

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

**RE: PENNICHUCK WATER WORKS, INC.**

**DW 13- \_\_\_\_**

**2013 WATER INFRASTRUCTURE  
AND CONSERVATION ADJUSTMENT FILING**

**DIRECT TESTIMONY**

**OF**

**DONALD L. WARE**

**DECEMBER 2013**

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1 **Professional and Educational Background**

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

4 **A.** My name is Donald L. Ware. I am the Chief Operating Officer of Pennichuck  
5 Water Works, Inc. (the "Company"). I have been employed with the Company  
6 since April 1995. I am a licensed professional engineer in New Hampshire,  
7 Massachusetts and Maine.

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

9 **A.** I have a Bachelor in Science degree in Civil Engineering from Bucknell University  
10 in Lewisburg, Pennsylvania. I have a Masters in Business Administration from the  
11 Whittemore Business School at the University of New Hampshire.

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

13 **A.** Prior to joining the Company, I served as the General Manager of the Augusta  
14 Water District in Augusta, Maine from 1986 to 1995. I served as the District's  
15 engineer between 1982 and 1986.

16 **Q. What are your responsibilities?**

17 **A.** As the Chief Operating Officer of the Company, I am responsible for the overall  
18 operations of the Company, including water quality and supply, distribution,  
19 engineering, and customer service.

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

21 **A.** I will be providing details of the Company's second annual Water Infrastructure  
22 and Conservation Adjustment (WICA) filing. This filing will detail the WICA  
23 projects completed in 2013 and provide a calculation of the WICA surcharge that

1 the Company will implement on or after April 1, 2014, subject to the approval of  
2 the New Hampshire Public Utilities Commission (NHPUC). The filing will also  
3 present the WICA projects proposed to be constructed during 2014, 2015 and  
4 2016.

5 **Q. What is the basis for the Company's filing?**

6 **A.** The Company's filing is based on Order No. 25,230 (June 9, 2011) from the  
7 Company's last rate case, Docket No. DW 10-091 (the "Order"), which approved  
8 the establishment of a pilot WICA program to recover the costs of replacing aging  
9 infrastructure. In addition, the implementation of the WICA surcharge for April 1,  
10 2014 is based on Order No. 25,510 (May 15, 2013) issued in Docket No. DW 12-  
11 359, and tariff pages 48 to 50, issued on June 14, 2013 and effective the same  
12 date.

13 **Q. Did the Company provide notice to customers at least thirty (30) days in  
14 advance of this WICA filing?**

15 **A.** Yes. The Company placed an ad in the Nashua Telegraph on Saturday,  
16 November 23, 2013, which provided notice to customers of the Company's intent  
17 to make this filing. A copy of the ad is attached as Attachment A, pages 1 and 2.  
18 The Company also placed a message on all bills issued between November 26  
19 and December 21, 2013, informing customers of the upcoming WICA filing and  
20 directing them to Pennichuck's website for more information. A sample bill is  
21 attached as Attachment A, page 3.

22 **Q. How does this WICA petition differ from the WICA petition filed in 2012?**

1 **A.** This filing lays out the proposed WICA projects for the next three years, 2014  
2 through 2016, in a fashion similar to the 2012 filing. In addition to laying out the  
3 proposed future WICA projects, however, it also presents the WICA projects that  
4 were completed during 2013 and for which the Company is seeking a surcharge  
5 for effect April 1, 2014.

6 **Q. What is the nature of the WICA eligible projects being submitted by the**  
7 **Company?**

8 **A.** In accordance with the Order, the Company's proposed WICA projects are limited  
9 to the replacement or rehabilitation of water mains, services, gate valves, and  
10 hydrants in the Company's core system. Attachment B, pages 2 to 4 to this  
11 testimony summarizes the projects by asset types and amounts.

