozone in water. Diffused bubble systems, commonly used in drinking water treatment, are typically composed of several enclosed consecutive chambers. In the first chamber, water flows downward against rising bubbles (countercurrent). Additional chambers are added to ensure sufficient contact time between ozone and water. These chambers may be countercurrent, cocurrent (water and rising bubbles flowing upward) or flow through (no ozone bubbles introduced in the chamber). A sampling port located in each chamber is used to measure ozone residual. The ozone contactor off-gas must be recycled or destroyed to minimize exposure to unhealthy ozone levels. Ozone destructors usually use heat or a combination of heat and a catalyst to remove ozone from the air. Ozone in the off gas results when all the applied ozone is not transferred into the water.

When ozone is added to water, a complex chain of reactions results in the formation of radicals, such as hydroxyl radicals (·OH). The hydroxyl radical is stronger than ozone itself. Oxidation with molecular ozone occurs slowly in contrast to oxidation with hydroxyl radicals which occurs very rapidly. Water quality parameters, such as pH have a significant impact on ozonation. Different ozone dosages are required for different pH levels. Higher pH facilitates ozone decomposition due to increased hydroxyl radical formation; whereas, lower pH (less than 7.0) slows down ozone decomposition resulting in higher concentrations of molecular ozone. The rate of ozone decomposition increases significantly (due to ·OH formation) when the pH is grater than 8.0. Ozone residuals are difficult to maintain at pH levels greater than 9.0. While molecular ozone is easily measured, hydroxyl radical is difficult to measure and typically measured in research efforts.

In addition to pH, other water quality parameters can impact ozonation and maintenance of ozone residuals. Higher alkalinity affects pH control. Turbidity, organic matter and color all increase ozone demand. Inorganics like iron and manganese also increase ozone demand. Disinfecting and oxidative properties are relatively independent of temperature; however, as temperatures increase, the solubility of ozone in water decreases. The major challenge with higher temperatures is the ability to transfer an adequate ozone dosage to the water. This can be accomplished by increasing the ozone concentration in the feed system and/or by providing adequate design for ozone transfer.

The product of ozone concentration (C) and contact time (T) determines CT which is an important measure ability of ozone to disinfect and inactivate microbes.

Ozone organic disinfection byproducts (DBPs) are numerous and include aldehydes, ketones and carboxyl acids. Ozone also converts a portion of the total organic carbon (TOC) into biodegradable dissolved organic carbon (BDOC). If untreated (typically by GAC filter or by a biological filter), BDOC may cause biological growth in the distribution system. Ozonation of water containing bromide can lead to the formation of the inorganic DBP bromate (BrO_3), which must be maintained below the regulated 10 µg/L level. Bromate formation depends on water quality conditions including bromide levels, pH, temperature, alkalinity, ammonia concentration and TOC levels. Bromate levels can be controlled while achieving effective *Cryptosporidium* inactivation by using bromate mitigation strategies such as pH depression, ammonia addition, and/or chlorine-ammonia processes.

Local Navigation

37460

Impacts to water rates

Annual additional impact through 2028, above current forecast:

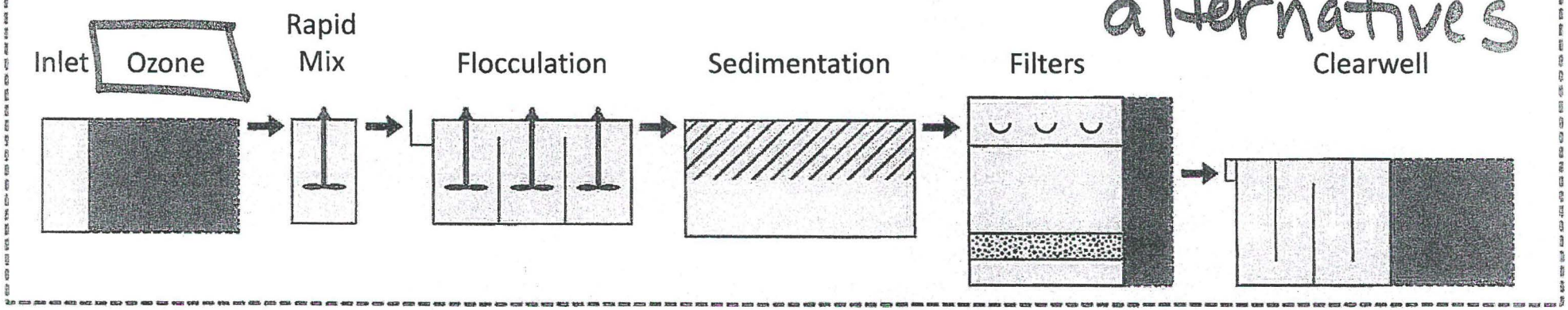
- Full implementation 1.8%
- Phased implementation 1.1%
- Minimum compliance 0.7%

No transparency + 7.4% + 1.8% = 9.2%

Unacceptable

Filtration Facility alternatives > as opposed to LT2

Capacity alternatives



Oxidant added to improve filtration, break down organics & inorganics	Coagulants added to promote particle removal	Gentle stirring brings particles together for easier settling	Larger particles settle out, protecting filters from early clogging	Most remaining particles trapped in filter media	Disinfection with chlorine; storage for operations, shutdowns, and emergencies

OZONE is an LT2 Alternative & was ruled out by PWB in 2017.

OZONE
UV
Filtration > LT2 Alternatives

NEW ADDITION
↑ $$$$

Full implementation summary

- Meets all projected demands for the next 20 years
- Larger clearwell provides flexibility
- Filtration rate best handles turbidity
- Ozone
  - Allows quickest recovery after major event
  - Improves everyday filtration
  - Destroys algal toxins
  - Enhances organics reductions
  - Improves taste odor and color
  - Another barrier to microorganisms
- Maximizes gravity capacity of conduits
- Avoids disrupting the community again in the near future
- Increases resilience to climate change and seismic events
- Allows second pipe maintenance without system shutdown
- Replaces aging infrastructure
- Least cost over entire planning horizon

37460

Bull Run Treatment Projects
Short-Term Communications Plan and Preliminary Framework Guidance (Rev. 7/10/18)

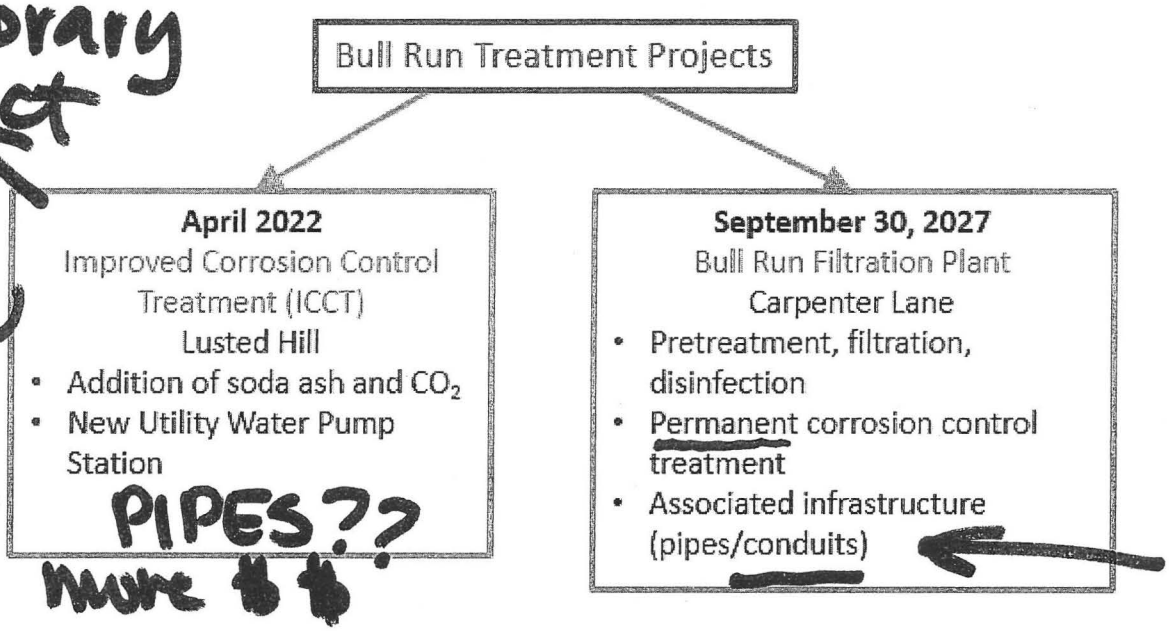
Background

Over the next 10 years, the Portland Water Bureau will be making two major treatment changes to the Bull Run supply:

1. Improved Corrosion Control Treatment (ICCT), which will adjust pH and alkalinity of the water to reduce corrosivity and the risk of lead leaching from home plumbing.
2. Bull Run Filtration project, which will remove *Cryptosporidium* and provide other water quality benefits. The filtration plant will also include integrated, permanent corrosion control treatment.

temporary project

$120 MILLION AT LEAST



PIPES?? more $$

CONDUIT $$ MORE $$$

These two treatment projects are inextricably linked and are considered part of the larger Bull Run Treatment Projects.

Objective

This short-term plan defines the specific activities, tasks, responsible staff and schedule for communications from June to November 2018. The goals are to inform customers, stakeholders and PWB employees on the upcoming changes in Bull Run treatment.

