



EXTERNAL MEMORANDUM

To: Cory Heiniger
Public Works Director
Town of Paonia
214 Grand Avenue
Paonia, CO 81428

cc: Project Central File W0333.22002

From: Douglas E. Schwenke
Principal Engineer
RESPEC
5540 Tech Center Drive, Suite 100
Colorado Springs, CO 80919

Date: January 9, 2024

Subject: Tap Moratorium

This memorandum serves as an updated engineering opinion on the existing Town of Paonia (Town) tap moratorium. An engineering opinion on the existing tap moratorium was last provided on May 19, 2023. The following criteria were considered in assessing the necessity for the tap moratorium:

- / Water supply versus demand
- / Infrastructure health
- / Public Works staffing

The format provided below is consistent with RESPEC's previous engineering memorandums addressing the Town's tap moratorium. The intent is to provide new readers with the basics of the Town's water system and allow for easy comparison with past tap moratorium memorandums.

WATER SUPPLY VERSUS DEMAND

The Town's raw water is sourced from a network of springs. These springs are piped to an Upper Facility (Lamborn) or Lower Facility (Clock) where flow is metered and recorded by facility operators. For the sake of this memorandum, the volume of water that reaches each facility is considered 'firm yield'. Not all water produced by each spring (spring production) reaches these facilities. Water rights limit how much water is allowed to be diverted and used by the Town, and some water "spills" before reaching either facility because of the condition of spring collection systems and pipelines.

In previous correspondence regarding the Town's tap moratorium, limited data were identified as one obstacle to providing an engineering opinion. Specifically, RESPEC

5540 TECH CENTER DRIVE
SUITE 100
COLORADO SPRINGS, CO 80919
719.227.0072



requested additional firm yield and water treatment plant outflow (i.e., volume of treated water) data. Since March 2022, Town operators have recorded daily the volume of water reaching the Upper Lamborn Facility and intermittently recorded flows at the Lower Clock Facility. **Table 1** presents a summary of this data.

Table 1. Demand Versus Supply Analysis 2017-2019, 2022, 2023

	2017	2018	2019	2022 ^(a)	2023
Metered Flow	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Lamborn Water Treatment Plant Inflow	512.05	579.52	528.60	402.25 ^(b)	427.06 ^(b)
Lamborn Water Treatment Plant Outflow ^(b)	460.33	460.33	460.33	397.96	388.16
Inflow - Outflow Difference (Spill)	169.63	192.02	175.10	4.29	38.9
Customer Demand	263.93	298.83	272.49	241.08	245.71
Water Treatment Plant Outflow - Demand Difference	196.41	161.51	187.85	156.88	142.45
% Difference	42.67	35.08	40.81	39.42	37.70
Clock Inflow ^(d)	—	—	—	153.90 ^(d)	129.52

(a) 2022 daily water data collection began in March thus data is not representative of a full calendar year.

(b) Reduced volume into the water treatment plant may be attributed to spring water purposely spilled at the source.

(c) Water treatment plant outflow between 2016 and 2020 based on a single data point over 5 years.

(d) Clock inflow data were collected between May-December 2022. Beginning in July 2023, Reynold's spring was diverted to the Lamborn Treatment Facility and spring flows to the Clock facility are mostly intentionally spilled on the mountain because the water is not put to beneficial use.

In Table 1, % Difference depicts unaccounted (i.e. non-revenue) water after treatment. A fraction of this unaccounted water is spilled water from the finished-water tank overflow. Since November 2022, overflow from the finished water tank no longer occurs. The remaining unaccounted water can be attributed to the distribution system (e.g., pipe leaks, unmetered water, meter error). Public Works staff implemented an American Water Works Association (AWWA) program to identify water losses within the distribution system, identify leaks, and reduce the volume of unaccounted water. Some unaccounted water is typical and a continuous area of focus in data collection for a public water system.

In 2023, Town Public Work staff worked with a third-party leak detection company to survey three large sections of the distribution system. This includes In-Town pipelines. Identified leaks have been repaired when they have been discovered. Moreover, replacement of customer and consecutive system water meters have been aimed at improved water demand accounting. In addition to improved metering and data collection at each facility, the Colorado Division of Water Resources manages spring production data. There should be improvements made to the metering of these spring flows as well. While collected Data since March 2022 supports that the Town has adequate supplies to support demand, this data does not represent supply in "dry" years. It is also unknown how much Raw Water is actually available to support existing water rights. The Town is working to secure funding for improved spring metering and engaged its water rights attorney to confirm the Town's allocation of raw spring water, the latter being a substantial effort given the complexity of the Town's water rights. Improved data



collection should remain a priority for better understanding and management of the Town's water system.

Finally, a recent Request for Proposals (RFP) for a hydrogeological study of the Town's raw water collection system targets strategic understanding and management of the Town's raw water resources. Advanced water resource management and improved metering will prove necessary for long-term municipal planning.

INFRASTRUCTURE HEALTH

Critical infrastructure improvements were also suggested by RESPEC in previous memorandums as a starting point for lifting the tap moratorium. RESPEC company, LLC collaborated with Public Works staff to develop a phased approach to capital improvements that prioritizes those critical to lifting the tap moratorium. This initial Phase I Capital Improvement Plan (CIP) includes:

- / Recoating the 2-million-gallon finished-water storage tank at the Upper Lamborn Facility
- / Replacing an 8-inch steel water main on the west loop into Town
- / Installing new raw water spring meters
- / Installing an additional pressure-reducing valve (PRV)

Repairs to the lower Clock finished-water storage tank were not included in the final draft of CIP Phase I Improvements. How to make use of water that can be collected at the Clock facility has become a priority of planned CIP Phase II Improvements. As seen in Table 1, even with raw water spring flows intentionally or unintentionally spilled on the mountain, the volume of water observed reaching the Clock facility represents a meaningful portion of the Town's water portfolio. Budgeting for future water system capital improvement efforts was included in a 20-year cash flow analysis that was submitted as part of Project Needs Assessment (PNA) report. This PNA is a required step in a funding application through the State of Colorado Drinking Water Revolving Fund (DWRP). The Town is currently in the design phase of Phase I Improvements. A loan application for Phase I improvements is expected to be submitted in 2024.

After the completion of CIP Phase I Improvements and with greater confidence in the water supply, the Town will be able to consider additional water services on a case-by-case basis. As planning for the geographical service area evolves, additional infrastructure limitations may be identified, and improvements needed, to support specific water service requests.

PUBLIC WORKS STAFFING

While staffing was not included in RESPEC's previous tap moratorium opinion memorandum, it was identified as a critical limitation of the Town's water system in its 2019 Water System Evaluation report. The Town's water system is unique in its size and complexity, especially for the size of the customer base served. Since 2019, the Town has increased the number of Public Works staff dedicated to its water and wastewater systems. Maintaining adequate staffing levels must continue to be a priority to ensure proper oversight, operation and maintenance of the Town's water and wastewater infrastructure.