

MEMORANDUM

TO: Perry City Council
Mayor Kevin Jeppsen
Robert Barnhill, Perry City Administrator

FROM: Brett M. Jones, P.E.
City Engineer



RE: **DROUGHT WATER RATE INCREASE**

Date: August 9, 2021

Our office has completed a study to supply recommendations to the Perry City Council for a water rate structure to encourage conservation during drought periods. The following information provides a brief summary of our research and recommendations:

BACKGROUND

Over the past year, the State of Utah and other western states have been experiencing drought conditions. Many water districts and Cities are beginning to enact water restrictions to reduce water usage and prepare for longer-term water deficits in their systems. At the request of the City, our office has briefly analyzed Perry's current production and usage patterns to assess its needs as well as AWWA recommendations for reduction in water use.

CURRENT WATER PRODUCTION

Perry's culinary water sources consist of a spring area, and 4 wells. A summary of typical summer (2018-2020) and current (2021) production levels follows:

SOURCE NAME	TYPICAL FLOW	CURRENT FLOW	TYPICAL SUMMER DAILY RUN TIME	CURRENT SUMMER DAILY RUN TIME
Stokes Springs	30 gpm (springtime)	None	Constant until dry	None
Well #1 (Mountain View Park)	400 gpm	None (offline)	6 hrs	0 hrs
Well #2 (2400 S)	400 gpm	340 gpm	6 hrs	8 hrs
Well #3 (Anderson Park Well)	900 gpm	880 gpm	6 hrs	8 hrs
Well #4 (Maple Hills)	900 gpm	840 gpm	8 hrs	12 hrs

Work in 2018-2019 increased the flow of Well #1 from 200 gpm to 400 gpm. Unfortunately, in late 2020 it started to shut-off due to a low water table and it has been taken offline this year. We are monitoring the recharge rate of the well. Since this well is offline, Wells 2-4 need to run longer to keep up with the City's demands.

Wells 2-4 are currently operating at slightly lower than average flows and static water levels have been dropping below normal summertime levels. This is likely due to the drought and lack of aquifer recharge this year. Public Works could operate each of these wells for 12 hours per day if required to meet higher summer peak demands. However, we are concerned about observed aquifer levels dropping. We recommend the City begin to implement more stringent water conservation measures to prepare for the possibility of current drought conditions continuing into next year.

CURRENT USAGE

Analysis of the City's culinary water usage this summer indicates that it is approximately 10% higher than last summer. This is typical for a hot year. However, due to the current drought situation we wonder if some residents using Pineview Irrigation service are supplementing the irrigation of their yards with culinary water. Culinary water is critical, and we strongly advise that during periods of drought culinary water not be used for irrigation.

Approximately 7% of Perry's residents do not have access to Pineview Irrigation water. During the summer months, these residents average about 4 times the culinary water use of other residents in the City. Pineview is planning for early shutoff of their system to help mitigate the effects of the drought on their supply. Perry City does not have the option to shut off culinary water for irrigation. However, we recommend that a drought water rate structure help encourage conservation among high summer water users to achieve a similar result.

WATER USAGE CONSIDERATIONS

The State of Utah and AWWA (American Water Works Association) provide some written guidance and information regarding ways to reduce water usage in response to drought conditions. Here is a brief summary of items the Council may want to consider as it pursues policies regarding water usage:

- Usage reduction is most effective when water suppliers start demand-reduction measures before a severe shortage develops.
- Public water use should be prioritized as follows:
 1. Health and safety
 2. Commercial, industrial, and institutional
 3. Environment
 4. Permanent crops
 5. Annual crops
 6. Landscaping
 7. New demand
- Winter month usage should help establish an appropriate water allocation per household.
- In the event of a drought, specifically limiting irrigation usage with defined limits is appropriate.
- For landscape irrigation, automatic sprinkler systems use the most water, followed by manual sprinkler systems, followed by a hose with sprinkler attachments.
- Cities should follow the recommendations in their water conservation plan(s).

- When users conserve, reduced usage can result in lack of planning for water sources. This should be avoided
- During severe drought, some utilities calculate the amount of water needed for essential indoor uses like toilet flushing, bathing, cooking and cleaning, and allocate monthly water allowances for their customers.
- Most users do not alter their usage habits until their costs for water at least double.

RECOMMENDATIONS

Based on the forgoing information and recent conservation research performed by our office, we recommend the following:

1. During drought conditions the City's base culinary water rate remain unchanged. We recommend, however, that the City investigate reducing the base allocation of 0-10,000 gallons per month to 0-7,000 gallons per month.
2. The City consider doubling the current overage rates to encourage conservation. This would apply to both residents with or without secondary irrigation service provided by Pineview. Though this costs more for those using culinary water for irrigation, it may be appropriate since Pineview is enacting restrictions and early system shutoff. In a period of drought, culinary water becomes more vital for human health and life than landscaping purposes.
3. The City continue its plans to pursue construction of an additional well source and reservoir to provide source and storage redundancy for its residents.

Should you have further questions, please let us know.