CONDUIT 5 not presented to Public or City Council

Audience	Interests	Available Channels
Site and Conduit Route Neighbors Neighbors who will be directly affected by construction activities, including properties along the Conduit 5 route.	• Construction impacts • Community impacts from long-term operations • Decision process	☐ Neighborhood door knocking ☐ Open houses ☐ Mailings
PWB Employees Includes all employees – staff are interested and often asked questions on the job and outside of work. Special focus on outreach and frontline staff who routinely interact with the public.	• Decision making • Water quality • Project progress	☐ Internal newsletter – Bull Run Dispatch ☐ Internal website – Water Cooler ☐ Regular group staff meetings (vary by group) ☐ B&C "morning musters" ☐ Targeted trainings ☐ SOAKED annual orientation for new employees ☐ "WB all" emails
Sensitive Users Commercial users whose operations may be affected by changes in water chemistry such as food and beverage, high-tech and medical providers (dialysis, hospitals etc.).	• Water quality – corrosion control treatment (may require their own capital improvements) • Impact on groundwater use • Impact of boil water notices • Need to provide their own treatment for Crypto and turbidity	☐ Direct contact ☐ Sensitive Users Mailing List – pick and choose ☐ Open House/Training event
Low Income, Underrepresented Communities Members of the community who have been historically underrepresented and lower income individuals who will be most affected by required rate increases.	• Rate increases, affordability, equitable allocation of costs • Economic opportunity • Water quality and public health	☐ Low income (LINC) Assistance Program and program mailing list ☐ Outreach On-Call Service (Multi-Cultural Collaborative) ☐ Summer tabling events ☐ Outreach under future Community Benefits Agreements ☐ Lead in water mailer to apartment units
Large users Customers who may be significantly impacted by rate changes.	• Rate increases	☐ Direct contact ☐ Business, Industrial and Commercial Users List (maintained by Res Pro)

Taking land for a

37460

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

Amanda Fritz, Commissioner
Michael Stuhr, P.E., Administrator

1120 SW Fifth Avenue, Room 600
Portland, Oregon 97204-1926
Information: 503-823-7404
www.portlandoregon.gov/water

IMPACT STATEMENT

TEMPORARY PROJECT!

Date: June 10, 2019

Council Date: July 24, 2019

Legislation Title: Authorize the Water Bureau to acquire certain property and easements necessary for construction of the Corrosion Control Improvements Project through the exercise of the City's Eminent Domain Authority as a last resort (Ordinance)

Contact Name: Michelle Cheek

Contact Phone: (503) 823-2003

Presenter Name: Teresa K. Elliott, P.E., Chief Engineer
Ben Gossett, Coordinator III

Purpose of proposed legislation and background information:

The purpose of the proposed legislation is to authorize the Water Bureau to acquire certain fee property and permanent easements necessary for the construction and maintenance of the Corrosion Control Improvements (Project) through the exercise of the City's Eminent Domain Authority. The properties are described in Exhibits A-L attached to the Ordinance.

The Project is part of the Water Bureau's ongoing efforts to minimize the corrosion of lead in household plumbing. The Water Bureau is required to meet the Oregon Health Authority's compliance schedule with completion of the corrosion control treatment facility by April 30, 2022. This Project will design and construct a corrosion control treatment facility at the Water Bureau's Lusted Hill Facility which will include a new building to house the new corrosion control treatment system, a new utility water pump station, and associated piping and support systems.

In order to accommodate construction, facility access, and future maintenance, the Water Bureau would acquire new property in fee, clarify existing property rights language, and acquire new permanent easements.

Financial and budgetary impacts:

The cost to acquire the Project property rights will be determined by an appraisal that will comply with the requirements of ORS Chapter 35, Eminent Domain; Public Acquisition of Property.

↘ TEMPORARY PROJECT 37460

The estimated total Project cost is $19,916,132. Funds of $1,600,000 are available as part of the FY 2019-20 Budget. Additional funding will be requested in FY 2020-21 through FY 2022-23 Budgets.

The proposed legislation will not create, eliminate or re-classify any positions now or in the future.

Community impacts and community involvement:

The Project is still in an early design phase. There will likely be traffic impacts along Lusted Road, although they are anticipated to be minimal. Traffic control plans will be developed to mitigate traffic impacts on the local, rural community. It is anticipated that traffic control plans will be implemented by the hired Contractor to assure the vehicles, machinery, equipment, and supplies do not block traffic for an extended period. Traffic control plans will likely include flaggers, signs, traffic cones, road closure signs and other approved Manual on Uniform Traffic Control Devices (MUTCD) traffic control during construction to minimize local impacts. A utility corridor with utility piping will cross SE Lusted Hill Road. As a result, this road may be shut down during installation activity.

Water Bureau designated staff will inform impacted owners within the Project area of the proposed legislation to obtain eminent domain authority to acquire property rights on their property. Based on this information, area owners may testify at the City Council meeting. No other individuals are anticipated to testify.

100% Renewable Goal:

This action will not increase or decrease the City's total energy use. This action will not increase or decrease the City's renewable energy use.

Budgetary Impact Worksheet

Does this action change appropriations?

☐ **YES**: Please complete the information below.

☒ **NO**: Skip this section

Fund	Fund Center	Commitment Item	Functional Area	Funded Program	Grant	Sponsored Program	Amount

Michael Stuhr, P.E., Administrator — Date 6/17/19

WILL BE ABANDONED in 2027. 2

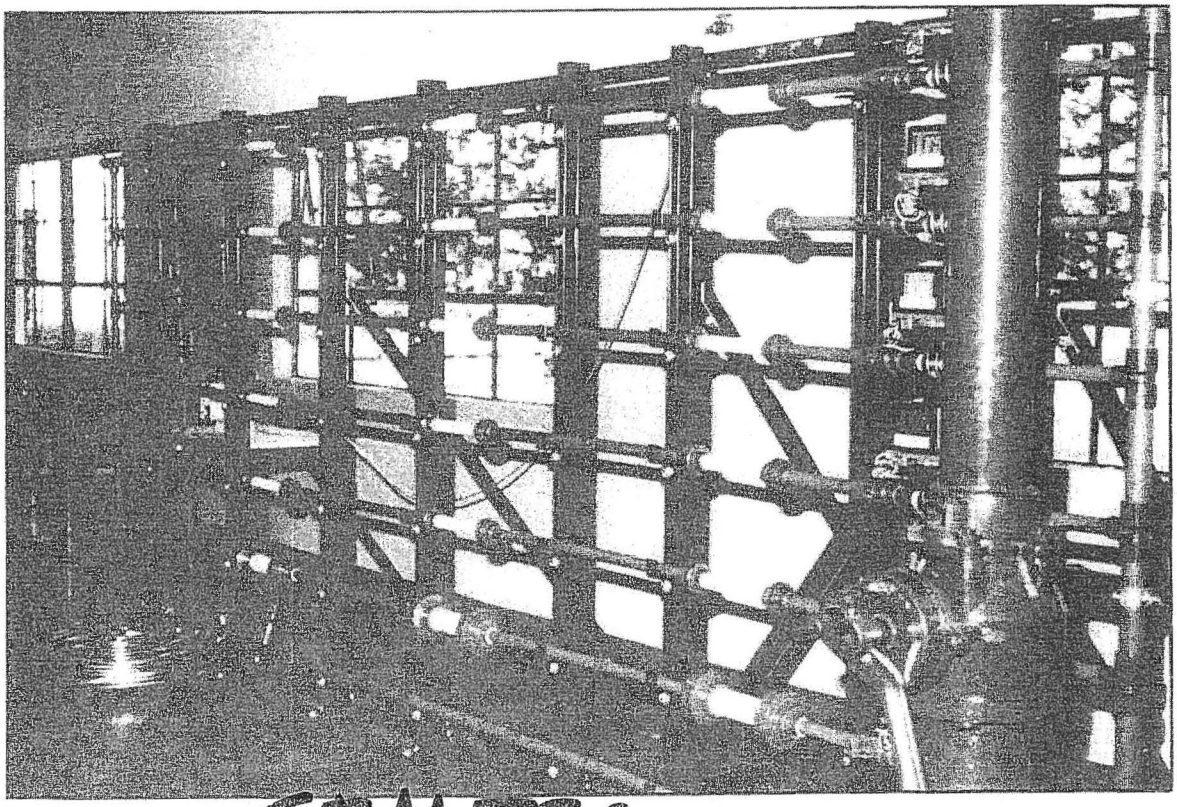
LUSTED HILL ABANDONED TOO.