12 **Q. Please describe the details of the Company's WICA plan.**

13 **A.** As of the end of 2013, the Company had about 265,000 linear feet (LF) of unlined  
14 cast iron water main, about 26,900 LF of steel water main, and about 220,300 LF  
15 of Asbestos-Cement ("A-C") water main in its core distribution system. The  
16 Company also has about 1,110 steel water services. The Company has  
17 developed a plan to replace or rehabilitate water mains over the next thirty-five to  
18 fifty years, or approximately 10,000 LF to 15,000 LF per year. The Company  
19 plans to replace the steel services at a rate of 25 to 30 services per year.  
20 Attachment B, pages 2 to 4 provides the proposed project list for the years 2014  
21 through 2016.

22 **Q. How did the Company select the streets included in the 2014 through 2016**  
23 **WICA list?**

1 The Company's 2014 list is designed to coordinate the Company's core system  
2 replacement work with road and sewer projects planned by the City of Nashua  
3 (the "City") and the Town of Amherst (the "Town"). The water mains listed for the  
4 years 2015 and 2016 were evaluated using the following considerations:

- 5 1. Water main break history;
- 6 2. Water quality problems;
- 7 3. Fire protection flows;
- 8 4. Key customers; and
- 9 5. Geographical proximity of mains to be replaced/rehabilitated.

10 The Company developed a rating system regarding the first four items in order to  
11 establish the highest priority water mains and then included geographic area  
12 considerations for unlined cast iron, steel, or A-C water mains in proximity to the  
13 highest rated mains. Completing rehabilitation or replacement work in the same  
14 geographic area helps to minimize community disruption and reduce the cost of  
15 mobilizing and demobilizing equipment to different parts of the core system.

16 **Q. Please explain the rating system.**

17 **A.** The rating system is as follows:

- 18 1. Water Main Break History. One point is assigned for each break that has  
19 happened during the past 20 years up to a maximum of 5 points.
- 20 2. Water Quality Problems. Based on a review of the history of colored water  
21 complaints on the streets over the past 10 years, 1 point is assigned for each  
22 incidence of water quality complaints during the past 10 years up to a maximum of  
23 5 points.

1 3. Fire Protection Flows. One point is assigned for every 500 gallons per minute  
2 that the current fire flows are below the ISO required fire flows, up to a maximum  
3 of 5 points.

4 4. Key Customers. If there is a key customer (medical facility, major industry,  
5 school, etc.) fed from a single water main, 3 points are assigned. If there is a key  
6 customer fed from two water mains - 1 point is assigned.

7 5. Geographical Proximity. If the street is connected to a highly rated street,  
8 based on points assigned in other categories, it is awarded 3 points. If the street  
9 is within 5 blocks of a highly rated street, it is awarded 2 points.

10 **Q. Is it important when the City or Town is working on a street where**  
11 **Pennichuck has an unlined cast iron, steel, or A-C water main for the**  
12 **Company to replace the water main even though it is not highly rated?**

13 **A.** Yes, because:

14 1. There is significant cost savings in the areas of pavement repair and traffic  
15 control associated with completing joint projects with the City or Town.

16 2. It is rare that the City or Town can replace sewers or storm drains and not  
17 undercut the existing water main. Often, the water main is located in the same  
18 trench as the sewer main, with the sewer main being installed first and the water  
19 main laid higher in the trench. This generally makes it impossible to replace the  
20 sewer main without replacing the water main. Unlined cast iron, steel, and A-C  
21 water main usually cannot survive loss of soil support or the vibration of heavy  
22 construction equipment without experiencing high levels of breakage.

1 **Q. What action does the Company propose if the level of work by the City or the**  
2 **Town does not result in the Company hitting its desired target replacement**  
3 **levels of 10,000 to 15,000 LF of rehabilitation/replacement of targeted water**  
4 **main?**

5 **A.** The Company needs to be careful as it considers the replacement of its water  
6 main ahead of City or Town rehabilitation of sewer and storm drain lines. Any  
7 replacement needs to be located where it will not be in the way of future sewer or  
8 storm drain replacement work. For the present, the Company plans to match its  
9 level of replacement work with that of the City and the Town. If the level of City  
10 and Town work diminishes or stops, the Company will then add to its evaluation  
11 list water mains to be rehabilitated or replaced that can be safely accomplished  
12 without obstructing future sewer or storm drain replacement.

