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

**RE: PENNICHUCK EAST UTILITY, INC.
DW 19- ____**

2019 QUALIFIED CAPITAL PROJECT ADJUSTMENT CHARGE FILING

**DIRECT TESTIMONY
OF
John J. Boisvert**

February 15, 2019

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Professional and Educational Background

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

A. My name is John J. Boisvert. I am the Chief Engineer of Pennichuck Water Works, Inc. (“PWW”), which provides services to Pennichuck East Utility, Inc. (“PEU” or the “Company”) pursuant to a management allocation agreement. I have worked for PWW since February 1, 2006. I am a licensed professional engineer in New Hampshire and Maine.

Q. Please describe your educational background.

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

Q. Please describe your professional background.

A. Prior to joining the Company, I served as a Team Leader for Weston & Sampson Engineers of Portsmouth, New Hampshire in their Water Practices Group from 2000 to 2006. Prior to Weston & Sampson I was employed by the Layne Christensen Company of Shawnee Mission, Kansas as Regional Manager for their Geosciences Division in Dracut, Massachusetts from 1994 to 2000. I completed graduate school in 1992 and was employed by Hoyle, Tanner, &

1 Associates of Manchester, New Hampshire as a Project Engineer from 1992 to
2 1994. Prior to entering full time graduate programs at the University of New
3 Hampshire and Vermont Law School I was employed by Civil Consultants of
4 South Berwick, Maine as a Project Engineer from 1986 to 1989 and by
5 Underwood Engineers of Portsmouth, New Hampshire as a project Engineer
6 from 1985 to 1986.

7
8 **Q. What are your responsibilities as Chief Engineer of the Company?**

9 A. As Chief Engineer, I manage and oversee the Company's Engineering
10 Department. I lead the Company's Asset Management program. I, as head of
11 the Engineering Department, am responsible for the planning, design, permitting,
12 construction, and startup of major capital projects, including pipelines,
13 reservoirs/dams, building structures, pumping facilities, treatment facilities, and
14 groundwater supplies. The Engineering Department staff provides regular
15 technical assistance to the Company's Water Supply Department, Distribution
16 Department, Customer Service Department, and Senior Management.

17
18 **Q. What is the purpose of your testimony?**

19 A. I will be providing details of the major capital projects planned and budgeted for
20 2019-2021 as part of the Company's 2019 Qualified Capital Project Adjustment
21 Charge ("QCPAC") filing. This testimony will present the major QCPAC projects
22 initiated and completed in 2018 as well as proposed projects for 2019, 2020 and
23 2021. My testimony supports, and is in addition to, testimony being provided by

1 the Company's Chief Operating Officer Donald L. Ware for this docket. Detailed
2 project listings mentioned in this testimony are detailed in Mr. Ware's testimony
3 (Exhibit DLW-1 Pages 1 – 5).

4
5 **Q. What types of projects can be described as “major capital projects”?**

6 A. Major capital projects require significant capital investment and are approved
7 annually in the Company's capital budget by the Company's Board of Directors.
8 Projects are associated with dams, treatment facilities, pumping facilities, storage
9 tanks, water main replacements, valve and hydrant replacements, building facility
10 improvements and refurbishments, as well as non-structural efforts to improve
11 Company performance, such as Asset Management. These generally include:

- 12 • The replacement of infrastructure that has reached the end of its useful
13 life, does not achieve the level of service required of it (water quality,
14 capacity, and efficiency), or the Company's ability to properly maintain it
15 (outdated/lack of repair parts, etc.) is either impractical or more costly
16 than replacing it.
- 17 • Infrastructure upgrades to improve system performance.
- 18 • Investments to ensure compliance with the primary and secondary Safe
19 Drinking Water Act standards.
- 20 • Engineering studies and evaluations to assess infrastructure and system
21 performance to aid in planning future capital investment needs.

1 Q. **What is the process that the Company employs and what are the factors**
2 **the Company considers when developing the capital budget for water main**
3 **replacements?**

4 A. The Company considers a number of factors in developing a capital budget for
5 water main rehabilitation, replacement, and/or new construction. The Company
6 is transitioning to an Asset Management based approach which considerations
7 risk of asset failure, consequence of asset failure, the criticality of an asset, and
8 required level of service for all assets including:

- 9 • Water main break/failure history;
- 10 • Water quality problems;
- 11 • Fire protection flows;
- 12 • The proximity of and support provided to key critical customers (public safety,
13 government, hospitals, etc.;
- 14 • Coordination with gas company replacement projects;
- 15 • Geographic grouping of streets where mains to be replaced/rehabilitated for
16 improved efficiency by keeping work in close proximity;
- 17 • The opportunity to take advantage of efficiencies gained from coordinating
18 with the paving, storm water and sewer projects of Cities and Towns served
19 by the Company, to replace water main where aging unlined cast iron, steel,
20 A-C, and substandard plastic water pipes are present.
- 21 • Industry guidelines of the American Water Works Association for the
22 replacement of water main using an average life expectancy for water main of
23 100 years absent specific information on a particular asset. The Company

1 considers this rate to be reasonable until the Asset Management System
2 allows for a more system/asset specific assessment to be performed. It will
3 remain important when a City or Town is working on a street where the
4 Company has an unlined cast iron, steel, A-C, or substandard plastic water
5 main for the Company to replace the water main. There are cost savings in
6 pavement repair and traffic control associated with completing projects while
7 the municipality or other utility company is working on a street.

8 Replacement of aging and substandard infrastructure will continue to be a major
9 driver of the Company's water main replacement for the foreseeable future.

10

11 **Q. Were there any major projects the Company started in 2018 that the
12 Company will be completing as part of the 2019 Capital Budget?**

13 A. Yes. The Company continues to plan and design for improvements to the Locke
14 Lake Community Water System (Locke Lake) anticipated for construction in 2019
15 and 2020. The planning and evaluation was initiated in 2018 and is continuing
16 into 2019.

17

18 **Q. What were the major water main projects completed in 2018?**

19 A. The following projects were completed in 2018:

20 Brady Avenue Derry, NH

21 In 2018 the Company completed the second and final phase of the Brady
22 Avenue project by Replacing 2,400 linear feet of existing 1.5" thin wall HDPE
23 water main with new 8 inch diameter ductile iron water main. The project was

1 coordinated with a sewer construction and road reconstruction project by the
2 Town of Derry. The Company received a \$570,000 loan from the NH State
3 Revolving Fund (SRF) approved in NH PUC Order No 26,006.

4 Hillcrest Road Litchfield, NH

5 The Company replaced approximately 1,200 linear feet of existing 12" thin wall
6 ductile iron water main with high break history with 12" HDPE. The existing main
7 suffered from severe external corrosion due to the corrosive soils resulting from a
8 high groundwater table, the effects of a nearby swamp, and a nearby closed
9 landfill. The Company financed this project with loan from the NH SRF that was
10 approved in NH PUC Order No 26,006.

11 PEU-PWW Interconnection (Pipeline)

12 The PEU-PWW Interconnection addressed a number of concerns of the
13 Company relating to the status of water supply east of the Merrimack in the PEU
14 systems of Litchfield, Pelham, and Windham River and in the Town of Hudson
15 (indirectly). Continued organic growth in the four Towns combined with the
16 expansion of the Litchfield distribution system to over 375 residents with well
17 contaminated by PFAS compounds and declining well yield of the Hudson wells
18 (the three Hudson wells provide water to PEU) would result in serious supply
19 deficiency should one of the Hudson wells be out of service, or if the only pre-
20 existing interconnection at Taylor Falls (seasonal) between PWW and Hudson
21 were not operational. The Company determined a second crossing of the
22 Merrimack River be considered to ensure water supply to its customers east of
23 the Merrimack River. The location selected for the crossing would directly link

1 PWW system on the west side of the Merrimack River to the PEU system to the
2 east. This movement of water directly from PWW to PEU required a cost of
3 service study to determine if this direct sale was in the best interest of existing
4 customers (PEU could purchase water directly from PWW at a lower cost than
5 from Hudson). PEU was offered NH SRF loan of \$2,400,000 that was in NH
6 PUC Order No. 26,006. Nearly a year later, The Company received a \$600,000
7 grant from the NH Drinking Water and Groundwater Trust Fund (DWGTF) to help
8 defray some of the cost of the project due to the importance the project played in
9 supporting the expansion of the Litchfield distribution system to homes with
10 contaminated wells. The remainder of the project costs were funded through a
11 loan from CoBank. Approximately 4400 LF of 12 inch diameter DICL east and
12 west of the Merrimack River and 650 LF of 20 inch diameter HDPE water main
13 below the river bottom and on top of the river bottom. The NH PUC approved the
14 license to cross the Merrimack River in Order No. 26,026. The project also
15 required a pipe sleeve be installed under an active railway. Although broken out
16 as a separate project, the PEU-PWW Interconnection Booster Station was
17 integral to the Interconnection. The Company modified an existing building
18 structure to construct a 700 gallon per minute pumping station to convey water
19 from PWW to PEU via the PEU-PWW Interconnection pipeline. The station was
20 needed to overcome head (pressure) losses in the distribution system to allow
21 water to flow from PWW in Merrimack to Litchfield, Hudson, Pelham, and
22 Windham. The pipeline was completed for about \$3,500,000 and the booster
23 station went into service at a cost of just over \$340,000.