BUREAU OF WATER WORKS

PORTLAND, OREGON

INTERNAL CORROSION MITIGATION STUDY
FINAL REPORT

NOVEMBER 1982

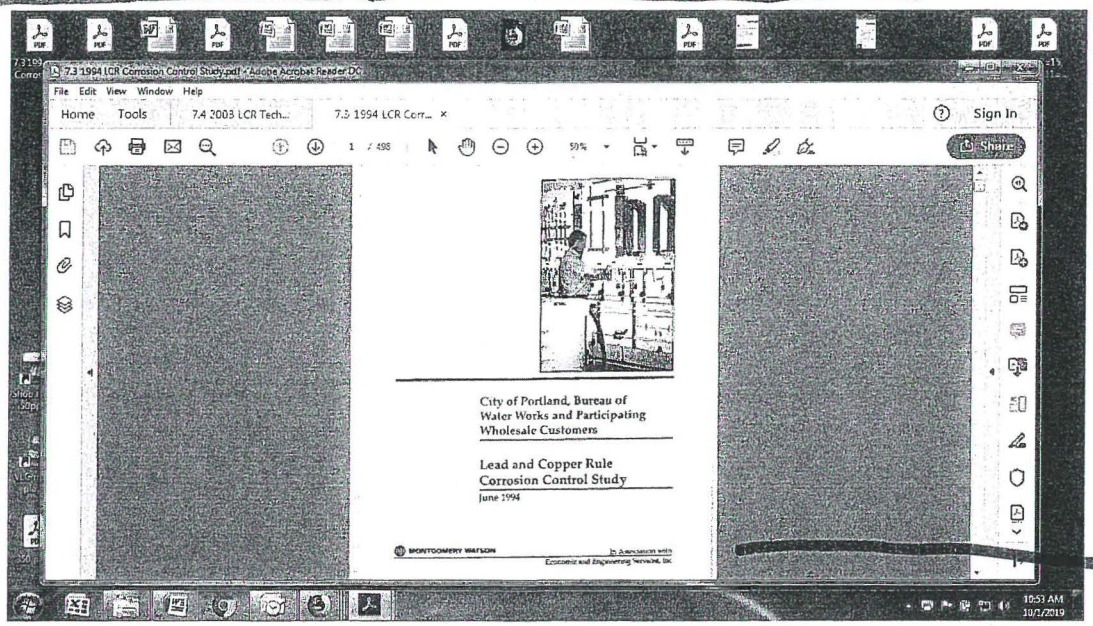


STANTEC 2018

Montgomery Watson Harza

JAMES M. MONTGOMERY, CONSULTING ENGINEERS, INC.

Screenshot of cover for PWB's only bona fide Corrosion Control Study, 1994



Montgomery Watson

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STANTEC

TREATMENT OPTIONS

The corrosion control measures available for domestic water like that of Portland include: (1) blending with harder, more alkaline water, (2) elevation of pH and alkalinity by addition of lime and soda ash, (3) sodium silicate corrosion inhibitor, (4) zinc polyphosphate corrosion inhibitor, and (5) zinc monobasic phosphate corrosion inhibitor. All of these techniques have been used by other cities, with various degrees of success.

Elevation of the pH, such as by addition of lime or caustic soda, would have the beneficial effect of reducing the levels of copper and lead leaching, since both of these species are less soluble at higher pH's. However, pH elevation by itself, without alkalinity addition, could exasperate the galvanized steel corrosion, as shown in Figures 1-13 and 1-14. For this reason, increases in the pH should be accompanied by increases in the alkalinity, in order to maintain the existing low steel corrosion rates.

No effects could be seen indicating that there are differences in corrosion protection between sodium hydroxide, lime, sodium bicarbonate and carbon dioxide when used to reach equivalent pH and alkalinity values.

Phosphate and zinc phosphate, when the pH and alkalinity are increased, are effective in reducing corrosion rates and, especially Pb release.

Silicate and a silicate/phosphate inhibitor were effective in reducing copper corrosion and release, but less so for lead/tin solder.

The groundwater was the least corrosive water tested. Its inhibiting effect was quite apparent when blended 50:50 with the chloraminated Bull Run water.

Final Report for

Portland Water Bureau and Region X US Environmental Protection Agency Review of Corrosion Control Practices for Portland Water Bureau Water Sources

September 2003

Prepared by the Technical Advisory Committee
Dr. Michelle Frey, McGuire Environmental Consultants
Gregory J. Kirmeyer, Economic and Engineering Services, Inc.
Anne Sandvig, Sandvig Consulting
Michael Schock, USEPA
Dr. Vernon Snoeyink, University of Illinois
Dr. Rhodes Trussell, Montgomery Watson Harza

EXCERPTs from this report:
In 1996, the Bureau initiated two studies: a design study for facilities to feed the corrosion control chemicals, and a planning study to develop alternatives to chemical treatment, i.e., approaches that did not involve chemical additions.
The design study recommended that the Bureau plan to adjust pH and alkalinity using up to three chemicals; sodium hydroxide, soda ash and CO_2. The concurrent planning study addressing nonchemicalalternatives concluded that drinking water is not a major route of lead exposure in the Portland area

It is recommended that the Bureau avoid the use of lime unless operations staff is willing to take on a dirty gritty chemical.

2018

37460

August 29, ~~2017~~

Testimony from Dee White

My name is Dee White.

924 Approve findings to authorize an exemption to the competitive bidding requirements and authorize the use of the alternative contracting method of Construction Manager/General Contractor in connection with the Bull Run Filtration Project for an estimated amount of $350,000,000 (Second Reading Agenda 898)

925 Authorize a contract with Brown and Caldwell, Inc. for the Program Management and Support Services for the Bull Run Filtration Project for a total not-to-exceed amount of $67,891,398 (Second Reading Agenda 899)

Because of: 1) an utter lack of transparency, and 2) redundant, duplicate contracting, Portland ratepayers could be faced with paying for 2 treatment projects: one (Bull Run Filtration Project) that contractually is beyond the scope of the project as described in the Ordinance and the Impact Statement and another treatment project (Corrosion Control Project) that is redundant and unsubstantial.

The Brown and Caldwell contract (Proposed Contract) also states that there will eventually be two design contracts that are apparently the subject of agenda #898 below, for a CM/GC contract: one for the treatment plant (WTP) and one for pipes (Pipelines). I believe these concerns I have also involve intentional misrepresentations.

First, I would like to point out:

1) **the water bureau has a brand new $60 million facility on N. Interstate, Portland, that includes maintenance, administration, and a state-of-the-art water quality lab**
2) **the recently expanded (2013) Lusted Hill facility currently provides for Bull Run water disinfection and corrosion control.**

Excerpts from the Impact Statement:

The purpose of this legislation is to authorize a Professional, Technical, and Expert Services contract with Brown and Caldwell, Inc. for Program Management and Support Services for the Bull Run Filtration Project (Project).

The cost for planning, design, and construction of a filtration plant is estimated to be....

Excerpts from the Ordinance:

Authorize a contract with Brown and Caldwell, Inc. for Program Management and Support Services for the Bull Run Filtration Project.....

.....to develop and implement a pilot program and deliver a complex water treatment facility capable of complying with the Long Term 2 Enhanced Surface Water Treatment Rule.

Excerpts from the Proposed Contract:

The Project will plan, design, and construct all treatment systems related to the Bull Run Supply including filtration, pre/post treatment systems, disinfection, and corrosion control. <emphasis mine>

Identify basic parameters for the project's filtration process structures and non-process buildings that include Administration/Operations, Maintenance, and Water Quality Laboratories.

Contractor will conduct a field assessment along the proposed pipeline routes and of the proposed WTP site to determine if there are cultural resources

Expectations for this task include the following:
• Two design contracts (WTP and Pipelines)

Here is another concern about this Proposed Contract: redundant, duplicative contracting

1. ***Ordinance #188272 Corrosion control contract March 2017***

Authorize a contract with Confluence Engineering Group, LLC in the amount of $664,930 for the Corrosion Control Treatment Pilot Project (Ordinance)

The work performed by Confluence Engineering Group, LLC will be divided into two phases. Phase 1 will conclude with development of an experimental plan for the Treatment Pilot. Phase 2 will conclude with recommendations for full-scale implementation of improved corrosion control treatment

The Water Bureau recommends approval of the Corrosion Control Treatment Pilot as a first step in a multi-phase project that would ultimately include design and construction of a corrosion control treatment facility to implement additional treatment.

Excerpts from Proposed Contract:

Please note that there are numerous referrals to corrosion control, corrosion chemicals and pilot testing. Here are a few:

Page 7 of 13 <emphasis mine>

NAME	DMWESB CERTIFICATION TYPE	ROLE ON PROJECT	SUBCONTRACT AMOUNT
Akana	D/MBE	Civil	$300,000
Aladon	RCD/M		$390,000
Assessment Associates, Inc.	ESB	Environmental Assessment	$200,000
Asset Management Professionals	MBE/ESB	Asset Management	$250,000
Barney & Worth	WBE	Communications	$3,370,000
CFM Strategic Communications	Public Affairs		$150,000
CMTS	D/MBE	Construction Inspections	$925,000
Confluence Engineering Group, LLC	**and Corrosion**	**Water Quality**	**$1,220,000**

Additional information will be added to the website as more is known about the filtration and corrosion control projects, process, plant capacity and program schedule.

Piloting Objective To conduct a pilot investigation that collects the data required to recommend the appropriate treatment processes and test high-rate granular media filtration over seasonal variations and corrosion control.

2. Ordinance #188620 Stantec Consulting Services CM/GC contract September 2017

Authorize a contract with Stantec Consulting Services, Inc. in the amount of $3,325,000 for the Corrosion Control Improvements Project (Ordinance)

The goal of the Corrosion Improvements Project (Project) is to design and construct a corrosion control treatment facility at the Water Bureau's Lusted Hill Facility.

Excerpt from the Proposed Contract

The Project will plan, design, and construct all treatment systems related to the Bull Run Supply including filtration, pre/post treatment systems, disinfection, and corrosion control.

---

3. Ordinance #188621 CM/GC contract $11,000,000 Sept. 2017

Approve findings to authorize an exemption to the competitive bidding requirements and authorize the use of the alternative contracting method of Construction Manager/General Contractor all in connection with the Corrosion Control Improvements Project for an estimated amount of $11,000,000 (Ordinance).

Please note that this is a separate project being contracted for at Lusted Hill. There are multiple contractors that are contracting with both of these overlapping projects.