13 **Q. With regard to the choice of rehabilitating versus replacing a water main,**  
14 **over the past three years the Company has not rehabilitated any water main**  
15 **but instead has replaced all of its aging water main. Why hasn't the**  
16 **Company rehabilitated any water main?**

17 **A.** A cast iron water main will not stand up to being undermined. If the cast iron  
18 water main to be rehabilitated or replaced is within 5 feet of the sewer or storm  
19 drain that is being replaced, the bedding under the cast iron water main will likely  
20 be compromised and result in numerous failures of the cast iron water main. The  
21 common practice up to 1940 was to dig one trench and place the sewer first and  
22 the water main second. This pre-1940's construction practice eliminates the  
23 feasibility of rehabilitating the majority of the Company's cast iron water mains.

1 **Q. Why did the Company include a 20% contingency on its WICA list?**

2 **A.** The City and Town fiscal years run six months behind the Company's calendar  
3 year. The City and Town will be establishing their budgets for sewer and storm  
4 drain replacement work in the late spring of 2013 for work to be completed in  
5 2014. The Company will get the approved list of streets in the City and Town  
6 Budgets for 2014 (July 2014 to June 2015) until mid-July of 2014. At the time of  
7 this WICA filing, the Company does not know what streets in the City and Town  
8 will be the subject of sewer and storm drain replacement work in the fiscal year  
9 beginning in July of 2014. Additionally, the City is still evaluating the list of streets  
10 that it will be completing in spring of 2014. The Town of Amherst has finalized its  
11 street work list for spring of 2014. The scope of the City sewer replacement work  
12 for the majority of 2014 is reflected in the Company's 2014 WICA list. The City  
13 has historically added additional streets to its sewer replacement work in the  
14 second half of the calendar year, which is a new fiscal year for the City. The  
15 Company has a contingency in its WICA budget to allow it to react to additional  
16 sewer replacement the City might undertake, which will result in additional water  
17 main replacement.

18 **Q. Please explain any factors that will contribute to changes in the list of WICA**  
19 **projects proposed in this filing.**

20 **A.** Several factors will change in priority over time as follows:

- 21 1. Schedule Coordination. The scheduling of City and Town sewer and storm  
22 drain replacement projects affects our project priorities and schedule for the  
23 reasons previously discussed.
- 24 2. Main Breaks. The frequency of breaks on any given segment of pipe may  
25 increase in coming years, which will increase the score for that water main.  
26 Also, the specific locations of some main breaks create more problems when  
27 compared to others such that the Company's top choices for main

1 replacements may not be based strictly on score.

2 3. Criticality. Other system improvements may reduce the relative importance of  
3 a particular pipe segment. For example, a loop project may create redundancy  
4 and/or eliminate a bottleneck resulting in a lower criticality score.

5 4. Water Quality Problems. The frequency and nature of water quality issues  
6 may change over time, due to factors such as adjustments in treatment or  
7 other operating conditions, which could increase or decrease the score for  
8 any particular pipe segment.

9 5. Staff Input. The experience and field knowledge of the Company's staff with  
10 distribution mains change over time through ongoing operating and  
11 maintenance activities. Staff opinion regarding the relative priorities of  
12 different main replacement projects changes in response to day-by-day  
13 working experience with the system.

14 6. Capital Budget Constraints. Main replacements cannot be scheduled in strict  
15 order of their priority scores because the estimated project costs exceed  
16 available capital funds in some years. Projects must be shifted from year to  
17 year depending on what other projects, both WICA and non-WICA, are also  
18 being considered by the Company.

