

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Re: Petition of Pennichuck Water Works, Inc. for Approval of Financing
Under the State Drinking and Groundwater Trust Fund
For Water Main Improvements in the Nashua Core Water System

DW 18-__

DIRECT PREFILED TESTIMONY OF JOHN J. BOISVERT

August 29, 2018

1 **Professional and Educational Background**

2 **Q. What is your name and what is your position with Pennichuck Water Works, Inc.?**

3 A. My name is John J. Boisvert. I am the Chief Engineer of Pennichuck Water Works, Inc.
4 (the “Company” or “PWW”). I have worked for the Company since February 1, 2006. I
5 am a licensed professional engineer in New Hampshire and Maine.

6 **Q. Please describe your educational background.**

7 A. I have a Bachelor of Science degree and a Master of Science degree in Civil Engineering
8 from the University of New Hampshire in Durham, New Hampshire. I also have a
9 Master’s degree in Environmental Law and Policy from Vermont Law School in South
10 Royalton, Vermont.

11 **Q. Please describe your professional background.**

12 A. Prior to joining the Company, I served as a Team Leader for Weston & Sampson
13 Engineers of Portsmouth, New Hampshire in their Water Practices Group from 2000 to
14 2006. Prior to Weston & Sampson I was employed by the Layne Christensen Company
15 of Shawnee Mission, Kansas as Regional Manager for their Geosciences Division in
16 Dracut, Massachusetts from 1994 to 2000. I completed graduate school in 1992 and was
17 employed by Hoyle, Tanner, & Associates of Manchester, New Hampshire as a Project
18 Engineer from 1992 to 1994. Prior to entering full time graduate programs at the
19 University of New Hampshire and Vermont Law School I was employed by Civil
20 Consultants of South Berwick, Maine as a Project Engineer from 1986 to 1989 and by
21 Underwood Engineers of Portsmouth, New Hampshire as a project Engineer from 1985
22 to 1986.

23 **Q. What are your responsibilities as Chief Engineer?**

1 A. As Chief Engineer, I am responsible for the planning, design, permitting, construction,
2 and startup of major capital projects, including pipelines, reservoirs/dams, building
3 structures, pumping facilities, treatment facilities, and groundwater supplies. I provide
4 regular technical assistance to PWW's Water Supply Department, Distribution
5 Department, Customer Service Department, and Senior Management. In addition, I
6 oversee the Company's Asset Management Program.

7 **Q. What is the purpose of your testimony?**

8 A. I will be describing water main replacement efforts in the Pennichuck Core as part of an
9 ongoing effort to replace aging distribution infrastructure and to improve water delivery
10 (flow and pressure). The Core system is encompassed by the EPA identification number
11 1621010. The Company seeks approval to finance the work with proceeds from a loan
12 issued by the New Hampshire Department of Environmental Services ("NHDES")
13 through the State Drinking Water and Groundwater Trust Fund ("DWGTF"). Please see
14 Exhibit JJB-1 for the NHDES letter offering DWGTF Loan funds for this work. The
15 current interest rates for NHDES's revolving loan funds, including the DWGTF, is
16 attached as Exhibit JJB-2. The current maximum interest rate for the 30-year loan, as of
17 August 2, 2018, is 2.7040%.

18 **Q. What are the terms of the DWGTF loan?**

19 A. The NHDES is offering a \$3,375,000 loan with a 30-year term with level total payments
20 and a current interest rate of 2.704% per annum to fund water main replacements and
21 additions in the Pennichuck Core system.

