

STATE OF NEW HAMPSHIRE

DW 15-043

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NHPUC 17APR15PM4:05

April 17, 2015

Debra A. Howland
Executive Director
New Hampshire Public Utilities Commission
21 S. Fruit St., Suite 10
Concord, New Hampshire 03301

Re: DW 15-043, Pennichuck Water Works, Inc.
Water Infrastructure and Conservation Adjustment (WICA)
2015 Surcharge and 2015-17 Capital Projects
Recommendation for Approval

Dear Ms. Howland:

On January 30, 2015, Pennichuck Water Works, Inc. (PWW), filed a petition for certain approvals under its current WICA tariff provision. PWW's WICA is a pilot program originally authorized by Order 25,230 (June 9, 2011), in Docket No. DW 10-091. PWW's petition seeks: (1) approval of a WICA surcharge of 1.91%, based on completed, in-service, 2013 and 2014 projects; (2) approval of its proposed 2015 WICA projects; and (3) preliminary approval of PWW's 2016 WICA projects. A WICA project list for construction in 2017 was also provided for informational purposes.

Accompanying the petition was the testimony of Donald L. Ware, Chief Operating Officer of PWW. After review of the petition, discovery, and a technical session, Staff recommends approval of a 2015 surcharge of 1.81% and a 2015 project list totaling an estimated \$5.2 million. Staff also recommends preliminary approval of the 2016 project list as well as certain revisions to PWW's WICA tariff. PWW and the Office of the Consumer Advocate (OCA) concur with Staff's recommendations.

Following the company's filing, Staff, the OCA and PWW agreed to an informal procedural schedule for review of the filing. Staff and the OCA conducted discovery and held a technical session on March 20, 2015. Staff also engaged the services of Douglas W. Brogan, formerly a water and sewer engineer for the Commission, to review the technical and engineering aspects of the filing. Mr. Brogan's memorandum summarizing his review and findings is attached to this letter.

In addition, the Commission Audit Staff audited the actual costs of the completed 2014 projects, which form the basis of the 2015 surcharge, and Mr. Jayson Laflamme, Senior Analyst in the Commission's Gas and Water Division, reviewed the financial aspects of the filing, including the calculation of the proposed 2015 surcharge, and the impacts of the proposed WICA spending in future years. Mr. Laflamme's memorandum, summarizing his review and providing explanation of the recommended 2015 surcharge of 1.81% is attached to this letter.

The series of schedules attached to this letter details the calculation of the WICA surcharge, the calculation of estimated future surcharge amounts based on budgeted spending, and presents the proposed WICA projects for 2015, 2016, and 2017. In addition, I attach PWW's responses to Staff data requests; the Final Audit Report on the completed 2014 projects; and the four existing PWW WICA tariff pages in red-line format, containing a number of proposed changes.

Until 2014, the due date for PWW's annual WICA filing had been December 31, with its proposed WICA surcharge to be effective for service rendered April 1. In Docket No. DW 13-358, PWW requested a filing date of January 31, with the surcharge to be effective May 1, on a service-rendered basis. The Commission approved this tariff change in its Order No. 25,661 dated May 5, 2014. In the instant filing, however, PWW seeks approval of its new WICA surcharge for effect on June 1, on a bills-rendered basis. The company asserts that this change will be less confusing for customers and more administratively efficient for the company, because it eliminates the need to pro-rate the new surcharge on customer bills. PWW also asserts that its effective-date proposal will not harm customers inasmuch as the company will not include service prior to May 1 on any bill issued on or after June 1. Staff agrees with the company's reasoning and recommends that the Commission approve this request.

With respect to the other changes to the company's WICA tariff, the attached, red-lined tariff pages reflect a number of recommended changes. In addition to the change in the proposed effective date of the annual WICA surcharge, as discussed above, Staff, PWW, and the OCA recommend: (1) applying an updated property tax rate each year to all capital improvements undertaken in the WICA program years that make up the current surcharge (tariff page 49); (2) clarifying that accumulated depreciation is to be deducted from WICA plant investments in calculating the surcharge (tariff page 50); (3) codifying the requirement in Order No 25,661 that PWW files its annual filing no later than January 31 of each year (tariff page 50); (4) clarifying and enhancing the customer notice provision (tariff page 51); and (5) expanding the notice requirements for changes to the approved project list for the current year, such that PWW will report to the Commission and all parties four times during that program year (tariff page 51). Staff recommends that the Commission approve these tariff changes.

With regard to the company's remaining requests for relief in this docket, based on its review, Staff recommends that the Commission approve a WICA surcharge of 1.81%, to be applied to all customer bills on a bills-rendered basis as of June 1, 2015.

Staff also recommends approval of the 2015 WICA project list and preliminary approval of the 2016 projects.

The OCA authorized Staff to represent its position as follows:

The WICA program enables the replacement of aging water infrastructure intended to improve and protect water quality and reliability to residents. As designed the WICA plan reduces rate shock and can lead to increased length between general base rate case filings. Based on the merits of the program, and based on the modest rate impact associated with WICA projects completed in 2014, the OCA supports the request.

Thank you for your assistance. If there is anything further I can provide, please let me know.

Sincerely,

A handwritten signature in blue ink that reads "Mark A. Naylor". The signature is written in a cursive style with a large, sweeping initial "M".