19 **Q. The Company's proposed WICA plan details a replacement of between 8,500**  
20 **LF and 9,600 LF of main per year versus the Company's previously stated**  
21 **goal of between 10,000 and 15,000 LF. Why is the Company doing less**  
22 **replacement/rehabilitation work than it projected it would do in the initial**  
23 **WICA testimony?**

24 **A.** There are three primary reasons for less water main replacement occurring than  
25 previously estimated:

26 1. The company reserved a 20% contingency for new City or Town work  
27 developing during the year, which could result in the Company completing  
28 between 10,200 and 11,500 LF of water main replacement.

29 2. The water main work being completed is entirely replacement work, as  
30 opposed to rehabilitation work. The initial WICA filing estimated that about  
31 40% of the work would be rehabilitation work, which could have been done  
32 at a price per foot about 65% that of replacing the water main. The  
33 increased cost associated with replacing all the water main reduced the  
34 amount of water main that can be addressed each year.

35 3. The Company limited the amount of water main it will replace in the next  
36 three years through the WICA program because of several other large

1 capital expenditure projects, including the reconstruction of Harris Dam and  
2 the replacement of the Will Street Distribution facility. Limiting capital  
3 expenditures in this way balances the work performed and the impact on  
4 rates.

5 **Q. What are the estimated rate impacts associated with the respective year's**  
6 **projects contained in the Company's filing.**

7 **A.** Under the WICA program, surcharges are limited to a 2% increase in rates in any  
8 one year, with a maximum increase in rates of 7.5% between full rate cases.  
9 Attachment C to this testimony summarizes the WICA surcharge percentages and  
10 impacts on a typical annual residential customer bill for the proposed project years  
11 2014, 2015 and 2016.

12 **Q. What is the projected surcharge for 2015 related to 2014 projects?**

13 **A.** The 2014 projects summarized in Attachment C produce an estimated surcharge  
14 of 0.93% to be applied to customers' existing water service billings. The  
15 surcharge will be applied equiproportionally to all classes on a service-rendered  
16 basis

17 **Q. What is the impact on the average residential customer for 2014 projects?**

18 **A.** The typical residential customer using 7.88 CCF per year currently pays \$46.34  
19 monthly under existing rates, exclusive of the \$0.27 WICA surcharge that the  
20 Company is requesting be implemented on April 1, 2014 for the WICA projects  
21 completed in 2013. The proposed WICA surcharge for 2014 projects, if approved  
22 and implemented in April 2015, would increase the bill of such a customer by  
23 \$0.43 per month, or \$5.16 annually.

24 **Q. How will the WICA surcharge be displayed on the customer's bill?**

1 A. The WICA will be reflected on customers' bills as a WICA Surcharge Amount.  
2 The charge would be expressed as a percentage and applied to the effective  
3 portion of the total amount billed to each customer under the Company's approved  
4 tariff rate and charges, with the exception of miscellaneous charges. A sample  
5 customer bill is attached to this testimony as Attachment D.

6 **Q. Has the Company included revised tariff pages for the WICA surcharge?**

7 A. Yes. The proposed revised tariff pages are Attachment E to this testimony.

8 **Q. How does the Company intend to finance the WICA improvements?**

9 A. The Company will fund WICA projects with debt. Initial debt would come from the  
10 Company's short-term line of credit. Once a sufficient amount of short-term debt  
11 has been incurred, the Company will propose refinancing with long-term debt and  
12 will petition the Commission for approval of the new debt at that time.

13 **Q. What action is the Company requesting with regard to the projects shown  
14 on Attachment B, pages 2 to 4?**

15 A. With regard to the planned projects for 2014, the Company is requesting that the  
16 Commission approve these projects for inclusion in the WICA surcharge to be  
17 effective April 2015. With regard to the planned projects for 2015, the Company is  
18 requesting that the Commission preliminarily approve the projects as WICA  
19 eligible projects, subject to the Commission's final review next year. Finally, with  
20 regard to the planned projects for 2016, the Company is not requesting any action  
21 and is providing the project listing for informational purposes only.