22 **Q. Are either of these projects eligible for Principal Forgiveness?**

1 A. No. Median Household Incomes in Nashua exceed those that would qualify these
2 projects for principal forgiveness.

3 Pennichuck Core System Water Main Replacement

4 **Q. Please describe the work in the Pennichuck Core System Water Main Replacement**
5 **project for which the Company is seeking DWGTF financing.**

6 A. The work contemplated under this project is consistent with the Company's projects
7 included in the application for the Qualified Capital Project Adjustment Charge
8 ("QCPAC") program in DW 18-022. As of the end of 2017, the Company had about
9 242,000 linear feet ("LF") of unlined cast iron water main, about 6,400 LF of steel water
10 main, and about 220,300 LF of Asbestos-Cement ("A-C") water mains in its Core
11 distribution system. The Company has developed a plan to replace or rehabilitate water
12 mains over the next thirty-five to fifty years, or approximately 10,000 to 15,000 LF per
13 year. The Company's 2018 projects are based on the Company's needs and coordination
14 of the Company's core system replacement work with road and sewer projects of the City
15 of Nashua (the "City") and the Town of Amherst (the "Town").

16 It is important when the City or Town is working on a street where Pennichuck has an
17 unlined cast iron, steel, or A-C water main for the Company to replace the water main
18 even though it may not be the Company's highest priority. There are significant cost
19 savings in the areas of pavement repair and traffic control associated with completing
20 joint projects with the City or Town.

21 The Company considers a number of factors in developing a capital budget for water
22 main rehabilitation, replacement, and/or new construction. Many of the factors still
23 include those which were identified by the Company in prior WICA filings and its most

1 recent QCPAC filing. However, the Company is transitioning to an Asset Management
2 based approach which will take prior WICA criteria into consideration, but adds in
3 consideration for risk of asset failure, consequence of asset failure, the criticality of an
4 asset, and required level of service for all assets including:

- 5 ○ Water main break/failure history;
- 6 ○ Water quality problems;
- 7 ○ Fire protection flows;
- 8 ○ The proximity of and support provided to key critical customers (public safety,
9 government, hospitals, etc.;
- 10 ○ Coordination with gas company replacement projects;
- 11 ○ Geographic grouping of streets where mains to be replaced/rehabilitated for
12 improved efficiency by keeping work in close proximity;
- 13 ○ The opportunity to take advantage of efficiencies gained from coordinating with
14 the City's and Town's paving, storm water and sewer projects, to replace water
15 main where aging unlined cast iron, steel, and A-C water pipes are present.
- 16 ○ Industry guidelines of the American Water Works Association for the
17 replacement of water main using an average life expectancy for water main of 100
18 years absent specific information on a particular asset. The Company considers
19 this rate to be reasonable until the Asset Management System allows for a more
20 system/asset specific assessment to be performed. It will remain important when
21 the City or Town is working on a street where the Company has an unlined cast
22 iron, steel, or A-C water main for the Company to replace the water main. There

1 are cost savings in pavement repair and traffic control associated with completing
2 projects while the municipality or gas company is working on a street.

3 Furthermore, it is rare that the City can replace older sewers or storm drains and not
4 undercut existing water mains. Often, the water mains are located in the same trench as
5 the sewer main, with the sewer main being installed first and the water main laid higher
6 in the same trench. This generally makes it impossible to replace the sewer main without
7 adversely affecting the integrity of the water main. Unlined cast iron, steel, and A-C
8 water main usually cannot survive loss of soil support or the vibration from heavy
9 construction equipment without experiencing high levels of breakage. Municipal
10 infrastructure replacement will continue to be a major driver of our water main
11 replacement for the foreseeable future. The proposed funding will aid the Company in
12 addressing infrastructure replacement/upgrade need.

