

## **TAB 10**

**Testimony of John J. Boisvert**

**STATE OF NEW HAMPSHIRE**  
**BEFORE THE**  
**PUBLIC UTILITIES COMMISSION**

Docket No. DW 16-806

Pennichuck Water Works, Inc.  
Request for Change in Rates

**DIRECT TESTIMONY OF JOHN J. BOISVERT**

September 23, 2016

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1 **I. INTRODUCTION**

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 (hereinafter "PWW" or the "Company"). I have worked for Pennichuck Water Works, Inc.  
5 since February 1, 2006. I am a licensed professional engineer in New Hampshire and  
6 Maine.

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

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

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

13 **A.** Prior to joining Pennichuck Corporation, I served as a Team Leader for Weston &  
14 Sampson Engineers of Portsmouth, New Hampshire in their Water Practices Group from  
15 2000 to 2006. Prior to Weston & Sampson, I was employed by the Layne Christensen  
16 Company of Shawnee Mission, Kansas as Regional Manager for their Geosciences  
17 Division in Dracut, Massachusetts from 1994 to 2000. I completed graduate school in  
18 1992 and was employed by Hoyle, Tanner & Associates of Manchester, New Hampshire  
19 as a Project Engineer from 1992 to 1994. Prior to entering full time graduate programs at  
20 the University of New Hampshire and Vermont Law School, I was employed by Civil  
21 Consultants of South Berwick, Maine as a Project Engineer from 1986 to 1989 and by  
22 Underwood Engineers of Portsmouth, New Hampshire as a project Engineer from 1985 to  
23 1986.

24

1

2 **Q. What are your responsibilities as Chief Engineer of the Company?**

3 **A.** As Chief Engineer, I am responsible for the planning, design, permitting, construction, and  
4 startup of major capital projects, including pipelines, reservoirs/dams, building structures,  
5 pumping facilities, treatment facilities, and groundwater supplies. I also oversee and  
6 direct the Company's Asset Management Initiative and provide regular technical assistance  
7 to Pennichuck Water Works Water Supply Department, Operations Department, Customer  
8 Service Department, and Senior Management.

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

10 **A.** I will be providing details of the Company's capital expenditures that were made in 2013,  
11 2014 and 2015 that are included in the Company's permanent rate request plus projects to  
12 be completed during 2016 for which the Company is requesting a step increase.

13 **II. OVERVIEW OF CAPITAL EXPENDITURES**

14 **Q. Did the Company make capital expenditures during the period from January 1, 2013**  
15 **through December 31, 2015 to its distribution, storage, treatment, and supply**  
16 **facilities?**

17 **A.** Yes. The Company made capital expenditures during this period totaling over \$20 million  
18 of which approximately \$10.3 million were previously addressed in Water Infrastructure  
19 Conservation Adjustment (WICA) filings DW 13-358, 15-043, and DW 16-220 for 2013,  
20 2014, and 2015 respectively. Most of these improvements/investments are non-revenue  
21 producing.

22 **Q. What do you mean by non-revenue producing assets?**

23 **A.** Non-revenue producing assets are related to projects that do not result in new customers or  
24 additional revenues to the Company. Examples of typical non-revenue producing assets are

1 projects that are the result of government regulations such as the Safe Drinking Water Act  
2 (“SDWA”), the City of Nashua’s sanitary and storm water sewer separation and  
3 replacement projects, City, Town and State road reconstruction projects, and other work  
4 required by State or Federal regulatory mandates. Capital expenditures to enhance  
5 customer service or replacements of aging infrastructure are also examples of non-revenue  
6 producing assets.

7 **Q. Are all of the capital expenditures completed during 2013-2015 currently used and**  
8 **useful?**

9 **A.** Yes.

10 **Q. What were the major focal points of the Company’s capital projects in 2013-2015?**

11 **A.** The Company’s focus continues to be multifaceted and includes replacing and upgrading  
12 water treatment facilities to ensure compliance with all State and Federal Drinking Water  
13 Regulations, replacing aging infrastructure consisting primarily of water mains and  
14 services and completing water supply and water quality improvement projects for the  
15 Nashua Core and the Company’s community water systems. The Company expended over  
16 \$20 million on capital improvements within these areas in 2013 through 2015. The project  
17 areas representing the major capital investments are described in more detail below.