22 **Q. Is the Company seeking any other Commission action as part of this WICA  
23 filing?**

1 **A.** Yes. The Company is requesting that the Commission approve a WICA  
2 surcharge related to the 2013 projects for implementation on April 1, 2014.

3 **Q. Please provide a description of the WICA eligible projects completed during**  
4 **2013.**

5 **A.** The Company replaced 7,524 LF of WICA eligible water mains in 2013 at a cost  
6 of about \$1,500,000. The Company replaced 15 steel services at a cost of  
7 \$44,291, and 6 hydrants at a cost of \$30,716 during 2013. A spread sheet  
8 detailing the specific information, by street and community, where the 2013 WICA  
9 projects were completed is reflected on Attachment B, page 1.

10 **Q. How did the actual 2013 WICA plan compare to the 2013 WICA plan that was**  
11 **projected in the Company's December 2012 WICA filing?**

12 **A.** Please see Attachment F, which lists the WICA projects that were projected to  
13 occur in 2013 as part of DW 12-359, in comparison to exhibit Attachment B, page  
14 1, which reflects the actual WICA related projects completed in 2013. The  
15 Company did not complete the work on Baldwin and Chestnut Street that was  
16 projected in the DW 12-359 filing because the projects were delayed to  
17 synchronize with the City of Nashua's Broad Street parkway project. The Baldwin  
18 Street project will be completed in the spring of 2014. It appears that the Chestnut  
19 Street project will be delayed until the Spring of 2015. All of the other WICA  
20 projects detailed in the DW12-359 filing for 2013 were completed.

21 In addition to the Streets detailed in DW 12-359, the Company also completed  
22 WICA projects on Hillcrest Avenue, Franklin Street, Beacon Street and Beacon  
23 Court in Nashua and Cross Street in Amherst. All of the Streets that had water

1 main replaced in 2013 were completed in conjunction with the City of Nashua  
2 sewer replacement projects or the Town of Amherst storm drain and street  
3 rebuilding projects.

4 The actual footage of water main replaced as part of the 2013 WICA plan was  
5 7,524 LF at a cost of \$1,492,375. The amount of water main projected to be  
6 replaced in 2013 in DW12-359 was 6,613 LF, at an estimated cost of \$1,755,007.  
7 Additionally, the DW12-359 WICA plan called for the replacement of 31 steel  
8 water services, at an estimated cost of \$57,598. The actual number of steel water  
9 services replaced in 2013 was 17, at a cost of \$44,291.24.

10 **Q. What is the WICA surcharge being requested for implementation beginning**  
11 **in April of 2014 and how does that compare to the April 2014 WICA**  
12 **surcharge requested in DW12-359?**

13 **A.** The Company is requesting a WICA surcharge of 0.59% for the WICA related  
14 projects completed during 2013, compared to the estimated WICA surcharge of  
15 1.01% detailed in DW12-359. Please see Attachment C for the calculation of the  
16 requested 2014 WICA surcharge.

17 **Q. Are all the projects requested for inclusion in the 2014 WICA surcharge used**  
18 **and useful?**

19 **A.** All of the WICA projects requested for inclusion in the April 2014 WICA surcharge  
20 are used and useful. Please note that certain of the included projects still require  
21 the installation of permanent pavement. The cost of final paving associated with  
22 these projects is included as a line item in the 2014 WICA project list that is being  
23 submitted with this petition. Furthermore, for work that is being completed on

1 several of the WICA projects during the month of December, the Company will not  
2 get final bills associated with that work until the better part of January 2014. The  
3 WICA project files are complete, with the exception of any bills that will be issued  
4 in January for work completed in December of 2013.

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

6 **A. Yes.**