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Q. Please identify and describe water main projects planned for 2019, 2020, and 2021.

A. Planned water main replacements and additions are listed below by year.

2019 Water Main Replacements/Additions

The continues to focus a significant amount of water main replacement in its Locke Lake CWS in Barnstead, NH. Supply concerns, discussed later in this testimony and leakage from substandard water pipe are priority concerns for the Company. The Company plans to complete the following water main replacements and additions in 2019

- Georgetown Drive: Replace 4600 LF of 4 inch schedule 40 PVC with 6 inch C-900 PVC
- Bradford Lane: Replace 1825 LF of 4 inch schedule 40 PVC with 6 inch C-900 PVC
- North Barnstead Road: Eliminate dead end piping by adding 680 LF of 4 inch C-900 PVC. Replace 275 LF of 4 inch sch 40 PVC with 6 inch C-900 PVC.
- Belmont Drive: Replace 500 LF of 4 inch schedule 40 PVC with 6 inch C-900 PVC

The Locke Lake work is being funded by a NH SRF loan approved by NH PUC Order No. 26,819. The total loan amount approved by Order No. 26,189 is \$4,240,000 to cover three projects at Locke Lake. The water main replacement project is estimated at \$1,100,000, of this total authorized amount.

Other PEU Water Systems

1 The Rolling Hills CWS in Plaistow, NH was acquired by the Company the system
2 is constructed primarily of substandard small diameter (1.5 inch and 2 inch)
3 plastic pipe. The current project proposes to Replace 700 LF substandard 2 inch
4 diameter pipe with 4 inch C900 PVC. The replacement will abandon existing
5 main found to be on private property and under a porch structure of a customer
6 on Lower Road. Company crews discovered/identified the main location while
7 completing a leak repair on the property. The estimated cost of the project is
8 \$150,000 and will be funded with a loan from CoBank.

9 2020 Water Main Replacements/Additions

10 There are no planned water main additions or replacements planned for 2020.
11

12 2021 Water Main Replacements/Additions

13 Gage Hill CWS

14 The Gage Hill water system in Pelham, NH is another system the Company
15 acquired with substandard small diameter plastic pipe. The project will replace
16 main at the following locations.

- 17 • Wellesley Drive: Replace 1760 LF of 2 inch PE with 1760 LF of C900 PVC
- 18 • Radcliffe Drive: Replace 720 LF of 1.5 inch PE with 720 LF of C900 PVC
- 19 • Vassar Drive: Replace 1740 LF of 2 inch PE with 1740 LF of C900 PVC

20 The estimated budget for this project is approximately \$600,000.

21 Rolling Hills CWS

22 This phase of water main replacement at Rolling Hills in Plaistow, NH will be a
23 follow on to the work discussed above for 2019. This project will replace the
24 remainder of the substandard small diameter water main in the Rolling Hills

1 distribution system. The work will Replace 4,300 LF of 2 inch PE with 4,300 LF
2 of C900 PVC on Lower Road, Middle Road, Upper Road, Brentwood Road, and
3 Auburn Street

4 The Company will be applying to the NH SRF for loans and the NH DWGTF for
5 loans and grants to fund water main projects once the application process opens
6 each year (May and June) for projects planned in 2020 and 2021.

7 **Q. Your testimony states that water main replacement varies each year (2019-**
8 **2021) due to balancing the investment in water main replacements with**
9 **other major capital projects. What are those projects?**

10 A. The Company has typically targeted overall capital investment (reinvestment)
11 between \$1 million-\$2 million per year as necessary. Most of the investments
12 are associated with horizontal assets such as water main. Other major capital
13 projects are associated with vertical assets, including storage tanks, pumping
14 stations, treatment facilities, dams, and process related improvements (SCADA,
15 Asset Management, etc.). In some years there may be more need for horizontal
16 asset investment rather than vertical assets. In other years the opposite may be
17 true.