18 **III. SOURCE OF SUPPLY, WATER TREATMENT, PUMPING AND STORAGE**  
19 **EXPENDITURES**

20 **Q. What are the major projects that the Company completed to ensure sufficient source**  
21 **of supply, treatment, pumping capacity, storage and distribution capacity?**

22 **A.** There were several such projects. They are addressed below by year.

23

1           **Supply, Treatment, Pumping, and Storage**

2           **2013 Projects**

3           **Emergency Generators**

4           The Company completed its plan to install emergency power generating capacity at all of  
5           its community water systems to ensure continued water service during a power outage.

6           The Company installed five emergency generators at the following locations:

7           Sweet Hill, Plaistow, NH:           Generator and transfer switch \$22,064

8           Glen Ridge, Derry, NH:           Generator and transfer switch \$24,294

9           Richardson Estates, Derry, NH:    Generator and transfer switch \$17,381

10          Maple Haven, Derry, NH:           Generator and transfer switch \$22,404

11          English Woods, Derry, NH:         Generator and transfer switch \$28,192

12          **2014 Projects**

13          **Snow Station Renovations**

14          The Snow Station is a critical water supply structure for the Nashua Core System. It is the  
15          primary pumping station that supplies water to the Nashua Core Northwest High Service  
16          Area including the Town of Amherst and interconnections with the Town of Milford and  
17          the Merrimack Village District. The upgrades to the station included lead paint abatement,  
18          asbestos abatement, external masonry repointing, roofing repairs, window upgrades,  
19          internal painting, energy efficiency improvements including lighting & heat and  
20          maintenance workshop expansion. All of the improvements were completed in keeping  
21          with the historical significance of the structure. The approximate cost for the renovations  
22          was \$0.63 million.

1        **2015 Projects**

2        **Timberline Booster Station Upgrades**

3        The Company financed the majority of the \$0.40 million Timberline Booster Station  
4        upgrades with a NH SRF loan. The project was described in financing petition DW 14-021  
5        that was approved by the Commission in Order No. 25,649. The Timberline Booster  
6        Station pumps water to the Shakespeare high service system. This system is one of the  
7        largest systems within the Nashua Core. Demand growth over the past several decades  
8        required changes to the pump configurations, pressure surge control, motor controls and  
9        electrical upgrades, and emergency generating capacity.

10       **Tinker Road Storm Water BMP Access Road**

11       The Tinker Road Storm water Best Management Practice is a critical storm water  
12       treatment structure designed to mitigate water quality threats to Harris Pond from storm  
13       water runoff generated within a sub-watershed of Pennichuck Brook that includes the F.E.  
14       Everett turnpike and a highly developed area of Nashua along Route 101A and the  
15       Somerset Parkway (F.E. Everett Tpk. Exit 8). In order to effectively inspect and maintain  
16       the BMP, the Company had to extend a culvert and add a manhole structure in order to  
17       divert runoff back to the natural drainage path so that a permanent gravel road could be  
18       constructed. The new access road eliminates the need to access the BMP directly from the  
19       F.E. Everett turnpike right of way thereby improving safety and facilitating regular access  
20       by Company staff. The project cost totaled just over \$65,000.

21       **Carbon Filter Media Replacement**

22       The Company initiated the replacement of the carbon filter media in 2014. 2015 saw the  
23       completion of the change-out in filters 3, 4, 5, and 6 at a total cost of \$980,250. The total  
24       cost included \$166,400 of removal cost for the existing media. The carbon media is

1 critical to ensuring the removal of organics and managing taste and odor conditions found  
2 in raw water. This was the first media change for filters 3 & 4 since 2008 and filters 5 & 6  
3 since 2009. The Company will continue to monitor carbon media performance to  
4 determine the appropriate replacement interval (which may or may not be the same as this  
5 change out) based on total flow through the filter, incoming water quality and filtered  
6 water quality. Monitoring will ensure media is replaced in a timely manner maximizing  
7 utilization without loss of required performance.