Mark A. Naylor
Director, Gas & Water Division

Attachments:

PWW Responses to Staff Discovery
March 27, 2015 Memo from D. Brogan
April 10, 2015 Memo from J. Laflamme
March 19, 2015 Audit Report of A. Leone
Schedules (Attachments A and B)
Red-lined WICA tariff pages

cc: Docket-Related Service List

March 6, 2015

THOMAS B. GETZ
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VIA ELECTRONIC MAIL

Rorie E. Patterson
Staff Attorney
New Hampshire Public Utilities Commission
21 S. Fruit Street, Suite 10
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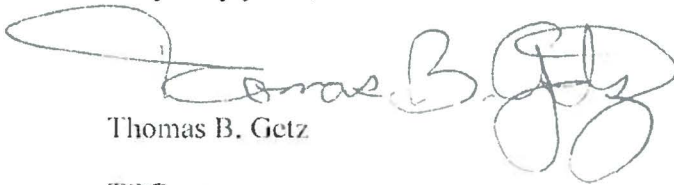
Re: DW 15-043, Pennichuck Water Works, Inc.
Petition for Approval of Water Infrastructure and Conservation Adjustment
Staff Data Requests – Set 1

Dear Attorney Patterson:

Attached are responses by Pennichuck Water Works, Inc. to the first set of data requests by the Commission Staff dated February 24, 2015 (#1 through 12) and dated March 2, 2015 (#13).

Please let me know if you have any questions.

Very truly yours,



Thomas B. Getz

TBG:aec

Attachments

cc: Discovery Electronic Service List

DW 15-043
PENNICHUCK WATER WORKS, INC.

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

Date Request Received: February 24, 2015
Request No. Staff 1-1

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment C, Page 1 of 2, 2015 – 2017 Net Plant Additions:

- a) Please explain why the 2015 WICA Investment of \$5,181,247 is also being reduced by the accumulated depreciation on the 2014 WICA Investment of \$54,806.
- b) Please explain why the 2016 WICA Investment of \$5,364,347 is also being reduced by the accumulated depreciation on the 2014 WICA Investment of \$54,806 as well as the accumulated depreciation on the 2015 WICA Investment of \$83,687.
- c) Please explain why the 2017 WICA Investment of \$4,483,247 is also being reduced by the accumulated depreciation on the 2014 WICA Investment of \$54,806, the accumulated depreciation on the 2015 WICA Investment of \$83,687, and the accumulated depreciation on the 2016 WICA Investment of \$86,544.

RESPONSE:

- a) Each successive year of new WICA surcharge is reduced by: (1) ½ year depreciation for plant additions in the year of the WICA filing; and (2) a full year depreciation for plant additions for all preceding years.
This effectively results in the correct cumulative WICA surcharge being applied for the cumulative net WICA plant additions. Absent this, the cumulative net plant additions through the end of 2015, taking into consideration the surcharge already granted for 2014 additions, would be overstated by the ongoing depreciation on those 2014 plant additions. The end result is that the WICA surcharge being paid by the customers reflects the asset value on the Company's books, through the end of 2015.
Please note that a revised Attachment C, Pages 1 and 2, WICA Surcharge Calculation, are attached. The changes to the revised Attachment are delineated in the data responses below.
- b) Same explanation as a) above, rolled forward to encompass the 2016 year.
- c) Same explanation as a) above, rolled forward to encompass the 2017 year.

DW 15-043
PENNICHUCK WATER WORKS, INC.

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

Date Request Received: February 24, 2015
Request No. Staff 1-2

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment C, Page 1 of 2, 2017 Net Plant Additions:

It does not appear that the amount for net plant additions for 2017 of \$4,258,210 was reduced by the amount of accumulated depreciation on the 2017 Additions of \$36,223. Please verify that the amount appearing on the schedule for 2017 Net Plant Additions should instead be \$4,221,987.

RESPONSE:

The correct 2017 Net Plant Additions should be \$4,229,713.

This amount reflects the inclusion of the 2017 accumulated depreciation of \$36,223, pointed out above, that was not included in the 2017 net plant additions in the original filings.

This amount also reflects the revision to the 2014 additions and the associated accumulated depreciation for the 2014 additions that is discussed in the Company's response to Staff 1-7 below.

A revised Attachment C, Page 1 of 2 and a revised Attachment B, page 1 of 4, is attached reflecting these corrections.

The net result of these corrections is that the Company is seeking a 2014 WICA surcharge of 1.10% instead of the 2014 WICA surcharge of 1.26% as requested in the original testimony.

DW 15-043
PENNICHUCK WATER WORKS, INC.

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

Date Request Received: February 24, 2015
Request No. Staff 1-3

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment C, Page 1 of 2, Calculation of Pre Tax Rate of Return (Based on DW 13-130):

- a) The Company's schedule indicates that the weighted cost component for debt is 5.94%. However, Tab 12, Schedule 1 of the Company's filing in DW 13-130 indicates that the weighted cost component for debt is 5.59%. Please explain.
- b) The Company's schedule indicates that the weighted cost component for equity is 0.00%. However, Tab 12, Schedule 1 of the Company's filing in DW 13-130 indicates that the weighted cost component for equity is 0.35%. Please explain.
- c) Based on Tab 17 of the Company's filing in DW 13-130, please explain how the tax multiplier for equity of 1.681 was derived.

