

**MEMO REPORT**

Date: January 26, 2022

**From:** Douglas W. Brogan, P.E.**To:** Jayson Laflamme, Asst. Director - Water Group, Regulatory Support Div., NH Dept. of Energy**Re:** DW 21-023 Pennichuck Water Works, Inc.  
Petition for Approval of 2021 Qualified Capital Project Annual Adjustment Charge

I am writing this memo report as an engineering consultant to the Water Group, Regulatory Support Division to summarize my findings in the above-referenced docket. The Qualified Capital Project Annual Adjustment Charge (QCPAC) program was initially authorized for Pennichuck Water Works, Inc. (PWW or company) in DW 16-806 (Order 26,070, November 7, 2017). In the current docket PWW is seeking approval of a QCPAC surcharge for projects completed in 2020; preliminary approval of projects proposed for 2021; and has provided its capital budgets for 2022 and 2023 for informational purposes. My review is limited primarily to the engineering and operational aspects of the filing and is based on review of the filing, subsequent updates (in particular the quarterly update filed November 17, 2021), case discovery, E-22 forms (Reports of Proposed Expenditures for Additions, Extensions and Capital Improvements to Fixed Capital), and associated materials.

**2020 Projects**

A significant portion of the company's capital investment each year involves replacement of water mains, either as a result of the company's own prioritization or involving coordination with City of Nashua and Town of Amherst sewer, storm drain and repaving projects as a cost saving measure. The company generally aims to replace 3 to 4 miles of older water main each year in its core system, but this number is often reduced when other significant capital improvements are required in a given year. In 2020 the company planned two very substantial projects (Kessler Farm tank replacement and Coburn Woods main replacements, see 2021 Projects below) that were delayed due to Covid-19 impacts (John J. Boisvert testimony, Bates p. 47, lines 20-22). Although seven additional water main replacements were moved into 2020 as a result, the company replaced only approximately a mile of water main in total, at a combined cost of **\$1,415,039**. This amount nonetheless accounts for nearly a quarter of the QCPAC-eligible costs of \$6,101,832 in 2020.

Several of the larger projects not involving main replacements are identified below. The company has affirmed that all 2020 projects proposed for inclusion in the QCPAC surcharge were used and useful as of December 31, 2020 (testimony of Donald L. Ware, Bates p. 14, lines 18-21).

#### A. Carbon Media Change-Out

The granular activated carbon (GAC) media at the company's primary treatment plant in Nashua requires periodic change-out as filtration effectiveness is exhausted. Media in the first four filters was replaced in 2019, and the remaining two in 2020. Replacements have been accelerated to accommodate new standards for PFAS (per- and polyfluoroalkyl substances). Those standards have also caused the company to rely on the Merrimack River as a source when possible instead of Pennichuck Brook, due to higher PFAS levels in the latter. A detailed comparison of the cost of using each source indicated the Merrimack River is less expensive in the long term, even though that water must be pumped to the treatment plant. That reality impacts the next project below as well. Total media replacement cost in 2020 was **\$495,331**.

#### B. Merrimack River Pumping Station

The project involved installation of a third 350 HP raw water pump and motor for needed redundancy in supplying Merrimack River water to the system, especially given increased reliance on that water during periods of peak usage for the reasons noted above. A related project involves rebuilding pump #2 in the same station. The combined cost of the two projects in 2020 was **\$578,204**.

#### C. Merrimack River Deep Water Intake

This project involved moving the existing water supply intake from the bank of the Merrimack River to the center of the river to address limitations caused by low flows and winter ice. Primary funding was through a state Drinking Water and Groundwater Trust Fund (DWGTF) loan, as approved in DW 19-026 (Order 26,247, May 3, 2019). While the bulk of the work was completed in 2019, the balance of efforts in 2020 were completed for **\$393,965**.

### **2021 Projects**

Apart from individual water main replacements, major projects proposed for 2021 are as follows:

#### A. Kessler Farm Tank Replacement

The existing 32 year old, 4.5 million gallon welded steel tank is being replaced with a much lower maintenance, precast, pre-stressed concrete tank of the same size, at an estimated cost of **\$4,344,000** excluding design costs. The company has provided reasonable economic justification for this substantial project involving replacement of a relatively young tank (see, for example, Boisvert testimony, Bates p. 58, line 20 through p. 59, line 12).

## B. Coburn Woods Main Replacements

The original goal of this project was to replace 4,400 linear feet of substandard 2-inch PVC water main in the privately owned Coburn Woods development in Nashua with 4-inch ductile iron pipe to alleviate ongoing problems with leakage and breakage. Initial construction encountered unmapped and poorly located telephone, electric, sewer and other utilities, significantly slowing the work. As a result the company scaled back the scope of the project to 5 of the development's 28 side streets, with the remaining streets to be upgraded in smaller, future phases. As of the quarterly update filed November 17, 2021, the estimate for the work in 2021 had been reduced from \$1,855,000 to **\$840,000**.

## **2022-2023 Projects**

Again apart from water main replacements, the most significant project in the next two budget years is the following:

### A. Bowers Pond Spillway Improvements

A detailed evaluation concluded upgrade of the Bowers Dam spillway to meet new state criteria for High Hazard dams would be significantly less expensive than necessary work at the two downstream dams (Harris and Supply) if Bowers Dam were instead downgraded to a Significant Hazard. As a result, the Bowers Dam work is now proposed for 2022, at an estimated cost of **\$1,800,000**. All three dams are part of the Pennichuck Brook system upstream of the Nashua water treatment plant.

## **Conclusion**

I believe the company continues to demonstrate overall sound engineering competence in its planning and approach to the various capital improvement projects. For 2020, I would support a finding that each of the listed projects indicated as completed and in service at year-end was prudent, used and useful; and the 2021 projects as proposed appear reasonable.