8 **IV. DISTRIBUTION AND CAPITAL IMPROVEMENTS**

9 **Q. Please describe the water distribution (water main, hydrants, and services)**  
10 **improvements that Pennichuck completed in 2013 through 2015.**

11 **A.** The Company invested a total of approximately \$10.3 million to replace over 33,000 feet  
12 of aging water mains, 77 services, 10 valves and 29 hydrants from 2013-2015. The  
13 replacements and additions were addressed by the direct pre-filed testimony of Mr. Donald  
14 L. Ware in the Company's Water Infrastructure Conservation Adjustment (WICA) filings:  
15 DW 13-358, DW 15-043, and DW 16-220 for 2013, 2014, and 2015 respectively. The  
16 surcharge for the 2013, 2014 and 2015 projects will be eliminated once a new revenue  
17 requirement is set because the improvements will be included in that revenue requirement.  
18 The effect is that the WICA surcharge will be reset to zero, as intended by the program.

19 **Q. Is this expected to be the anticipated level of pipeline replacement/rehabilitation in**  
20 **the future?**

21 **A.** Like any other older city, the City of Nashua has its share of aging infrastructure. Much of  
22 this infrastructure is beyond its useful life and in many cases has reached the point of  
23 failure requiring complete replacement. In addition, the City of Nashua has an active CSO  
24 elimination/control and sewer, drain, and street reconstruction programs. Consequently,

1 the planned joint water and sewer replacement projects are expected to continue into the  
2 foreseeable future and will continue to help reduce paving costs associated with water  
3 main replacement projects for the Company. The Company therefore expects similar levels  
4 of pipeline replacement for the foreseeable future unless the Company's Asset  
5 Management Program leads to a different rate of infrastructure replacement than currently  
6 planned.

7 **Q. What other types of capital expenditures has the Company undertaken to maintain  
8 and enhance service?**

9 **A.** There have been other efforts classified as capital projects that fall into this general  
10 category. These projects are predominantly replacements of plant and equipment as well  
11 as technology upgrades that improve operational efficiency. Examples of these projects  
12 include vehicle replacements, booster pump replacements, well pump replacements,  
13 treatment equipment upgrades and replacements, filter media change outs, improvements  
14 to buildings and grounds (roofs, painting, road repair and resurfacing), electrical system  
15 upgrades, SCADA and communications additions and enhancements.

16 **Q. Has the Company disposed of any unneeded assets in the period 2013-2015?**

17 **A.** Yes, the Company abandoned/demolished the following structures and facilities that were  
18 no longer in use or needed by the Company to provide water service:

19 Hubbard Hills Station – Derry, NH

20 Amherst Village District Station and Wells – Amherst, NH

21 Redfield Lower Station – Derry, NH

22 The above locations required the removal of above ground and below ground structures  
23 followed by loam & seed restoration. All water wells were abandoned in accordance with

24 NHDES rule We-604. The cost to abandon the facilities totaled \$81,410. The

1            abandonments allowed the structures to be removed from State and local tax rolls, thereby  
2            reducing the Company's property tax expense.

3            **Q.    What other capital initiatives is the Company pursuing to improve planning, reduce**  
4            **costs and improve efficiency to ensure appropriate levels of customer service?**

5            **A.**    The Company completed the initial phase of an Enterprise Asset Management Initiative in  
6            2012, hereinafter referred to as the "Asset Management" system. The program consists of  
7            three interdependent components including a Geographical Information System ("GIS") in  
8            order to improve record dissemination of buried assets, a Computerized Management and  
9            Maintenance System ("CMMS") to plan and track work and associated costs to specific  
10           Company assets, and finally a means to convert our operations from a paper work order  
11           system to an electronic work order system otherwise known as DPaC (Data Presentation  
12           and Collection). The initial phase set forth a road map to implement the initiative over a  
13           five to seven year period. The Company completed its third year of program development  
14           at the end of 2015. A summary of the program accomplishments as of December 31, 2015  
15           include the following:

- 16                    • GPS location of over 30,000 valves, hydrants, customer services, storage tanks,  
17                    wells, and building structures (pumping and treatment stations).
- 18                    • GIS mapping on the Nashua Core system and the assignment of attributes of  
19                    mapped assets.
- 20                    • Horizontal (distribution) and vertical (stations and equipment) assets are  
21                    compiled into the CMMS.
- 22                    • Asset preventative maintenance (PM) requirements established in the CMMS  
23                    and ready for use. The PM's trigger regularly scheduled maintenance and  
24                    inspection activities required for critical assets.