RESPONSE:

- a) The term "weighted cost" on Attachment C, Page 1 of 2 has been changed to "Component Cost Rate" to reflect the Company's weighted cost of debt in DW13-130 of 5.94%.
The 5.59% "Average Cost Rate" was the cost of debt component of the Company's Capital structure in the DW 13-130 filing.
The 5.59% figure was calculated by multiplying the Company's Component Cost Rate for debt of 5.94% by the percentage of the Company's capital structure that was debt, or 94.04%.
- b) Since the Company is funding all of the WICA projects with debt, it has calculated its allowed Rate of Return for the WICA surcharges based upon a capital structure consisting of 100% debt, having a component cost rate of 5.94%, and 0% equity resulting in an overall allowed Rate of Return of 5.94%.
The Company believes that the correct approach to the WICA filing is to apply the last-approved Rate of Return (determined in DW 13-130) of 5.94% based on the capital structure at the time of the DW 13-130 filing. Coincidentally, the average Component Cost Rate of debt of 5.94% found in DW 13-130 is the same as the Rate of Return of 5.94% allowed in DW 13-130.
Attachment C, Page 1 of 2 has been changed to reflect the DW 13-130 approved Capital Structure resulting in a pretax ROR of 6.17% for the WICA Investments which nets to an after -tax Rate of Return of 5.94%.

c) The 1.681 should be 1.656.

The 1.656 tax gross up is necessary to offset the impact of Federal and State income taxes on the equity component of the Company's WICA investments.

It is determined by dividing: (a) the Company's net after tax income, reflecting an effective combined Federal and State income tax rate of 39.61% (which results in an after tax yield of 60.39%) into (b) 1 ($0.6039/1 = 1.656$).

Attachment C, Page 1 of 2 has been changed to reflect the correct tax multiplier.

DW 15-043
PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: February 24, 2015
Request No. Staff 1-4

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment C, Page 2 of 2, Note 1: Please explain the statement, "Actual retirement for Services will be presented with the completed surcharge filing."

RESPONSE: A detailed analysis of each service replaced during 2014 needs to be completed to assess if the replaced services were fully depreciated or if they had any remaining life that needs to be retired. As a general matter, there may not be sufficient time to complete year-end service-by-service analyses prior to a January 31 filing. The Company's intention in this instance was to update, or complete, the surcharge filing as part of the discovery process as the depreciation information became available. The service-by-service analysis for the 28 services replaced in 2014 will be available by March 20, 2015.

DW 15-043
PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: February 24, 2015
Request No. Staff 1-5

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment C, Page 2 of 2, Property Tax Expense: Please explain why the WICA Investments for 2014 - 2017 are not reduced by accumulated depreciation in the determination of the respective property tax expenses.

RESPONSE:

Both State and Local property taxes are assessed based on a fair market assessment. The State utilized a 90% "Cost" and 10% "Income" appraisal methodology in determining fair market value. Reducing the WICA investment property tax expense by the accumulated depreciation would result in the Company under collecting the property tax expense because the "Cost" approach to valuation utilizes the cost basis of value as the current replacement cost less functional depreciation.

Inasmuch as the replacement cost of an asset increases each year by inflation, and functional depreciation typically is less than regulatory depreciation, the net result is that *property taxes assessed* are typically greater than the *property taxes calculated* which use installed book value times the State and Local property tax rates.

**DW 15-043
PENNICHUCK WATER WORKS, INC.**

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

**Date Request Received: February 24, 2015
Request No. Staff 1-6**

**Date of Response: March 6, 2015
Witness: Donald L. Ware**

REQUEST: Re: Attachment B, page 1 of 4, 2014 WICA Water Main Project Status:
For the most part, the lengths in the column, "PROJECTED LENGTH AS OF END OF 2014 (FEET)" are the same as those projected in June 2014. Please comment on the extent to which the 'end of 2014' lengths are final project lengths.

RESPONSE:

The lengths listed in the "PROJECTED LENGTH AS OF END OF 2014 (FEET)" are the final project lengths for the 2014 WICA eligible projects.

DW 15-043
PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: February 24, 2015
Request No. Staff 1-7

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment B, page 1 of 4, 2014 WICA Water Main Project Status:
Regarding the two Baldwin Street projects:

- a) Does the company agree the lengths projected in June were 100 and 1,198 feet, respectively?
- b) Is the route change noted in the "EXPLANATION" column the primary reason for the increased length of the overall project?
- c) Are the route change and higher railroad fees the primary reasons for the increased cost of the overall project?
- d) The cost of the Bridge/RR Crossing portion of the project increased by 363%. Please elaborate on the note that "The original Apportioning of the % of the total estimated costs for Baldwin St was incorrect".
- e) Please explain the last clause of footnote 5 ("... but the combined project costs are shown on one line").

RESPONSE:

- a) Yes.
- b) Yes.
- c) Yes.
- d) There was an error on Attachment B, Page 1 of 4 in regards to this project. The proposed project cost total for the Baldwin Street water main and the Baldwin Street Railroad crossing project should have been shown on one line. The combined Baldwin Street and Baldwin St – Bridge/Railroad Crossing project final cost was \$389,041 (subject to audit) vs. the original combined project cost estimate of \$364,000. The primary differences for the cost increase were as follows:
 - i. The original intent was to cross the railroad by attaching the new water main to the new Baldwin Street Bridge. This was not possible due to Federal Highway Funding limitations (money provided to the City for the Broad Street Parkway put the project under the jurisdiction of Federal Highway Funding). As a result, the Company's only option to cross the railroad was via a jacked crossing where a carrier sleeve was jacked under the railroad right of way and the transmission water main was pushed through the carrier sleeve.

ii. The location of the sleeve under the railroad had to be located away from the bridge construction zone which required additional water main (1,620 LF vs. the original estimate of 1,198 LF) or about 35% more water main. The additional footage of water main, in conjunction with the need to acquire easements and to install the water main down and up steep slopes to and from the Railroad Right of Way, resulted in the final cost of this project exceeding the initial project estimate.

e) The footnote is correct. Please see the explanation for the footnote in d) above.

