2023 Member questions answered by Sallal's Engineer:

Q: Will you do engineering analysis endorsed by Sallal's engineer G&O which vets the City's ability to furnish drinking water over time including the volume and rate that may be expected and required by Sallal and in consideration of the City's demand for drinking water and the availability of mitigation water from Hobo Springs and potentially simultaneously from Sallal?

A: We agree that this analysis should be completed as part of longer-term water system planning for both systems to better understand the long-term limitations for each system. Based on current demands and Water System Plan projections in the near term, Sallal has excess instantaneous water available to supply to North Bend for mitigation purposes when North Bend requires it and North Bend has excess annual water right that could be supplied to Sallal in off-peak months to return mitigation water used and also supply additional water to Sallal. Since Sallal is only committing to supplying available excess water from mitigation, we believe that the detailed analysis of potential long-term limitations can be done later as part of longer-term planning.

Q: Will you provide updated growth forecasts for the Sallal water service area and timing? Note the City in a draft WSP where it posed extending service into the existing Sallal WSA put forward some growth figures including National Guard, a new school, and others.

A: These have not been produced yet but will be prepared as part of updated long term water system planning efforts.

Q: Will you provide a statement from Sallal's engineer G&O on how much water is estimated to be available to sell to the City when all committed certificates and consumptive uses (and accounting for variation in demand) are considered before the drinking water intertie is implemented?

A: When Sallal's current annual water right is exhausted, it is estimated that Sallal's Maximum Day Demand will be approximately 1,082 gpm. This would leave approximately 609 gpm available to provide to the City for mitigation during Sallal's peak day of usage (without getting water returned from North Bend on that day). Additional water would be available on non-peak days.

Q: Will you provide a statement from Sallal's engineer G&O on how many ERUs (and the key assumptions going into the ERU calculation) can be added by Sallal under the current contract provisions?

A: The current contract does not place a limit on the total amount of annual water that can be obtained by Sallal to serve areas in the City and UGA. If Sallal can obtain as much annual water

from North Bend as it needs in off-peak seasons, Sallal could potentially serve up to 1,718 additional ERUs based on its total instantaneous water right of 1,691 gpm.
Sallal does have a range of estimates of ERU capaCity from its engineer, but due to changes in DSL, meter reading discrepancies and litigation risks, those figures have not been published; all we have is a range. But we can tell you that right now (with no contract) it appears that we don't have enough to serve a proposed 48-unit cottage development.

Q: Can you provide a determination as to Sallal's ability to issue more water certificates of availability given that the drinking water intertie will not be ready for some time? Will Sallal need to enter another moratorium and/or turn down requests for water?

A: Currently Sallal has approximately 200 ERUs of connections that are committed, but not yet connected. It is estimated that construction of a new water intertie water booster station will take approximately 2 years to complete. It is likely that it will take at least the next 2 years for the existing 200 committed ERUs to be connected and begin using water. If new water service requests are not significant in size or do not have an immediate demand for water, Sallal can likely commit to serve them prior to the new intertie booster station coming into service. Once a contract is signed, certificates of availability can be issued with a condition that service is subject to intertie installation.

Q: Will you provide a preliminary assessment by Sallal's engineer by G&O regarding service pressure and fire flow within the UGA and affected areas outside the UGA when water is being supplied by Centennial? Will members have any changes to their water pressure? Will customer PRVs need to be replaced or adjusted?

A: Gray & Osborne has completed some hydraulic analysis of the Sallal water system assuming that a new intertie booster station is built. There will likely be some small changes in water pressure experienced by customers. These changes will likely be less than 10 psi. Some customers will also see some greater fluctuations in water pressure depending on whether the intertie booster station is operating or not. These additional fluctuations will likely be less than 10 psi. Customers should not need to replace or adjust their PRVs based upon these changes.

Q: Can you provide a statement on water quality analysis that City water is of like quality?