- 1           • Mobile time keeping, truck expenses and inventory is in development.
- 2           • Transitioning from “paper to electronic” maps in the field and office.

3           In the future, the Asset Management system will facilitate asset data extraction and  
4           analysis to enable the conversion of operational and financial data to useful decision  
5           making information. Armed with asset-specific information, the Company’s ability to  
6           predict and plan for the replacement of aging infrastructure will improve. In addition, the  
7           Company will continue to seek low-cost financing through the NHDES State Revolving  
8           Fund for capital projects. A new requirement for this funding is for any utility seeking  
9           SRF financing to have an appropriate level of Asset Management in place to qualify for  
10          SRF loans. The NHDES supported the Company with two grants of \$15,000 each in 2013  
11          and 2015 for the development of its Asset Management program.

12       **Q. Earlier it was indicated the Company is seeking a Step Increase for investments the**  
13       **Company plans to complete between January 1, and December 31, 2016. What are**  
14       **some of the major capital investments anticipated for 2016?**

15       A. The Company anticipates capital expenditures estimated at \$20,865,578 for 2016. These  
16       expenditures cover a broad variety of capital expenditures over all Company departments.  
17       A detailed list of projects and values is included in Schedule 3, Attachment A, “Proposed  
18       2016 Asset Acquisition Details” of the 1604.06 schedules. The following five major  
19       projects total \$18,821,950 accounting for approximately 90% of the 2016 request.

- 20           • **Asset Management Initiative (\$805,000)**

21           2016 will complete the Company’s fourth year of development of the Asset  
22           Management Initiative. The following advances occurred in 2016:

- 23           ○ Further QA/QC refinement of horizontal GIS assets.
- 24           ○ Pilot testing of access to vertical asset information through a GIS portal.

- 1                   ○ Paper plans, field books and record drawings scanned & saved in PDF
- 2                               format and linked to GIS assets for access by all Company staff.
- 3                   ○ Electronic time collection by the majority of union personnel.
- 4                   ○ Pilot testing of required level of service, risk, criticality, likelihood of
- 5                               failure and consequence of failure approach to Asset Management and
- 6                               Capital Planning.
- 7                   ○ Hydraulic model development of the Nashua Core water system based on
- 8                               and supported by the GIS model. The model will provide design support
- 9                               and decision making support to Asset Management and Capital Planning.

10                   • **Water Main Replacement (\$5,088,650)**

11                               The Company will replace nearly 14,000 linear feet of fully depreciated small

12                   diameter steel piping, unlined cast iron, and asbestos cement piping. Much of this work is

13                   in coordination with the City of Nashua and the Town of Amherst highway and utility

14                   projects.

15

1           • **Harris Dam Renovations (\$1,997,300)**

2           Harris Pond is the primary reservoir in the Pennichuck Brook Water Shed, feeding  
3           raw water to the water treatment plant. Harris Dam is the control structure that  
4           maintains water level and helps control raw water flow. Improvements to Harris  
5           Dam included the following:

- 6           ○ Addition of a new gate control building and replacement of the low level  
7           control gate. The former low level gate was inoperable. The replacement  
8           gate now allows water to be withdrawn from below the existing 72 inch  
9           penstock giving operators the ability to drain Harris Pond or to pass water  
10          into Supply Pond if Supply Pond is being used to feed raw water to the  
11          water treatment plant.
- 12          ○ Reconstruction of the concrete spillway cap in order to pass the required  
13          emergency flood flows.
- 14          ○ Sealing of the upstream masonry face of the dam to control  
15          leakage/seepage.

16          • **Dean & Main Station Building Renovations (\$490,000)**

17          The Dean & Main Station (“Station”) building structure is integral to the Supply  
18          Pond Dam. The Station is the terminal point for the 72 inch diameter penstock  
19          from Harris Dam. In the Station, raw water flow transitions to a 42 inch diameter  
20          supply main leading to the yard piping feeding the water treatment facility.