A revised Attachment B, page 1 of 4, 2014 WICA Main Project Status is attached to this data request reflecting the correct 2014 project cost for the Baldwin Street project.

DW 15-043
PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: February 24, 2015
Request No. Staff 1-8

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment B, page 1 of 4, 2014 WICA Water Main Project Status:
The Mack Hill Road project in Amherst has been variously identified as Main Street and Manchester Road. Is the associated bridge crossing over Beaver Brook? If not, please indicate the location.

RESPONSE:

This project has had various names. The project is indeed along Mack Hill Road and involves the bridge crossing Beaver Brook as identified in the data request.

DW 15-043
PENNICHUCK WATER WORKS, INC.

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

Date Request Received: February 24, 2015
Request No. Staff 1-9

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment B, page 1 of 4, 2014 WICA Water Main Project Status:
All of the projects listed as “Used and Useful” instead of “Complete” in the “EXPLANATION” column anticipate final paving in 2015, with the exception of Broad Street. Please comment on the status of the Broad Street project in that regard.

RESPONSE:

There is no paving that needs to be completed for this project. The reason the project is not complete is that a section of sewer main that is located over the new water main on Broad Street must be replaced with ductile iron in order to comply with NHDES regulations regarding the installation of sewer mains over water mains. The section of sewer main that needs to be replaced will be replaced this spring and that will complete this project. The Company does not intend on including the cost of the sewer main replacement as part of the 2015 WICA project filing.

DW 15-043
PENNICHUCK WATER WORKS, INC.

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

Date Request Received: February 24, 2015
Request No. Staff 1-10

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment B, page 1 of 4, 2014 WICA Water Main Project Status:

The three highest cost per foot projects were:

- a) Baldwin St - Bridge/RR Crossing (\$2,210/foot)
- b) Broad Street (\$717/foot)
- c) Cross Street (\$399/foot, including final paving estimate)

Please comment on any reasons for these higher costs to the extent not already noted in the "EXPLANATION" column.

RESPONSE:

- a) Please see the explanation of the cost drivers for this project in the response to Staff 1-7
- b) The installation of this water main required many changes in the water main elevation and location in order to work around existing and proposed sewer and storm drain work for the Broad Street Parkway. Additionally, Broad Street is a high traffic area so work was required to be performed at night rather than during the day, incurring higher labor costs for this project. The high traffic area also required that the trench be temporarily paved at the end of each work day. Please note the explanation column of Attachment B, page 1 of 4.
- c) The ledge was extremely expensive to remove as it had to be removed using a hydraulic jackhammer instead of via blasting. It was necessary to remove the ledge in this fashion due to the proximity of other utilities (gas/sewer/storm drain) that would have been damaged by conventional blasting. Additionally, the proximity and age of buildings along Cross Street also precluded the use of conventional blasting to remove the ledge. Please note the explanation column of Attachment B, page 1 of 4.

DW 15-043
PENNICHUCK WATER WORKS, INC.

Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: February 24, 2015
Request No. Staff 1-11

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Re: Attachment B, page 1 of 4, 2014 WICA Water Main Project Status:
Regarding the Fairmount Street project to be completed in 2015, was the \$9,154 expended in 2014 for work that is not yet used and useful? Please explain.

RESPONSE:

Yes. The \$9,154 was expended for design engineering and for surface restoration of an casement where water main for this project was installed in the fall of 2014. The installed water main will not be completed until 2015 and was not used and useful at the end of 2014.

**DW 15-043
PENNICHUCK WATER WORKS, INC.**

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

**Date Request Received: February 24, 2015
Request No. Staff 1-12**

**Date of Response: March 6, 2015
Witness: Donald L. Ware**

REQUEST: Re: Attachment B, page 2 of 4, Proposed 2015 WICA Water Main Projects: Regarding the “Allds Street (Main to Harbor), parallels 12” A-C below” project, please indicate the reason for the \$123,000 cost for a main that will apparently be abandoned and not replaced.

RESPONSE:

All of the services, hydrants and side streets along Allds Street are connected to the existing unlined 8” cast iron water main. The \$123,000 is the cost associated with tying the services, hydrants and side streets over from the existing 8” water main to the new 16” water main proposed for Allds Street.

DW 15-043
PENNICHUCK WATER WORKS, INC.

**Pennichuck Water Works' Responses to
Staff Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT**

Date Request Received: March 2, 2015
Request No. Staff 1-13

Date of Response: March 6, 2015
Witness: Donald L. Ware

REQUEST: Please indicate why SRF funding was declined for the proposed 2015 water main replacement work (see Attachment A to testimony of Larry Goodhue in PWW SRF docket DW 15-046).

RESPONSE: As noted in the January 28, 2015 letter from DES referred to above, the Company declined \$3.4 million in SRF funding for "Distribution Main Replacement 2015." These projects had earlier been included as part of petition filed by the Company in May, 2014, docketed as DW 14-130, which sought approval to issue \$54.5 million in debt, of which \$19.5 million was intended for capital projects in 2014, 2015, and 2016. DES notified the Company of its eligibility for SRF funding for the 2015 projects in September 2014. Because the financing proceeding was so far advanced at the time of the DES notification, the Company determined that it was reasonable to continue on that financing path. The Commission issued Order No. 25,734, on November 7, 2014, approving the Company's financing petition. The Company closed on the \$19.5 million of bond financing for the capital projects on December 15, 2014. Inasmuch as the bonds were issued to the public in their totality in December 2014, the Company has already begun incurring the costs related to the repayment and debt service of these bonds. The Company believed it would be imprudent to incur an additional layer of debt, through the SRF, related to projects for which bonded proceeds were already intended.