A: Both Sallal and North Bend are supplied with water from high quality water sources. Sallal obtains its water primarily from its Rattlesnake Wells 1, 2, and 4, and it also obtains a small amount of water from its Edgewick Well 3. North Bend obtains its water from Mt Si Springs and the Centennial Well. Mixing of different sources of ground water is common. Problems can arise, such as a differences in pH, when ground and service waters are mixed.
A comparison of key water quality parameters from these various water sources is provided below:

Parameter	North Bend Mt Si Springs	North Bend Centennial Well	Sallal Rattlesnake Wells 1, 2, 4	Sallal Edgewick Well 3
Nitrate	0.51 mg/L	0.5 mg/L	<0.2 mg/L	1.0 mg/L
Arsenic	0.0072 mg/L	0.0024 mg/L	<0.001 mg/L	0.002 mg/L
Iron	<0.1 mg/L	<0.1 mg/L	<0.1 mg/L	<0.1 mg/L
Manganese	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Chloride	<20 mg/L	3.9 mg/L	1 mg/L	2 mg/L
Sulfate	13 mg/L	6.1 mg/L	3 mg/L	4 mg/L
Zinc	0.0091 mg/L	0.0019 mg/L	<0.2 mg/L	<0.2 mg/L
Sodium	2.7 mg/L	4.2 mg/L	<5 mg/L	<5 mg/L
Hardness	35 mg/L	53 mg/L	40 mg/L	88 mg/L
Conductivity	90 umhos/cm	180 umhos/cm	83 umhos/cm	167 umhos/cm
Turbidity	0.12 NTU	0.27 NTU	0.2 NTU	<0.1 NTU
Color	<5 color units	<5 color units	<5 color units	<5 color units
pH	6.4	7.0		
Alkalinity	24			
Volatile Organic Compounds	None Detected	None Detected	None Detected	None Detected
Synthetic Organic Compounds	None Detected	None Detected	None Detected	None Detected

Q: Can you provide a statement and analysis regarding disinfection and chlorination of Centennial Well water? Does the City chlorinate Centennial to the same level as Sallal or will additional chlorination or changes to chlorination will be needed?

A: Sallal and North Bend chlorinate their water sources to similar levels, with each looking to maintain a chlorine residual of 0.5 – 0.7 mg/L. Changes to chlorination are not anticipated for the two utilities.

Q: Can you identify areas where it is likely Sallal members will be using Centennial water?

A: Sallal water customers in the 710, 793, 840, 883, 920, 903, and 1009 pressure zones would potentially receive water from the Centennial Well. The location of these pressure zones is shown on Figure 1-5 from the Water System Plan. These zones are generally located along the Snoqualmie River valley, Interstate 5, and North Bend Way and to the north and east of these areas.

Q: Will more water storage be needed as Sallal expands beyond its existing limit? What other infrastructure upgrades may be needed to serve new development in consideration of the planned growth?

A: Based on the current understanding of the agreement and operation of proposed facilities, additional storage is not necessary to supply water to the City. If the Sallal water system continues to grow significantly, it could require construction of additional water storage at some point.

Q: Can you identification any dependencies that need to be implemented in order to sell to and buy water from the City? Is it a requirement to have bought water first from the City in order to sell to the City?

A: In order to buy water from the City, Sallal will need to construct an intertie with the North Bend Water System and a new water booster station. In order to provide mitigation water from Sallal, a connecting pipe and intertie vault with meter will need to be connected between the Well 2 CT pipeline and North Bend's Boxley Creek pipeline. A new variable speed drive will need to be installed on Sallal Well 2 and associated control programming modifications will need to be made. If North Bend needs more than 700 gpm of mitigation water, an additional connection between Well 1 and Well 2 will need to be made, at the City's expense. Based on Sallal's current water demand relative to its annual water right, Sallal will need to have the ability to obtain water from the City prior to being able to provide mitigation water to the City. No mitigation water can be provided until both the Boxley Creek intertie and the North Bend intertie are in place and operating.