13 **Q. Is there other work included with this financing request not associated with main**
14 **replacement?**

15 A. Yes. This financing request also includes water main additions to improve water delivery
16 to the Northwest High Pressure System (“NWS”). The NWS serves the northwest
17 quadrant of the City of Nashua and the Town of Amherst. The NWS area of the Nashua
18 Core Distribution System has experienced growth and expansion over the last several
19 decades. The NWS also provides water to the Town of Milford and to the Merrimack
20 Village District. The most recent expansion of the NWS was in response to residential
21 properties located in the Town of Amherst with private wells contaminated by
22 perfluorooctanoic acid (PFOA). This project has a water main being added to close
23 (loop) dead end sections of the distribution system to improve hydraulics, to ensure water

1 quality standards are maintained (disinfectant residuals are maintained and the
2 opportunity for water to stagnate is minimized), and to provide redundant mains that will
3 eliminate single line feeds into both residential and commercial areas of Nashua and
4 Amherst. Water main will be added to eliminate restrictions (“bottle necks”) in the NWS
5 that limit the Company’s ability to deliver water from its Northwest Booster Station into
6 the Northwest system in periods of high demand when both Milford and Merrimack
7 Village District are purchasing water. The Company’s hydraulic model, developed as
8 part of the Asset Management Initiative, identified critical restrictions in the NWS.
9 Sections of 12 inch diameter asbestos cement water main in the vicinity of Manchester
10 Street and a 16 inch diameter asbestos cement water main on Tinker Road restrict the
11 flow that can be pumped into the NWS. High flow velocity and excessive pressure
12 buildup in these sections of mains limit the Company’s ability to safely deliver water to
13 the NWS. The Company will install a new 24 inch diameter water main parallel to the
14 existing 12 asbestos cement main. Also, the asbestos cement pipe on Tinker Road will be
15 replaced with a 24 inch diameter water main.
16 The improvements to the NWS are also necessary to facilitate the replacement of the
17 Kessler Farm water storage tank planned for 2020. The replacement of the Kessler Farm
18 tank requires the existing steel tank be removed from service, demolished, and a new
19 concrete tank be constructed in its place. With the Kessler Farm tank out of service, the
20 hydraulic model results revealed that the existing NWS infrastructure would be unable to
21 meet and maintain peak demand and fire flows without the distribution system
22 improvements described above, while the tank replacement project is being completed.

23 **Q. Does the Company intend to complete all of the work in 2018?**

1 A. No. The projects contemplated for these funds will be used for 2018 and 2019 projects
2 identified in the most recent QCPAC filing. The ability to complete these projects during
3 2018 is dependent upon weather. Projects, or phases of projects will only be initiated in
4 2018 if they can become “used and useful” by December 31, 2018. Otherwise the
5 Company will delay the start of a project to the spring of 2019. The DWGTF loan allows
6 for carry over funding into 2019.

7 **Q. Please describe the estimated timeline required to complete the projects in**
8 **2018/2019.**

9 A. The NHDES would like to finalize the loan documents associated with this loan by
10 October 1, 2018. The NHDES cannot finalize the loan documents without the NHPUC
11 approving the proposed financing for this project. Approval by Pennichuck
12 Corporation’s shareholder, the City of Nashua, is also required prior to closing on this
13 financing. The list below provides an estimated timeline for the two projects:

14 Regulatory Approvals and Permits with Estimated Dates

- 15 1. Company Board Resolution approving DWGTF loan (vote by consent) – March
16 30, 2018.
- 17 2. Approval granted by City of Nashua – August 14, 2018.
- 18 3. File financing petition with Commission – August 28, 2018.
- 19 4. NHPUC approval of Financing – September, 2018.
- 20 5. Sign SRF Loan Documents for Both Projects - October 2018.

21 Pennichuck Core Water Main Replacement Project with Estimated Dates

- 22 1. Complete Engineering designs (multiple contracts) – July 2018- November 2018.
- 23 2. NHDES approval of proposed designs – August 2018 through December 2018.

- 1 3. Bid the water main project(s) – August 2018 through February 2018.
- 2 4. Open Bids for the water main project(s) – Various dates.
- 3 5. Construction begins on the water main project(s) – October 2018.
- 4 6. Water main project substantial completion – Various dates prior to December 31,
- 5 2019.
- 6 **Q. Does this complete your testimony?**
- 7 **A. Yes.**