Below are my concerns with the CM/CG no-bid contracting method.

As I said in my testimony on August 22, allowing for this contracting method at this point in time is putting the cart before the horse and is putting the ratepayers at risk for unexpected, unforeseen scope expansions and increases in project costs for which they will be held responsible for paying.

This method of contracting, when used by the water bureau, has proven to be very problematic for the ratepayers in that the same contractors and engineering consulting firms have persisted in winning these large CM/GC contracts only to have the project fail or as in the case of Washington Park demolition, have delays and revisions to the scope and costs.

From April12, 2018 PUB meeting minutes:

Those funds will be moved to the water fund contingency. $25 million of the reduction is due to Washington Park delays because of design and constructability issues with the project. Those concerns delayed construction until summer.

From the Oregonian September 23, 2015
Water engineers issued the new estimate after more analysis of Washington Park's geology. The city estimated in 2009 that the project would cost $62.3 million. The estimate rose to $76.3 million in 2013 after more study.

The new $170 million estimate is a result of unstable soil conditions in the park and concerns associated with a potential earthquake.

Powell Butte II: this is another CG/GM contract that started at $40 million and after council approval amending the scope, increased to $138 million. The new tank subsequently failed due to cracking and cost another $14 million to fix. Please note that Powell Butte and Washington Park had the same designer and contractor and it is highly possible that he will be the preferred vendor for this CM/GC Filtration Project, unless the requirement for past performance and related experience is added to the procurement procedure and followed.

From the Daily Journal of Commerce:
Cracks slow Powell Butte reservoir construction
By: Jeff McDonald in Construction May 27, 2014 4:06 pm

The Portland Water Bureau says the $138 million project to build a new Powell Butte reservoir is on budget and will be done on time, despite the discovery of approximately 3,200 cracks.

Here is another concern: intentional assumptions of contracting method and sloppy writing
In part of the activities and deliverables in the Agenda Item 899 above, the Proposed Contract assumes the design/build contract is going to be CM/GC, which is false. The method of procurement has not been voted on.
Page 5 of 13 Proposed Contract
2. Construction of the Project shall be delivered through a Construction Manager / General Contractor (CM/GC) procurement process.

Page 9 of Exhibit A (page 22 of the pdf) Proposed Contract: *Community Benefits Agreement: Develop a Community Benefits Agreement (CBA) or similar agreement for the Filtration Plant CM/GC contract.*

Finally, attached to this ordinance #924 for CM/GC, Exhibit A, page 16 <emphasis mine>:

IV. CONCLUSION
The City of Portland meets the requirements for allowing an exemption to the competitive bidding process as identified in ORS 279C.335 (2). Use of CM/GC alternative procurement process for the Washington Park Improvement's Project.....

Yes, this is a sloppy mistake but it points to the procurement team using a boiler-plate template for writing legislation that has never been genuinely questioned and unfailingly wins Council approval.

August 29, 2018 Testimony

924 Approve findings to authorize an exemption to the competitive bidding requirements and authorize the use of the alternative contracting method of Construction Manager/General Contractor in connection with the Bull Run Filtration Project for an estimated amount of $350,000,000 (Second Reading Agenda 898)

925 Authorize a contract with Brown and Caldwell, Inc. for the Program Management and Support Services for the Bull Run Filtration Project for a total not-to-exceed amount of $67,891,398 (Second Reading Agenda 899)

contract

My name is Dee White.

I am extremely concerned and disgusted with the Portland Water Bureau's Bull Run treatment plant plans and the impact that it is going to have on the city's financial status in contrast to the extreme burden it is going to place on the ratepayers. THERE IS NO TRANSPARENCY here and I seriously believe that unless the city is open and honest about the misbehavior going on in the water bureau, the public trust is going to completely disappear. This **piecemeal, drawn out, opaque approach** that is being taken by the city/water bureau is terrible governance and stomps all over the city's main purpose and that is to provide for the common good. The Bull Run Treatment plant is going to end up costing at least a billion dollors, not including bond service.

Please take a look at the attached report found at the City Budget Office web site: ***"Bull Run Treatment Projects Short-Term Communication Plan & Preliminary Framework Guidance"*** You will see that among other egregious statements i.e key decisions already made, on pages 1 and 13, please see that in addition to a treatment plant that is going to treat for ALL treatments, there is also a NEW CONDUIT 5 in the Bull Run Treatment Project plan. A new conduit will cost at least another $400 million. Plus 5 miles of pipes. Neither of these unknown-to-the-public components of this treatment plant are included in the no-bid contract y'all are voting on today. This is not right.

My brain is sore from having to plow through these deplorable, unsubstantial documents that the water bureau pumps out continuously. I want to let you know that I will never give up fighting for justice for all ratepayers and citizens of Portland and honesty from the water bureau. The fact that the water bureau is making up official sounding phrases like "ICCT" for improved corrosion control in place of the federal Lead and Copper Rule's requirement for OCCT – optimized corrosion control treatment – is simply craven and evil and in my opinion, all of these well-paid communicators on this communications panel should at the very least be fired. Whether or not they go to prison like what is happening in Flint remains to be seen.

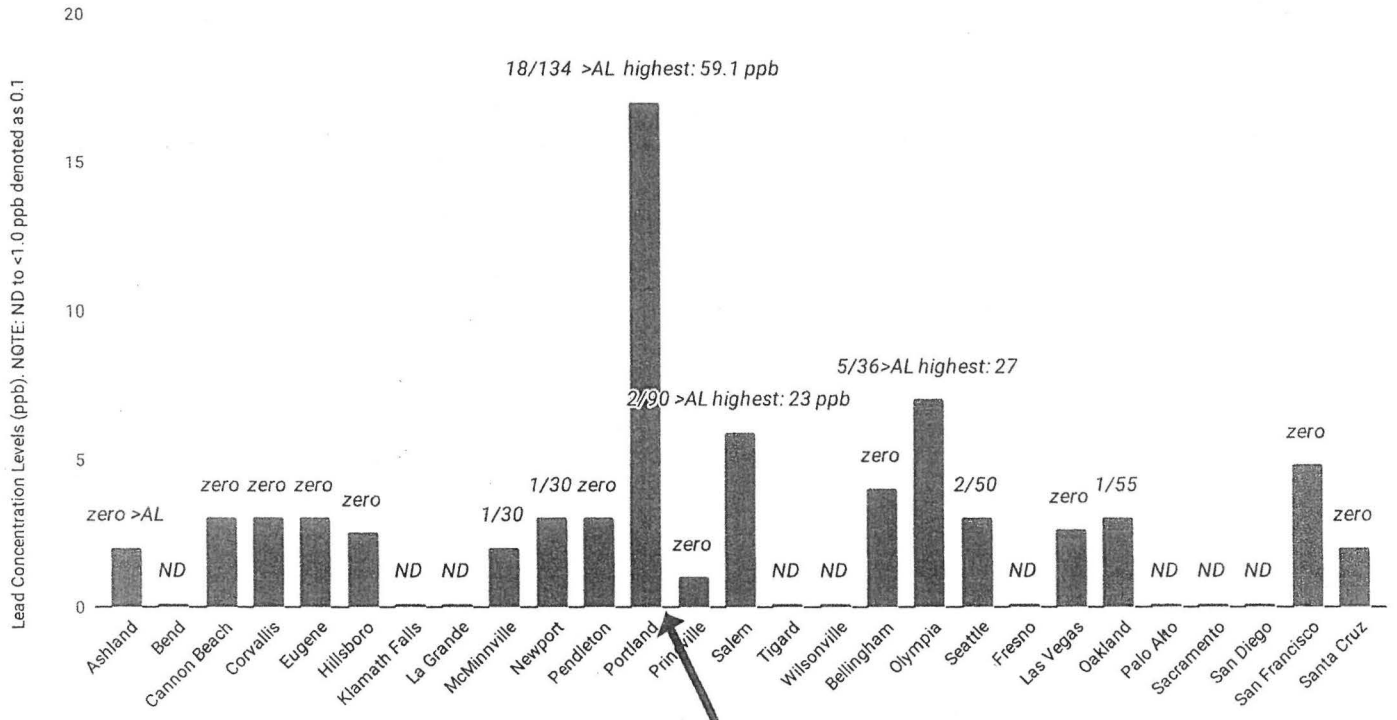
THERE IS NO SAFE LEVEL OF LEAD EVER AND CRYPTOSPORIDIUM IS AND WILL BE PROVEN TO BE A NON-ISSUE.

I have also attached former water bureau chief engineer and currently partner at Jacobs/CH2MHill Portland, Joe Glicker's manifesto ***"Convincing the Public"***, which is the water bureau's upper management's Bible. Everything is going according to plan and that is tricking the public into believing that cryptosporidium is bad and lead is not a problem. It's criminal and he along with the water bureau bureaucrats and the elected official should be fined and incarcerated.