PENNICHUCK WATER WORKS, INC
WICA Surcharge Calculation
DW 15-043
Revised 2/25/2015

	Actuals	Actuals		Projections	
	2013	2014	2015	2016	2017
Plant Additions	\$ 2,860,984	\$ 5,181,247	\$ 5,364,347	\$ 4,483,247	
Less Accumulated Depreciation For:					
2014 Additions	\$ (23,540)	\$ (47,079)	\$ (47,079)	\$ (47,079)	\$ (47,079)
2015 Additions		\$ (41,843)	\$ (33,687)	\$ (83,687)	\$ (83,687)
2016 Additions			\$ (43,272)	\$ (86,544)	\$ (86,544)
2017 Additions				\$ (36,223)	\$ (36,223)
Net Plant Additions	\$ 2,867,444	\$ 5,092,324	\$ 5,190,309	\$ 4,229,713	
Pre Tax Rate of Return	6.17%	6.17%	6.17%	6.17%	6.17%
Revenue Requirement	\$ 176,871	\$ 314,108	\$ 320,152	\$ 260,900	
Depreciation	\$ 47,079	\$ 83,687	\$ 86,544	\$ 72,447	
Property Taxes	\$ 81,439	\$ 145,955	\$ 151,114	\$ 126,294	
Overall Revenue Requirement	\$ 305,390	\$ 543,749	\$ 557,810	\$ 459,640	
Cumulative Revenue Requirement	\$ 181,151	\$ 486,540	\$ 1,030,290	\$ 1,588,100	\$ 2,047,740
Water Revenues per DW 13-130	\$ 27,685,214				
Overall Revenue Surcharge Amount (1)	0.67%	1.10%	1.96%	2.01%	1.66%
Cumulative Revenue Surcharge Amount	0.67%	1.76%	3.72%	5.74%	7.40%

Calculation of Pre Tax Rate of Return (Based on DW 13-130)

	Percentage of Capital Structure	Component Cost	Tax Multiplier	Pre Tax Cost
Debt	94.04%	5.94%	1.000	5.59%
Equity	5.95%	5.90%	1.656	0.58%
	100.00%			6.17%

Customer Impact	2013	2014	2015	2016	2017
5/8 inch Meter Charge	\$ 20.34	\$ 20.34	\$ 20.34	\$ 20.34	\$ 20.34
Volumetric Charge	\$ 3.30	\$ 3.30	\$ 3.30	\$ 3.30	\$ 3.30
Average Single Family Residential Usage (CCF)	7.88	7.88	7.88	7.88	7.88
Monthly Usage	\$ 26.00	\$ 26.00	\$ 26.00	\$ 26.00	\$ 26.00
Total Month Charge	\$ 46.34	\$ 46.34	\$ 46.34	\$ 46.34	\$ 46.34
Monthly Impact of Surcharge	\$ 0.31	\$ 0.51	\$ 0.91	\$ 0.93	\$ 0.77
Cumulative Monthly Impact of Surcharge	\$ 0.31	\$ 0.81	\$ 1.72	\$ 2.66	\$ 3.43

Note:

(1) The 2013 WICA surcharge, approved in Order 25,661 (DW 13-358) was based on water revenues from prior rate filing (DW 10-091).

PENNICHUCK WATER WORKS, INC.
WICA Surcharge Calculation
DW 15-XXX

Attachment C
Page 2 of 2

2014	Investment			Depreciation Expense		Property Tax Expense	
	Investment	Retirement ¹	Net Investment	Depreciation	Depreciation	Mil Rate ³	Property Tax
				Rate ²	Expense		Expense
Mains	\$ 2,752,315	\$ -	\$2,752,315	1.60%	\$ 44,037	28.17	\$ 77,533
Contingency	\$ -	\$ -	\$ -	1.60%	\$ -	28.17	\$ -
Paving	\$ -	\$ -	\$ -	1.57%	\$ -	28.17	\$ -
Hydrants	\$ 33,369	\$ -	\$ 33,369	2.24%	\$ 747	28.17	\$ 940
Services	\$ 82,444	\$ -	\$ 82,444	2.34%	\$ 1,929	28.17	\$ 2,322
Valves	\$ 22,855	\$ -	\$ 22,855	1.60%	\$ 366	28.17	\$ 644
Total	\$ 2,890,984	\$ -	\$2,890,984		\$ 47,079		\$ 81,439

2015	Investment			Depreciation Expense		Property Tax Expense	
	Investment	Retirement ¹	Net Investment	Depreciation	Depreciation	Mil Rate ³	Property Tax
				Rate ²	Expense		Expense
Mains	\$ 4,503,600	\$ -	\$4,503,600	1.60%	\$ 72,058	28.17	\$ 126,866
Contingency	\$ 450,360	\$ -	\$ 450,360	1.60%	\$ 7,206	28.17	\$ 12,687
Paving	\$ 77,522	\$ -	\$ 77,522	1.57%	\$ 1,217	28.17	\$ 2,184
Hydrants	\$ 27,808	\$ -	\$ 27,808	2.24%	\$ 623	28.17	\$ 783
Services	\$ 85,388	\$ -	\$ 85,388	2.34%	\$ 1,998	28.17	\$ 2,405
Valves	\$ 36,569	\$ -	\$ 36,569	1.60%	\$ 585	28.17	\$ 1,030
Total	\$ 5,181,247	\$ -	\$5,181,247		\$ 83,687		\$ 145,955