21          Because the Station is critical to the Supply Pond Dam and supports raw water flow  
22          to the water treatment plant, it is important to maintain the structural integrity of the  
23          building and to ensure current workplace safety and building code requirements.

24          Renovations to the station included the removal and disposal of hazardous

1 materials (asbestos and lead paint primarily), interior and exterior painting,  
2 masonry re-pointing, electrical upgrades and HVAC improvements.

3 • **Merrimack River Raw Water Transmission Main (\$2,991,000)**

4 The scope and purpose of the project was previously conveyed to the Commission  
5 in the Company's financing petition in Docket No. DW 15-046 and was approved  
6 by the Commission in Order No. 25,774. The transmission main allows for the  
7 direct connection of the Merrimack River, as a source of water to the water  
8 treatment facility. The project allows for the Merrimack River and Pennichuck  
9 Brook to be operated as two completely separate sources of supply with the ability  
10 to by-pass Merrimack River water around Pennichuck Brook. Currently,  
11 Merrimack River water has to be pumped into Pennichuck Brook at Bowers Pond,  
12 which flows into Harris Pond and eventually into the water treatment facility. This  
13 project allows the sources to be separated if one of the sources were to become  
14 compromised or suffer adverse water quality impacts.

15 • **Distribution Facility (\$7,450,000)**

16 The Company's current Distribution facility is located at 31 Will Street in Nashua,  
17 New Hampshire. The 31 Will Street building ("Will Street") was constructed in  
18 1965 at a time when the Company serviced 9,873 customers (within Nashua only)  
19 and had 13 employees working out of the 11,200 sq. ft. facility (2.67 acre lot). Will  
20 Street now provides distribution services to more than 50,000 customers (inclusive  
21 of the Company's four operating subsidiaries: Pennichuck Water Works,  
22 Pennichuck East Utility, Pittsfield Aqueduct Company and Pennichuck Water  
23 Service Company) in over 30 different communities. The Will Street Facility has  
24 35 employees who use it as their base of operations. In addition to the employees,

1 the Company has 38 vehicles (pickup trucks, vans, dump trucks and rubber tired  
2 backhoes) and the Company's construction materials are stored at the facility.  
3 The Will Street facility is no longer adequate for the Company's operations. There  
4 is inadequate space for employee parking, storage of inventory, tools and vehicles.  
5 And, due to space limitations, vehicles, tools and certain inventory are stored  
6 outside of the building, subject to weather conditions, theft, vandalism and other  
7 elements. The building is also inadequate for the current workforce, which consists  
8 of both male and female employees, as it was not designed for a workforce of that  
9 composition, when constructed over 50 years ago. The building lacks separate  
10 locker rooms for male and female employees.  
11 The Company began its due diligence relative to the relocation of the facility in late  
12 2012, and determined that a lot size of at least 4 acres was required. Consideration  
13 was also given to the potential neighborhoods where a facility could be located,  
14 since the distribution and construction activity conducted at the facility can be both  
15 noisy and dusty, and the facility operates 24/7/365.  
16 Due diligence led the Company in deciding that the new operations building would  
17 be constructed on Pennichuck-owned land in Merrimack, NH adjacent to the Water  
18 Treatment Plant. The location provides sufficient space to construct a building  
19 which will provide inside storage or outside cover to the vehicles and equipment  
20 used in the construction and meter maintenance portions of the business, and  
21 provides an area to properly store excavation materials.  
22 The new facility achieves the following necessary requirements:

- 1           1. Storage of most vehicles, equipment and inventory inside, out of the weather
- 2           conditions (with covered outside storage for other vehicles, and proper storage
- 3           for materials suitable to outside storage);
- 4           2. Provide for adequate training and conference facilities;
- 5           3. Provide for adequate space and water flows to carry out meter testing;
- 6           4. Provide for adequate locker room facilities for both male and female
- 7           employees;
- 8           5. Provide for adequate onsite employee parking, and;
- 9           6. Provide an area for the storage of excavation materials.

10   **Q. Does this complete your testimony?**

11   **A. Yes.**