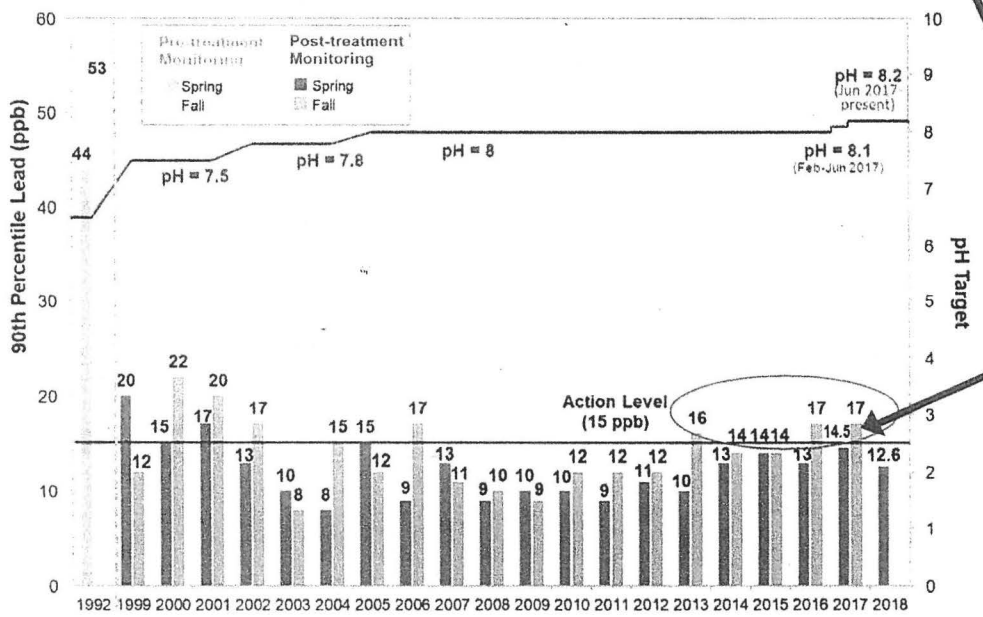
37460

Ashland	2
Bend	0.1
Cannon Beach	3
Corvallis	3
Eugene	3
Hillsboro	2.5
Klamath Falls	0.1
La Grande	0.1
McMinnville	2
Newport	3
Pendleton	3
Portland	17
Prineville	1
Salem	5.9
Tigard	0.1
Wilsonville	0.1
Bellingham	4
Olympia	7
Seattle	3
Fresno	0.1
Las Vegas	2.6
Oakland	3
Palo Alto	0.1
Sacramento	0.1
San Diego	0.1
San Francisco	4.8
Santa Cruz	2

Source - 2018 Annual Consumer Confidence Reports : Lead in water results for all "Tier 1" site homes.



Portland Joint Monitoring 90th Percentile Lead Levels



5-18

37460 1

FACTS about Portland Lead in Water

- **There is no safe level of lead.** Lead is a potent neurotoxin. **You cannot see, smell or taste lead in water**. Lead especially impacts pregnant women, formula-fed infants, and children. More than 400,000 of all adult deaths every year are linked to chronic lead exposure.
- 20 years of poor Bureau maintenance and sub-optimal water treatment has resulted in Portland having the highest water lead levels of any western region city and of all U.S. large water utilities.
- Surrounding west coast cities with the same style of plumbing, same old homes, schools, and buildings have **significantly** lower levels of lead in water compared to Portland homes + schools.
- Portland has exceeded the federal action level -15 ppb- **NINE** times over the past 20 years. Portland intentionally uses **NO optimal** treatment, to protect industry interest over public health.

FACTS about Filtration "for cryptosporidium"

- Portland's watershed enjoys federal protection. With no presence of infectious strains - hominis or parvum - of the microorganism cryptosporidium, we **do not need** filtration to remove them!
- Cryptosporidium found here:
  "***Were not the ones linked to human outbreaks";*** *not Parvum or Hominis.* – PWB
  "***We did not see a human health problem. No detectable [Cryptosporidium] problem***" - Dr. Paul Lewis, Tri-County Health Officer and Pediatrician

WHAT IS THIS GOING TO COST WATER CUSTOMERS?

- Corrosion Control of lead: $20 million for **sub-optimal corrosion control** that will **not best protect** customers from this potent and irreversible neurotoxin.
- Filtration for Cryptosporidium: $500,000,000 to treat for a microorganism **that has not been found** in our federally protected, pristine source of drinking water.

ASK THEM (Questions for Water Commissioner, City, or Portland Water Bureau)**:**

- Why are you **NOT minimizing** lead in customer drinking water? While our neighbor-cities ARE!
- Why are you not providing FREE water filters to expectant mothers/families with young children?
- Why should customers pay the cost for replacing our old corroded pipes and fixtures, when you have used **sub-optimal treatment + maintenance, which accelerates plumbing corrosion**?

***TELL THEM*:**

- You do not want to pay for a costly Filtration plant, when the public was not consulted. And, Filtration won't even address PWB's lead in water issues, a dangerous irreversible neurotoxin.
- You want them to do the job they are supposed to do: *deliver* clean, reliable water to our taps.

11/5/18 @6:28 https://www.kboo.fm/media/68966-portland-pursues-alternative-compliance-epa-lead-levels

There is no guaranteed health benefit for your family with either of these ill-conceived Water infrastructure projects, paid for by us and future generations.

37460 1046

McClymont, Keelan

From: Paul Willis <willisteam@msn.com>
Sent: Wednesday, November 13, 2019 9:26 AM
To: Council Clerk – Testimony
Subject: Public Testimony for Portland City Council November 13, 2019 Meeting Agenda Item # 1046, Bull Run Filtration Project

TO: Portland City Council Clerk November 13, 2019

I would like to provide the following Testimony for the Portland City Council November 13, 2019 Meeting regarding Agenda Item #1046, Bull Run Filtration Projects [BRF].

1. At a September 19 Council meeting, Mayor Wheeler expressed his concern about the escalating cost of the PWB's proposed Bull Run Filtration Plant [BRF] and its potential effect on Portland's AAA bond rating. The Mayor has every right to be concerned and concerned especially from a fiduciary Standpoint.
2. Escalating Costs. PWB started with the cost of $350M, now estimates $1.275B and cautions this figure is not yet final. I am sure the Mayor does not want a repeat of the "Big Pipe" sewer line escalation in cost where costs began at $464M and ended at $1.44B. The PWB may have gotten their foot in the Council Chamber door with a low ball figure and we all know costs push UP, not down.
3. Time to Revisit the Project Site Location.
    a. A major criteria for selecting the Carpenter Site was the $350M cost. Since the number is now $1.275B and increasing, it is incumbent on the PWB and especially the City Council to reevaluate all the potential project sites previously considered. Building a reevaluation off existing studies will result in minimal costs and time.
    b. Piping and Pumping.
        i. One of the major factors in the increase in costs was the piping required for the Carpenter plant. The other sites considered do not have such major piping requirements.
        ii. Over and Over we hear water pumping will not be required at Carpenter. However, Agenda Item #1047, requires the Consultant to look into "finished water pumping" needed when gravity flow is not providing sufficient MGD which is defined as 145MGD. However on page 6, Table 3, the Consultant Contract required flow is 160MGD to 240 MGD. This range of flow cannot likely be achieved without additional pumping.
    c. Land Use Approval Risk.
        i. This topic is being ignored. Multnomah Cty may reject PWB's request for Conditional Use Approval. The Carpenter site is then dead. Even if approved, I heard local Citizens are going to take this to LUBA and even the Appeals Court. Approval is an unknown risk and it is a 100% certainty the Citizens will take this to LUBA and Appeals Court. It would be money well spent to commission a Risk Assessment to determine the likelihood of the Conditional Use request being approved.
4. Time to Revisit Health Mitigation Treatment Technologies....Crypto Mitigation using UV vs. Mitigation of every foreseeable and unforeseeable undesirable effect on Bull Run water using Ozone/Sand filtration.
    a. From some Commissioner's comments, the PWB has a mission to provide an Ozone/Sand Filtration Plant and will do that at essentially any cost. This "at any cost" position needs to be challenged. There must be a point [dollar cost] at which a the UV system the PWB has already paid for the study and design of, should be the way to go.
    b. We now hear of the potential availability of a Federal loan. To the general public is sounds as if the loan will pay for the filtration project in full but it only covers some 40% of the estimated costs. That leaves the costs of 700M+ and interest on the 500M loan to be paid by the ratepayer.
5. Reevaluation. Now is the time to reevaluate Project Selection and Treatment Technologies before multimillion dollars are committed to design contracts and construction contracts.

Thank You for this opportunity to provide my thoughts for your consideration.
Paul Willis, Carpenter Resident

37460 1

Oregon Citizens' Utility Board

610 SW Broadway, Suite 400
Portland, OR 97205

(503) 227-1984
www.oregoncub.org

November 12, 2019

To: Portland Water Bureau (PWB) Commissioner-in-Charge Amanda Fritz
Mayor Ted Wheeler and Commissioners Chloe Eudaly, Nick Fish, Amanda Fritz, and Jo Ann Hardesty
Cc: Cristina Nieves, Office of Commissioner Fritz
Michael Stuhr and Gabriel Solmer, PWB
From: Janice Thompson, Oregon Citizens' Utility Board (CUB)
Re: CUB input on 11/13 City Council resolution on filtration – agenda item 1046

I am submitting this written testimony due to a medical procedure preventing my personal testimony before the City Council tomorrow on agenda item 1046. The resolution proposed in agenda item 1046 pertains to the Bull Run Filtration Projects whose construction and operation by September 2027 reflects revocation of a 2012 *Cryptosporidium* treatment variance by the Oregon Health Authority and the requirement to comply with Long-Term 2 Enhanced Surface Water Rule (LT2) via implementation of a compliance agreement with the State of Oregon adopted in December 2017 based on City Council Resolution No. 37309 adopted in August 2017.