2016	Investment			Depreciation Expense		Property Tax Expense	
	Investment	Retirement ¹	Net Investment	Depreciation	Depreciation	Mil Rate ³	Property Tax
				Rate ²	Expense		Expense
Mains	\$ 4,764,000	\$ -	\$4,764,000	1.60%	\$ 76,224	28.17	\$ 134,202
Contingency	\$ 476,400	\$ -	\$ 476,400	1.50%	\$ 7,622	28.17	\$ 13,420
Hydrants	\$ 33,369	\$ -	\$ 33,369	2.24%	\$ 747	28.17	\$ 940
Services	\$ 67,722	\$ -	\$ 67,722	2.34%	\$ 1,585	28.17	\$ 1,908
Valves	\$ 22,855	\$ -	\$ 22,855	1.60%	\$ 366	28.17	\$ 644
Total	\$ 5,364,347	\$ -	\$5,364,347		\$ 86,544		\$ 151,114

2017	Investment			Depreciation Expense		Property Tax Expense	
	Investment	Retirement ¹	Net Investment	Depreciation	Depreciation	Mil Rate ³	Property Tax
				Rate ²	Expense		Expense
Mains	\$ 3,963,000	\$ -	\$3,963,000	1.60%	\$ 63,408	28.17	\$ 111,638
Contingency	\$ 396,300	\$ -	\$ 396,300	1.60%	\$ 6,341	28.17	\$ 11,164
Hydrants	\$ 33,369	\$ -	\$ 33,369	2.24%	\$ 747	28.17	\$ 940
Services	\$ 67,722	\$ -	\$ 67,722	2.34%	\$ 1,585	28.17	\$ 1,908
Valves	\$ 22,855	\$ -	\$ 22,855	1.60%	\$ 366	28.17	\$ 644
Total	\$ 4,483,247	\$ -	\$4,483,247		\$ 72,447		\$ 126,294

Notes:

1. Mains as listed are fully depreciated. Actual retirement for Services will be presented with the completed surcharge filing.
2. As per last depreciation study in DW 06-073 utilizing composite rate.
3. Based on Nashua 2014 property rate of \$21.57 and state rate of \$6.60.

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: March 27, 2015

AT (OFFICE): NHPUC

FROM: Douglas W. Brogan

SUBJECT: DW 15-043, Pennichuck Water Works, Inc.
2015 WICA Adjustment Filing

TO: Mark A. Naylor
Director, Gas & Water Division

This memo is being submitted at your request to provide observations and recommendations in relation to docket DW 15-043, the 2015 WICA adjustment filing of Pennichuck Water Works, Inc. (Pennichuck or company). As the former Division water/sewer engineer, I am acquainted with Pennichuck's water system and its WICA pilot program. I also filed recommendations as a consultant to the Commission in the company's previous WICA docket, DW 13-358. In the current docket the company is seeking approval of a WICA surcharge for projects completed in 2014, approval of projects proposed for 2015, and preliminary approval of 2016 projects. My review is limited primarily to the engineering and operational aspects of the current filing and is based on review of the filing itself, case discovery, and participation in a technical session on March 20, 2015. My comments focus in particular on the water main project listings in Attachment B, pages 1 through 4, of Mr. Ware's testimony, as updated for the technical session.

2014 Projects

Final costs of a number of 2014 projects came in above their respective estimates from DW 13-358, while others came in below. This was due to the fact that estimates were done on a pre-design basis, and to either favorable or unfavorable conditions encountered during construction. The company provided explanations on Attachment B and elsewhere for the more significant variances from those estimates, as well as for two projects with a particularly high installed cost per foot (Broad Street and Cross Street, see response to Staff 1-10). The total cost for all water main projects completed in 2014, including anticipated amounts for associated paving to be completed in 2015, exceeded DW 13-358 estimates by 29%. The company has affirmed that the projects completed in 2014 and proposed for inclusion in its WICA surcharge are used and useful. These include valve, service and hydrant replacements in addition to the water main work.

The company provided an update in June 2014 to its filing in DW 13-358, indicating changes to the 2014 project listing resulting from sewer and storm drain project changes by the City of Nashua and Town of Amherst. Five of the 19 projects proposed for completion in 2014 on the

revised list were not completed by year end, again solely as a result of coordination with City and Town activity. While no separate notice was provided to the Commission, the company learned of City and Town decisions to delay the five projects no earlier than November 2014. The company's WICA filing deadline under the current tariff is the end of January. The company has proposed quarterly updates as a means of keeping the Commission better apprised of such changes.

2015 - 2017 Projects

In the company's two previous WICA dockets, 'year 1' lists consisted entirely of projects coordinated with City and Town sewer, road and storm drain projects.¹ However, the 'year 1' project list (2015) in the instant docket consists of 30 percent projects involving City/Town coordination and 70 percent projects proposed by Pennichuck for other reasons. This is a significant change and is the result of two factors. First, Pennichuck reports the City is doing substantially less sewer work this year due to a focus on capital needs at its wastewater treatment facility. More importantly, Pennichuck is proposing to spend significantly more money on its WICA program beginning this year, as the table below shows. (Figures are in millions of dollars for WICA main replacements only. Proposed amounts are shown for future years at time of filing, actual amounts for completed years.)