18 2019 Vertical Projects

19 Locke Lake CWS Barnstead, NH

20 The Company is operating the Locke Lake CWS under an order from the NH
21 DES and a Corrective Action Plan (CAP) approved by the NH DES to develop
22 additional water source(s) for Locke Lake. The Company continues to pursue
23 additional sources of water for the Locke Lake CWS. The evaluation of Locke

1 Lake as a new surface water source will continue to be assess through a
2 treatment evaluation including water sampling/monitoring and pilot testing
3 different treatment technologies to determine the appropriate technology to treat
4 raw water from Locke Lake. Once the appropriate technology is determined and
5 with the concurrence of the NH DES, the Company will complete the final design
6 and prepare bid documents for construction in 2020. The need for the project
7 was detailed in the Company's petition for financing through the NH SRF (DW
8 18-132) and as approved in NH PUC Order No. 26-189. The Company has
9 budgeted approximately \$200,000 to complete the design and permitting in 2019.

10 Londonderry Core Londonderry, NH

11 The Company needs to replace Gilcrest Road Pressure Reducing Valve (PRV)
12 Pit in 2019. The pit is a converted below ground vault that was installed in the
13 late 1980's. The internal piping is corroded, and several leaks have been
14 repaired. The PRV's in the pit reduce the pressure from the elevation 610 foot
15 pressure zone down to the 498 foot pressure zone in the Londonderry Core. The
16 addition of a second PRV vault as part of the Woodmont Commons development
17 will allow the Gilcrest PRV pit will be taken out of service for the replacement.

18 The estimated cost of the replacement is \$150,000 and will be financed through
19 CoBank.

20 Elevated 1.25 MG Storage Tank Phase 1

21 The Company plans to begin Construction of a 1.25 MG Elevated Storage Tank
22 in 2019. The need for the tank is driven by the fact that the NH DES has
23 identified in their Sanitary Survey dated January 9, 2018 the need for the tank to

1 support existing system demand and the demands from a large private
2 development. The private development is prepared to contribute 51% of the
3 cost of the tank. Additionally, the construction of the tank will reduce the
4 Company's purchased cost of water from Manchester Water Works. The
5 Company is seeking, through its petition to the Commission (DW 18-101), an
6 approval of a Special Contract with a private entity, Pillsbury, LLC for Pillsbury to
7 fund approximately 51% of the project cost. Pillsbury's contribution is the result
8 of their impact on the Londonderry water system from a significant development
9 (Woodmont Commons) that Pillsbury is constructing. The tank will take two
10 construction seasons to complete. The Company estimates its 2019 expenditure
11 to be \$700,000 and will finance the cost through CoBank.

12 2020 Vertical Projects

13 Londonderry Core Londonderry, NH

14 Elevated 1.25 MG Storage Tank Phase 2

15 The Company will complete construction of the tank and place the tank into
16 service in 2020. As stated above, the Company will be sharing the capital cost of
17 the tank with Pillsbury, LLC through a Special Contract requested from the NH
18 PUC. The Company estimates its 2019 expenditure to be \$693,580 and will
19 finance the cost through CoBank. Once the tank is completed, the Company
20 projects its purchased water costs from Manchester Water Works to the
21 Londonderry Core to be about \$71,000 per year less than before the tank was
22 constructed.

23

1 Locke Lake CWS Barnstead, NH

2 Upon successful design and permitting in 2019, the Company will construct a
3 new surface water intake in Locke Lake and construct the improvements at the
4 existing Peacham Road treatment facility to treat surface water. The facility will
5 be able to treat 200 to 300 gallon per minute surface water during the non-
6 summer months in order for the existing Locke Lake wells to be rested in winter.
7 Resting the wells will allow depleted groundwater levels to recover restoring lost
8 capacity to the wells. As stated above, the need for the project was detailed in
9 the Company's petition for financing through the NH SRF (DW 18-132) and was
10 approved in NH PUC Order No. 26-189. The Company has budgeted
11 \$2,400,000 for the project, of the overall \$4.24 million approved in that docket.

12 2021 Vertical Projects

13 There are no major vertical capital projects planned for 2021 at this time.

14 **Q. Are there other capital expenditures completed in 2108 and/or proposed for**
15 **2019, 2020, and 2021 that the Company plans to complete?**

16 A. Yes. The Company has a number of routine capital activities that are not
17 classified as "major" but are necessary to operate the business and serve our
18 customers. Some examples are as follows:

- 19 • The Company replace 531 old meters in 2018 with a lead content of greater
20 than 0.25% with new meters at a cost of \$143,400. The Company estimates
21 that there are approximately 970 remaining such meters that the Company
22 plans to replace in 2019 and 2020

1 • The Company also budgets a number of hydrant, valve, and service (main to
2 stop) replacements each year. The Company spent approximately \$46,000 in
3 2018 and has budgeted \$126,000 per year in 2019, 2020, and 2021
4 respectively to complete these replacements.

5 These Capital expenditures will be funded through a loan from CoBank.

6 **Q. Does this conclude your testimony?**

7 A. Yes.