Agenda item 1046 is predicated on City Council Resolution No. 37402 adopted in December 2018 regarding the location, capacity, and filtration type of the filtration project, but adds additional details to inform next steps in the design process as per agenda item 1047, authorization of a design services contract.

Thanks to PWB staff for addressing CUB's questions based on the recent Council work session. Particularly helpful was a meeting just last Thursday with PWB staff. Development of CUB recommendations coincided with the timing of tomorrow's hearing and take the form of these comments on agenda item 1046's proposed resolution.

Two general comments are that the proposed City Council directives to the Portland Water Bureau regarding water filtration and pipelines add both resilience and reliability to the Bull Run water system and that CUB recommends that the PWB provide updates to the Council and other stakeholders on critical design steps more frequently than on an annual basis to ensure opportunities for timely input. This may not be necessary once construction begins but more frequent reports during the design phase merit consideration to avoid surprises and timely stakeholder comments.

More specifically, CUB supports the Recommended Option with three particular comments.

One, CUB agrees with the 145 million gallons per day (MGD) capacity decision. As per the Council's December 2018 decision, assessing 145 and 160 MGD capacity options was the appropriate range of discussion. Obviously, water demand projections cannot be definitive, but 145 MGD capacity is the prudent choice that does trim project costs but seems appropriate regardless of cost impacts.

Two, CUB supports the inclusion of ozone treatment with that having been a particularly definitive recommendation from the robust group of technical advisors assisting the PWB.

Three, CUB's initial post-Council work session thinking leaned towards the two pipes & larger two-pipe raw water tunnel but a single longer finished water pipe. We recognized the merit of the two long pipe approach for finished water, but it seemed possible to add a second finished water pipe in the future even though later construction is likely to be more costly. The opportunity for the PWB to apply for low-interest financing from the EPA for the Bull Run Filtration Project and other drinking water infrastructure projects, however, is a tipping point for CUB's cautious support for the two finished water pipe option in the resolution's Recommended Option. A major point of this EPA program is to maximize the effectiveness of drinking water infrastructure improvements. Since the two pipe finished water option should be less costly overall than building one pipe and adding a second pipe this appears to be the kind of investment of particular interest to the EPA.

Thanks for your consideration of these comments.

✓ KARLA Scott Fennell
37460

To: City of Portland Council - Disinfection and Filtration

- Chlorine dioxide (ClO_2) provides for the best drinking water public health benefits, as opposed to chlorine alone that is a weak chemical.
- Chlorine dioxide provides very best cost outcome for the public, by retrofitting the Bull Run chlorine facility.
- Chlorine dioxide cost can be in the $20- $25 million area, as opposed to more than $1 billion.... for a filtration plant that can be questionable over time and money.
- Chlorine dioxide can easily breakdown/remove Cryptosporidium..... unlike chlorine alone providing inconsistencies...Bull Run Cryptosporidium has a long drinking water history of not having public health infectivity problems.
- Filtration alone is very expensive to the point of meaningless benefits of added chemicals.
- Filtration promotes truckloads of debris sent to Arlington
- Filtration sand has it's deficiencies, as the sands create tunnels and channels over time, much like an ant farm digging tunnels.. allowing contaminants to move through.
- Finally- Climate changes are here now providing cement defects, such as was saw at Powell Butte 2- +3000 cracks

37460

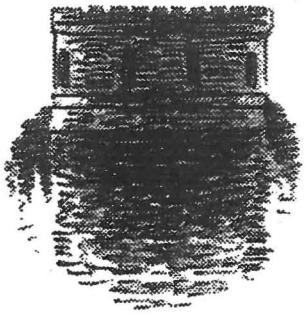
Moore-Love, Karla

From: floy jones <floy21@msn.com>
Sent: Tuesday, November 12, 2019 3:59 PM
To: Council Clerk – Testimony; Moore-Love, Karla
Subject: Bull Run treatment items 1046, 1047
Attachments: Bull run treatment plant cost escalation.pdf; City Council, No Treatment Plant.pdf

Floy Jones letter to City Council addressing Bull Run treatment
November 12, 2019
Attached find July 2017

Please acknowledge receipt and distribution
Thank you!

37460



FRIENDS *of the* RESERVOIRS

Citizens joining to protect Portland's historic reservoirs and water system

3534 S.E. Main Street, Portland, OR 97214 www.friendsofreservoirs.org

www.lists.pdx.edu/mttabor

November 12, 2019

Mayor Ted Wheeler and Commissioners Fritz, Fish, Eudaly, and Hardesty
1221 SW 4th Ave
Portland, Oregon 97215
Sent by e-mail

Dear Mayor Wheeler and Commissioners,

Re: Bull Run Treatment Plant cost escalation
Items 1046, 1047

As the Friends of the Reservoirs warned City Council in our July 31, 2017 letter (attached, please read) " How can a rushed risk probabilty and cost analysis be trusted." Clearly, it could not be trusted, as evidenced by the Portland Water Bureau's September 19, 2019 revelation that their $350-$500 million filtration plant estimate absurdly did not include piping water to the plant. Their estimate has increased to $1.25 billion.

City Council should not only be outraged by, and take action against, the deceptiveness of the Water Bureau with regard to omitting piping in their 2017 presentation to Council, but also regarding their slipping in a second treatment, Ozone, at the September 2019 worksession. Does City Council not understand that Ozone, like the least expensive Chlorine Dioxide and Ultraviolet Light Radiation ($16 million spent to date) is an EPA LT2 alternative compliance option. All of the alternative compliance options are by far less costly options to filtration?

Bottom line is that out-of-control engineers and their associated global engineering firms have hijacked Portland's water system.

Any analysis of treatment options whether minimal or "robust" should have and must involve checking the facts via official documents, not spin in service of the most costly and onerous filtration option. Neither turbidity, earthquake, fire, or water demand are reasons for building a chemical adding filtration plant. If you read the monthly reports to wholesale customers that include monthly and annual turbidity graphs or the Bull Run treatment quarterly reports to the Oregon Health Authority you know that **turbidity** remains consistently low, often below 1NTU, and well below the action level of 5NTU even during heavy rain events. While population has increased for decades water demand has declined as Water Bureau documents confirm. Annual rain totals in Bull Run far exceed those in the surrounding region and major fires clog filtration plants.

In August 2017 we submitted email questions to the Water Bureau (Gabe Solmer) regarding their chart of hypothetical benefits of filtration. The Water Bureau assigned no dollar amounts to

filtration "benefits"? We asked " **What are the $$ calculations for each of the items in your "benefit" chart and how to did the Water Bureau estimate them?"** For example we asked for the annual operating and maintenance costs for chemical-adding filtration, comparing that to the annual cost of use and maintenance (which will continue to occur each year) of the Columbia South Shore Wellfield. We received no response. Have these questions been answered for City Council and why can the public not see this information prior to a decision.

The public also has never been afforded the opportunity to examine nor has Council ever openly discussed the ratepayer financed CH2Mhill report on the potential public health impacts associated with filtration chemicals including cancer-causing acrylamide, alum, and aluminum. Filtration plants are for polluted watersheds not the uniquely pristine Bull Run. Why would we want to introduce known cancer-causing chemicals?

Over the last decade water rates have become unaffordable for the middle class, but it is future generations that will really suffer if the Council approves proceeding with building a Bull Run filtration plant. Filtration not only provides no measurable public health benefit, but introduces unnecessary cancer-causing chemicals and makes water rates even more unaffordable for the struggling middle class. What an awful legacy for those who started us down this path and for those who vote to open ratepayer's checkbooks to out-of-control engineers.

We did not support building a filtration plant when the cost was as high as $350 million to $500 million thus we certainly do not support building such at the cost of $1.25 billion (which will nearly double with debt service). Chorine dioxide is a simple, low-cost LT2 alternative compliance option.

Sincerely,

Floy Jones

cc
Attachments

37460

FRIENDS *of the* RESERVOIRS

Citizens joining to protect Portland's historic reservoirs and water system

3534 S.E. Main Street, Portland, OR 97214 www.friendsofreservoirs.org

www.lists.pdx.edu/mttabor

July 31, 2017

Mayor Wheeler and Commissioners Fish, Fritz, Saltzman, and Eudaly
1221 SW 4th Ave.
Portland, Oregon 97215
Sent by e-mail

Dear Mayor Wheeler and Commissioners,

Re: Recommendation for protecting Bull Run

City Council must not rush to a Bull Run treatment decision on August 2 when that decision could monumentally alter Portland's pure Bull Run water and watershed. Dates for a decision are arbitrary and should be pushed back.

Thoughtful consideration must be given to the successful alternative compliance options pursued by NYC and Boston, and to the negative implications associated with any treatment plant. In deciding what course to take City Council must support sound science and make evidence based decisions. Sound science and the evidence supports avoiding building a treatment plant, avoiding spending precious ratepayer dollars on a problem that does not exist.

EPA's flawed-from-the-start regulation the LongTerm2 Enhanced Surface Water rule known as LT2 was responsive to the failure of Milwaukee, WI's costly, state-of-the art filtration plant to protect against infectious species of *Cryptosporidium* and other contaminants from human and cow waste present in their highly polluted watershed. A filtration plant will not protect against the hypothetical massive landslide, it will clog, just as it did in Milwaukee. Filtration plants often must be shut down not only with high turbidity but with massive fires.