	<u>DW 12-359</u>	<u>DW 13-358</u>	<u>DW 15-043</u>
2013	2.6	1.9	
2014	1.5	2.9	2.7
2015	1.8	2.0	4.5
2016		2.0	4.8
2017			4.0

In DW 13-358, Pennichuck had anticipated a significant increase in WICA spending once its asset management system was complete. That system is expected to provide a more detailed and scientific basis for replacement planning. However, the availability of that system for WICA planning purposes is still several years out, and Pennichuck is beginning to ramp up its WICA spending now to a level it anticipates will be needed to stay ahead of overall replacement needs in its core system, where a portion of mains still date from the 1800's.

As main replacements comprise by far the largest component of WICA spending, it may be important for the Commission to be aware it is being asked to approve higher spending levels overall. The impact of these higher levels will be to bring future WICA surcharges nearly to the maximum 2 percent per year allowed by the tariff. This is not necessarily a bad thing, as goals of the WICA program include fostering replacement of aging infrastructure and increasing system reliability; and Pennichuck is, I believe, attempting to act responsibly in this regard.

Of the 27 projects proposed for 2015, five involve coordination with City projects and three with those of the Town. Non-City/Town projects fall into several groupings consisting of a primary

¹ The impact of various timing issues on future year lists, resulting from such coordination, was discussed at length in DW 13-358.

street and associated side or nearby streets, all in Nashua. These groupings, discussed in Mr. Ware's testimony at pages 9-10 and shown below, have displaced some of the other projects on the 2015 list preliminarily approved in DW 13-358:

Lovell Street (14 projects). The developer of a senior housing project is willing to contribute a portion of the cost for early water main upgrades to provide needed fire flows to the development. Other drivers for these replacements include the type of building structures in the area and water quality concerns. While most of the adjacent streets were on the 2015 list preliminarily approved in DW 13-358, Lovell Street itself did not appear until the 2016 list in that docket.

Allds Street (4 projects). This street experienced a large water main break in 2014. As noted in Mr. Ware's testimony, the "criticality of this water main, the high potential for damage as the result of a failure, and the high impact of a break pushed this water main to the top of the Company's WICA replacement plan projects." (p. 10, ll. 13-16) A significant portion of Allds Street itself had appeared on the 2016 list in DW 13-358.

Coburn Woods (1 project each year for 5 to 7 years beginning 2015). The overall project involves replacement of 4600 feet of failing 2-inch polybutylene main and 1-inch polybutylene services installed in 1969 to serve some 230 condominium units in the development.

Conclusion

The company's 2014 projects appear to have been completed prudently, and its proposed 2015 - 2017 projects appear reasonable. As such, I support approval of the Company's petition. The additional year 1 reporting proposed by the company will help keep the Commission apprised of changes to that project list as the year progresses.

I trust these comments are responsive to your request. Please let me know if you need anything further in this regard.

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: April 10, 2015
AT (OFFICE): NHPUC

FROM: Jayson P. Laflamme, Utility Analyst, Gas-Water Division

SUBJECT: DW 15-043, Pennichuck Water Works, Inc.
2015 Water Infrastructure and Conservation Adjustment Filing

TO: Mark A. Naylor
Director, Gas-Water Division

This memo is being submitted at your request to summarize my review of Docket DW 15-043, the petition of Pennichuck Water Works, Inc. (PWW), relative to its 2015 Water Infrastructure and Conservation Adjustment (WICA) filing. PWW's petition requests approval of a WICA surcharge for effect as of June 1, 2015, on a bills-rendered basis, as well as final approval of proposed projects for 2015 to be eligible for recovery through the WICA surcharge mechanism, and preliminary approval of proposed projects for 2016. The 2017 proposed projects were provided by PWW for informational purposes, only. PWW's petition was accompanied by the direct testimony of Donald L. Ware, Chief Operating Officer, which presented the calculation of a proposed cumulative WICA surcharge for 2015 of 1.91%.

My review focused primarily on PWW's calculation of the proposed WICA surcharge. My review included the gathering and analysis of additional information from PWW, through formal and informal data requests. A copy of PWW's responses to Staff data requests is attached to this recommendation.

Through the responses to Staff's data requests, PWW reduced its cumulative surcharge request to 1.76%. *See* PWW's Responses to Staff Data Requests 1-1, 1-2, 1-3, and 1-7. The Commission's Audit Staff examined the final, actual costs of PWW's 2014 WICA projects. The Audit Staff's recommendations have been incorporated into my conclusions contained in this memo. A copy of the Final Audit Report dated March 19, 2015 is also attached to this recommendation.

On March 20, 2015, PWW, the Office of Consumer Advocate and Staff participated in a technical session, during which certain changes to the WICA surcharge calculation were discussed. The end result of those discussions is a proposed cumulative WICA surcharge for 2015 of 1.81%, *see* Attachments A and B to this recommendation. PWW agrees with the revised calculation as well as the resulting cumulative WICA surcharge. The attached schedules also reflect the Staff and PWW's present understanding of the projected WICA surcharges for 2016 through 2018. A brief explanation of the Staff and PWW's 2015 WICA calculation follows.

The proposed WICA surcharge for 2015 is illustrated on Attachment A, Schedule 2a. It is based on a gross WICA investment of \$4,832,794. This amount includes \$1,960,879 of eligible WICA investment assets placed into service during the 2013 project year, which were reviewed by Staff as part of PWW's 2014 WICA filing in Docket DW 13-358. The gross WICA investment by PWW during 2014 was \$2,871,915. This amount has been verified by the Audit Staff and is \$501,969 less than the gross investment originally proposed by PWW in its petition. The

majority of this difference, or \$480,406, was the result of an error as explained in PWW's response to Staff Data Request 1-7. Also, the Final Audit Report recommended a further elimination of \$19,069 in 2014 project costs. The balance of the difference, or \$2,494, is the result of other miscellaneous adjustments made by PWW subsequent to its initial filing.