Tens of thousands of hours of comprehensive research over 16 years including review of volumes of Portland Water Bureau and EPA files, communication with other utilities, public health officials, and the EPA leads Friends of the Reservoirs to conclude that "if money were no object" we would not support adding risky chemicals like acrylamide, alum, aluminum and polymers to our water ($500 million) nor would we support introducing mercury to our watershed with bulbs known to break, with construction of multiple buildings including a waste-water facility and logging (CH2Mhill design $105 million). These facilities will provide no measurable public health benefit and will make already burdensome water bills further skyrocket. Filtration will

negatively alter the taste and composition of our water, and risk opening the watershed to human activity, and thus contamination including logging. Both facilities increase Portland's carbon footprint. There is sludge removal and very high maintenance costs with filtration.

The reason 90% of large systems have chemical-adding filtration plants is because of their polluted watersheds. Bull Run is the nation's only federally protected watershed, with protections achieved by citizen activists and supported by our Congressional delegation.

Huge sums of Portland ratepayer dollars have already been invested in numerous emergency backup systems (detailed in attachment). How many emergency backups for so-called "resiliency" must Portland ratepayers finance? Wholesale customers pay nothing during design and construction of projects; the burden falls solely on Portlanders. Citizens are already suffering the many consequences[1] of the $440 million spent on the onerous LT2 "treat or cover" reservoir requirement wherein the Water Bureau reduced in town storage capacity by 50 million gallons. Compare to Rochester, NY where they are retaining two 30-year older historic open reservoirs, spending only $22 million deferred until 2022. How can a rushed risk probability and cost analysis be trusted? TVWD expressed the same sentiment at the June wholesale customer meeting.

For 125 years Portland's world class, minimally treated Bull Run system has provided, safe, clean, and until a decade ago affordable drinking water. There has never been disease in the community from Bull Run drinking water and no infectious species of *Cryptosporidium* have ever been detected in Bull Run water. According to scientific study utilizing an improved sampling method conducted by the American Water Works Association Research Foundation (AwwaRF 3021) Portland and all utilities Portland participating in the study already meets the goal of the rule which is to reduce the level of disease in the community. Robust disease surveillance data confirms a lower level of disease in the community than usual during the period of the Portland Water Bureau "detects".

The vast majority of *Cryptosporidium* species are harmless, noninfectious to humans. All significant disease outbreaks are related to two species, C. hominus and C. parvum. These species are associated with waste produced by humans and domesticated animals like cows. Baker City's outbreak was caused by cows in their watershed.

Why risk the ills that come with a chemical-adding filtration plant or a watershed UV Radiation facility when there is no evidence to support such? Before a Council decision the public should have opportunity to read the PWB and consultant co-authored paper, *Balancing Risk versus Benefit in the Selection of Equipment for Portland's Bull Run UV Disinfection Facility*. This paper outlines the risks of mercury bulbs breaking in Bull Run. It was presented at an industry conference in Paris but never released to the public. Ratepayers should also have access to the ratepayer financed CH2Mhill report on potential public health impacts associated with filtration

---

1 Significant rate increases, massive debt, waste of the more than $23 million for 2010 open reservoir upgrades (Slayden Corp contract), CSSWF Radon now vents into homes, schools, businesses, hospitals, $170 million CH2Mhill designed Powell Butte II tank had massive number of cracks and leaking enough to fill Olympic-size pool daily at startup, demolition of two of the City's most significant historic resources in order to reduce storage at Washington Park by 50%, cancer-causing Nitrification, a known problem in covered storage is now an issue in Portland's system as reported at a wholesale customer meeting, creation of a 25 year replacement cycle of buried tanks, all for no measurable public health benefit

chemicals. The public deserves opportunity to discuss these potential health impacts with the entire medical community before any decision is made.

A deferral like NYC's deferral until 2034 is compliance. New York secured and extended their deferral after detecting *Cryptosporidium* in their Hillview reservoir. OHA's David Leland previously advised that there is no limit to the number of requests Portland can make for a deferral. Why would you not take this path given the evidence? Boston won in court when the EPA tried to force them to build a filtration plant. Alternative compliance options can also be negotiated with the Trump administration. Senator Schumer is sure to help having successfully fought against the onerous requirements of this regulation for New York.

As has been advocated by others, we request that you secure a delay from the Oregon Health Authority enlisting the assistance of the Governor if necessary. Then secure **alternative** compliance that protects Portland's pure Bull Run water, avoiding projects that provide no measurable public health benefit. We will continue to be diligent watchdogs, working in service of our water system and ratepayer's pocketbooks. We look forward to working collaboratively with you in supporting sound science and evidence-based decisions.

Sincerely,

Floy Jones

On behalf of Friends of the Reservoirs

Cc

Attachments

ATTACHMENT

Decisions related to a Bull Run treatment plant should be made based on sound science and evidence, not flawed sampling methods and hypotheticals not supported by facts.

WATER DEMAND: PWB's 15-year-old climate change modeling of water demand has proven wrong for 15 years. The PWB's Water Usage Graph shows water demand declined every year between 1988 and 2006 while population increased. PWB water consumption data through 2016 shows water demand remaining low. The PWB's 2017 summer supply report says that since 2004 population increased by 18% while water demand declined by 13%. Tigard recently left our system. Tualatin Valley, a large wholesale customer has long indicated that they will be leaving Bull Run in a few years. Drinking water supply augmentation is needed relatively few times. More than $440 million was spent to reduce in town storage by 50 million gallons via the elimination of open reservoirs (which held 50MG more water than the replacement underground tanks at Kelly Butte, Powell Butte and Washington Park) Portland is capable of conserving more than we do, if ever necessary.

TURBIDITY: Despite storm after storm this last winter, annual turbidity including during rain events was very low, below 1 NTU. The action level is 5 NTU. In 2015 turbidity was at or below 3 NTU including for 3 winter rain events. Turbidity related to human activity is less of a problem with the ratepayer financed decommissioning of the logging roads. Turbidity in 2012 was due to Water Bureau dredging in the watershed for a massively costly fish project, the Dam2 Tower.

How many emergency backup systems for so-called "resiliency" must Portland ratepayers finance?

MULTIPLE EMERGENCY BACKUP SUPPLIES EXIST ALREADY: Multiple backup supplies exist to address emergencies: Columbia South Shore Well field. Huge costs were incurred in building and cleaning up the CSS Well field so that it could serve as a backup when needed. Powell Valley wells were acquired in 2006. Other wells were acquired in the 1990's. Regional interties, linkage of several municipal distribution systems was developed in last decade (without any public involvement, considered top secret). Costly construction of a Bull Run dam2 variable intake structure to divert cold water for fish.

FIRE: Big fires in watersheds are most often caused by humans and human activity (construction). The largest and most devastating fires in the Bull Run watershed subsequent to human settlement were fires ignited by humans. The risk from a devastating fire has been considered so remote by the PWB that many of the community-suggested additional fire prevention measures were deemed unnecessary. Conversely, most catastrophic fires like major turbidity events lead to shutdowns of filtration plants. Keeping humans out of the watershed is the best protection against major fires.

Bull Run tours should be drastically cut if the PWB has any watershed fire or contaminant concerns.

FUTURE REGULATIONS: Evidence does not support the argument that construction of a filtration plant anticipates any future regulations. In fact, a filtration plant did not protect against

infectious species of *Cryptosporidium* in Milwaukee WI, the reason a costly treatment plant is being discussed today. Filtration plants also do not remove pharmaceuticals such as those found at the Columbia South Shore Well field (estrogen, psychotropics, pain killers etc.), the most likely target of future regulations. Watershed protections keep these contaminants out of Bull Run.
Those who planned our Bull Run system knew the risks of human entry in a drinking watershed of this importance. Avoiding human activity including construction in the watershed is the best protection against contaminants.
In that the PWB was the only utility seated at the EPA Federal Advisory Committee table crafting the LT2 rule, and that their water bonds indicate that they stay abreast of regulations, they would know of any regulations on the horizon in the next 15-20 years. EPA has yet to promulgate regulations they had on the books for future promulgation 25 years or more ago.
Milwaukee, WI's outbreak which involved a costly state-of-the-art filtration plant took place nearly 25 years ago.

EARTHQUAKE: A filtration plant located in Gresham is likely to be damaged in an earthquake as will conduits and pipes rendering a filtration plant useless.

37460

Moore-Love, Karla

From: Nieves, Cristina
Sent: Tuesday, November 12, 2019 3:18 PM
To: Moore-Love, Karla
Subject: FW: CUB comments on agenda item 1046 on 11/13 Council agenda - eom
Attachments: CUB comments on agenda item 1046 Nov 12 2019.pdf

Janice has asked that we send this to you!

Thank you!

From: Janice Thompson <janice@oregoncub.org>
Sent: Tuesday, November 12, 2019 10:07 AM
To: Wheeler, Mayor <MayorWheeler@portlandoregon.gov>; Commissioner Fish <nick@portlandoregon.gov>; Commissioner Eudaly <chloe@portlandoregon.gov>; Commissioner Fritz <amanda@portlandoregon.gov>; Commissioner Hardesty <joann@portlandoregon.gov>; Nieves, Cristina <Cristina.Nieves@portlandoregon.gov>; Solmer, Gabriel <Gabriel.Solmer@portlandoregon.gov>; Stuhr, Michael <Michael.Stuhr@portlandoregon.gov>
Subject: CUB comments on agenda item 1046 on 11/13 Council agenda - eom

--

Janice Thompson

Deputy Director

C: 503-890-9227

O: 503-227-1984 x 24

www.oregoncub.org

this e-mail in error, please advise me immediately by reply e-mail, keep the contents confidential, and immediately delete the message and any attachments from your system.

37460

Moore-Love, Karla

From:	Archer-Masters, Amy
Sent:	Tuesday, November 12, 2019 2:02 PM
To:	Fritz, Amanda; Wheeler, Ted; Hardesty, Jo Ann; Eudaly, Chloe; Fish, Nick
Cc:	Hull Caballero, Mary; Moore-Love, Karla; Lindsay, Eliza; Kinard, Jessica; Beller, David; Nieves, Cristina; Stuhr, Michael; Solmer, Gabriel; Peters, David; Oswald, Bonita; Lawrence, Asena; Huynh, Cecelia
Subject:	Portland Utility Board Response to Resolution on Bull Run Filtration Projects (Council Agenda Item 1046 on 11/13/19)
Attachments:	PUB Filtration Resolution-Letter-final.pdf

Mayor Wheeler, Commissioner Fritz and Council,

Please find attached a letter from the Portland Utility Board (PUB) in response to the proposed Resolution on Bull Run Filtration Projects, to be heard by Council as agenda item 1046 on November 13, 2019. Although PUB is unable to attend the hearing, staff will also deliver a hard copy of the letter during the Council session. The board appreciates the opportunity to provide some feedback to Council regarding this Resolution. If you have any follow-up questions please let us know and we will coordinate with the board accordingly.

Thanks,

Amy Archer-Masters
Portland Utility Board Analyst
City Budget Office | City of Portland
111 SW Columbia, Suite 550
Portland, Oregon 97201
Phone: (503) 823-8340
amy.archer-masters@portlandoregon.gov

pronouns: she/they (either)

37460

PORTLAND UTILITY BOARD

Staff Contacts:
Eliza Lindsay, Coordinator
(503) 865-6145
Eliza.Lindsay@portlandoregon.gov

Amy Archer-Masters, Analyst
(503) 823-8340
Amy.Archer-Masters@portlandoregon.gov

City Budget Office
111 SW Columbia St., 5th Floor
Portland, Oregon 97201

To: Mayor Ted Wheeler
Commissioner Nick Fish
Commissioner Amanda Fritz
Commissioner Chloe Eudaly
Commissioner Jo Ann Hardesty
Michael Stuhr, Portland Water Bureau

Re: Portland Utility Board Response to Resolution for Bull Run Filtration Projects

Date: November 12, 2019

The Portland Utility Board (PUB) was created by the Portland City Council to serve as the advisory board for the Portland Water Bureau and the Bureau of Environmental Services. In this capacity, the PUB has been engaged to provide feedback on the Bull Run Filtration Projects in response to updates regarding costs and design considerations. This letter is the requested response to the Resolution.

The PUB is pleased to have been given the opportunity to comment on the Bull Run Filtration Projects. Since first learning of the projected cost updates along with City Council at the Sept 19th work session, the PUB has dedicated all subsequent meetings to the topic, done much individual research and analysis to understand the issues, and worked hard to come to agreement on recommendations.

The PUB was given an extremely difficult task with limited time and information. While additional time would have allowed for more comprehensive recommendations, the PUB was able to reach agreement on the following value statements, comments and recommendations to Council and the Portland Water Bureau in response to the Resolution (as of the November 5, 2019 draft provided to the PUB).

Cost Benefit Analysis

The PUB recommends that the bureau and Council continue to evaluate and communicate about costs and benefits throughout the design and implementation. The PUB, Council and the Water Bureau took costs and benefits under strong consideration in coming to the original decision to proceed with Bull Run Filtration. The costs have changed, and the board feels the current cost benefit analysis is unclear, thus

recommends more transparent and detailed cost benefit analyses of the overall project as well as the project elements. The board recommends that background assumptions and context be reported with each cost benefit analysis so that all audiences can understand what contributed to bureau decisions.

Cost Containment

The PUB recognizes that uncertainty remains around the cost projections for the Bull Run Filtration Projects and recommends that the bureau and Council be cautious about decisions that affect design and implementation costs. The board is concerned about affordability and recommends that the bureau monitor and control costs to minimize rate increases. The board believes that a Council decision to proceed should not be taken as approval for the bureau to incur costs up to $1.2 billion or more. Cost containment, consideration of affordability and rate impacts, detailed cost benefit analyses, and balancing this project with other high priority capital projects should continue throughout the project.

Community and Environmental Impacts

The PUB endorses the priority to implement the project in a way that is sensitive to the surrounding community and environment but recommends more specificity to reflect broader values and more clearly communicate how this priority could be accomplished. Community and environmental impacts are intertwined in important ways and will take time to fully assess and address. More specific language that demonstrates the bureau's commitment would help the board and public understand the practical applications of this value. Such detail could also help build public and surrounding community trust that the bureau will follow through. The board suggests strong action to protect animal and plant life, attention to both short and long-term impacts, mitigating visual and noise intrusion, evaluating impacts on property values, and ensuring effective community involvement and consideration.

To fully assess and address community impacts requires robust, continued community engagement and the board recommends expanded community engagement. Some suggestions include outreach to neighbors beyond the site advisory group and the broader community, regular communications with project area watershed councils, an ombudsperson for neighbor complaints before/during/after implementation, and low-income and renters focus groups.

The PUB recommends exploring the possibility of a community benefits agreement. Depending on community interest, the agreement could include: use of facility space for community meetings; mitigation of potential impacts to wells in the area; use of renewable energy and energy efficiency at the facility; employment and job training opportunities; improvements to transportation infrastructure, particularly infrastructure impacted by construction; attention to minimizing night light pollution; interactive educational opportunities at the facility; and a buffer around facility to limit visual and environmental impacts.

Design Build and Recommended Option

Board members felt an obligation to provide substantive feedback on the options of what to build. Over the three meetings dedicated to the topic, the board discussed the importance of

the values and risks, how various options affected resiliency, and the balance between resiliency and projected cost increases. However, given the limited time, information-and the parameters placed around the requested feedback the board could not come to general agreement. There was not even consensus that the City should proceed with the filtration project. Some felt that if the current projected costs had been available during initial decision-making a different decision might have been made by PUB and perhaps Council. Some members felt that Council should revisit the foundational decisions.

Engagement with the Portland Utility Board

The PUB is eager to engage in planning and oversight of utility projects to ensure the most effective use of rate-payer dollars, with a focus on affordability and equity. As the PUB has stated in prior letters to Council, Council created a board of willing and able volunteers to help vet difficult policy and financial issues. A month is insufficient time for an advisory board like the PUB, whose work is done in public meetings, to analyze, discuss and come to agreement on complex issues such as this one. For the PUB to be of value to the City Council, the board must be included in future processes much sooner to allow sufficient time for information gathering, discussion, deliberation, and generation of recommendations.

In order to be effective as an advisory body, the board requests not only frequent, timely communication but also active engagement, collaboration, and partnership from the bureau and Council. In this vein, the board requests the following two specific revisions to the Resolution (additions noted in ***bold italics***):

> BE IT FURTHER RESOLVED, City Council directs the Water Bureau to continue working with the Site Advisory Group ***and the Portland Utility Board*** to reduce Project impacts on the local community; and
>
> BE IT FURTHER RESOLVED, City Council directs the Water Bureau to provide annual updates to Council ***and a minimum of biannual updates to and engagement with the Portland Utility Board*** as the Project is implemented.

Thank you for the opportunity to provide feedback on the Resolution. The PUB looks forward to continuing to engage with the public, the Portland Water Bureau and Council to monitor the design, implementation and costs of the Bull Run Filtration Project.

37460_1046

Received 11/11/2019
at 1:16pm

Concerns about the Portland Water Filtration Plant Resolution

To: Portland City Council
RE: Commissioner Fritz PWB Water Filtration Plant Resolution

Council Members,

As a rural community member I am writing in opposition to Commissioner Fritz's Resolution. As the Commissioner and Water Bureau continue to progress down the path of building a mega industrial plant on the site of Carpenter Lane, they continue to ignore the concerns of the local community and the city ratepayers as well.

Note Resolution Items:

> • WHEREAS the Recommended Option is still in the planning phase with design schedule to begin in 2020, and as such, the cost estimate confidence level rating, as defined by the City Council, is low, and

Given the Water Bureaus history of blatant fiscal mismanagement and the obvious opening left for significant cost increases, it would be irresponsible for the council to approve such language.

> • WHERAS, the Water Bureau staff have convened a Site Advisory Group, which includes neighbors adjacent to the future filtration facility to create a Good Neighbor Agreement and mitigate negative impacts on the local community

The majority of home owning stakeholders of the Site Advisory Group have provided notice to the PWB, Council and PUB of their withdrawal from the SAP, citing the PWB lack of transparency, their control of the dialogue, and the inappropriate timing of such a group as land use has not been established. The neighbors have retained the right to establish and direct their own SAG, when and if appropriate, to create a Good Neighbor Agreement.

> • BE IT FUTHUR RESOVED, City Council directs the Water Bureau to provide annual updates to Council as the Project is implemented.

I believe that annual updates are insufficient to oversee the PWB in this proposed project. At the very least, semi-annual updates should be in place in order to address any gross mismanagement or concerns that may come into play. The ratepayers demand that the Council have a tighter reign on the PWB as their proven irresponsibility has shown a complete and total disregard to the community and ratepayers.

The PUB, representing the community, has expressed their legitimate concerns with this project and the way it and the community have been handled. They have expressed those concerns and the Council has an obligation to head their concerns.

Sincerely, Doug and Pat Meyer