The gross WICA investment of \$4,832,794 is reduced by \$65,673 in accumulated depreciation to derive a net plant in service amount of \$4,767,121. The total accumulated depreciation amount is comprised of \$44,616 in accumulated depreciation on PWW's 2013 WICA investments and \$21,057 in accumulated depreciation on its 2014 WICA investments. In contrast, the WICA surcharge calculation contained in PWW's original filing did not recognize any accumulated depreciation on the 2013 investment.

To derive PWW's calculated return on investment on its combined net WICA plant in service for 2013 and 2014, a pre-tax rate of return of 6.17% has been applied. This is based upon the rate of return proposed by PWW in its last full rate case, Docket DW 13-130. Although the Commission's order in that docket did not include express approval of a rate of return,¹ Staff and PWW agree that 6.17% is an accurate reflection of PWW's current cost of capital, especially considering the circumstances of the City of Nashua's indirect ownership of PWW.² Application of the 6.17% rate of return to the \$4,767,121 net plant in service results in a pre-tax return on investment of \$294,050.

As the WICA also provides for recovery of certain related operating expenses, a recoverable property tax expense in the amount of \$134,290 is included in Staff and PWW's calculation. This amount is based on a combined property tax rate comprised of the City of Nashua's most recent municipal tax rate for 2014, of \$21.57, and the State Utility Property Tax rate of \$6.60. The combined rate of \$28.17 has been applied to the net plant in service amount of \$4,767,121 to derive the recoverable property tax expense of \$134,290. Two items should be noted with regard to the calculation of the property tax portion of the WICA surcharge. First, Staff and PWW have agreed that the plant amount upon which the property tax rate is applied should reflect the current accumulated depreciation associated with the WICA plant placed in service during both 2013 and 2014. Second, Staff and PWW agreed that the calculation of the property tax portion of the WICA surcharge should annually reflect the application of the most recent municipal property tax rate to the total net plant in service, including all prior years' investments.

The second operating expense for which PWW is allowed recovery under the WICA is the annual depreciation expense on the net plant investment. The annual depreciation expense on the 2013 and 2014 net plant investment is \$29,744 and \$42,114, respectively, for a combined depreciation expense recovery amount of \$71,858. See Schedule 1 of Attachment A. Please note that Staff and PWW agreed that the WICA gross investment should be reduced by both a cost of removal component as well as relevant plant retirements before applying the depreciation rates to derive depreciation expense. The depreciation rates applied are based on PWW's last-approved depreciation study, in Docket DW 06-073.

The pre-tax rate of return of \$294,050, the property tax expense of \$134,290, and the annual depreciation expense of \$71,858 have been combined to derive a cumulative WICA revenue requirement for 2015 of \$500,198. That amount reflects a \$319,047 increase over the 2014

¹ In DW 13-130, the Commission approved a settlement agreement recommending existing rates as permanent rates (i.e., no change in rates). *Pennichuck Water Works, Inc.*, Commission Order No. 25,693 (July 15, 2014).

² See *Joint Petition of City of Nashua, Pennichuck Corporation et al.*, Order No. 25,292 (November 23, 2011).

cumulative revenue requirement of \$181,151.³ This translates into a new proposed WICA cumulative surcharge percentage for 2015 of 1.81%.

The Staff and PWW's 2015 WICA proposal is estimated to result in a total WICA surcharge of \$0.84 on the monthly bills of PWW's average, single-family residential customers, based on an average usage of 7.88 ccf per month. This represents an estimated increase of \$0.53 in the average WICA surcharge per month over the 2014 surcharge.

In conclusion, I recommend approval of the Staff and PWW's proposed, revised WICA surcharge for 2015 of 1.81%. This amount has been shown to be adequately supported through Staff discovery as well as the Audit Staff's examination. I also believe that the proposed calculation of the 2015 surcharge will result in just and reasonable rates for both PWW and its customers.

³ See *Pennichuck Water Works, Inc.*, Commission Order No. 25,661 (May 5, 2014).

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: March 19, 2015
AT (OFFICE): NHPUC

FROM: Anthony Leone, Examiner

SUBJECT: Pennichuck Water Works, Inc.
DW 15-043 Water Infrastructure and Conservation Adjustment Mechanism
FINAL Audit Report

TO: Mark Naylor, Director Gas-Water Division, NHPUC
Jayson Laflamme, Utility Analyst III
Robyn Descoteau, Utility Analyst III

Introduction

Pennichuck Water Works, Inc. (PWW, The Company) has been participating in a Water Infrastructure and Conservation Adjustment Mechanism (WICA) since approved by Commission Order 25,230 on June 9, 2011.

On December 23, 2013 PWW petitioned for approval of WICA projects for completion in 2014 at a cost of \$2,486,000.

On March 14, 2014, Commission Staff recommended approval of a revised total budget of \$3,268,138. The revised budget was approved on May 4, 2014 in Commission Order 25,661 in docket DW 13-358. An approved project list can be found in Staff 1-3, Attachment B, page 2 of 4 of DW 13-358.

Audit has included the following table showing the original projects and their cost compared to the completed used and useful projects and their respective cost.

PIPE SEGEMENT OR PROJECT NAME	CITY/TOWN	W/O Number	Approved Projects Estimated Cost	Subsequent Costs	Audited Cost	FINAL PAVING COSTS IN 2015	Initiated
Baldwin St & Bridge	NASHUA	1300347 1400207	\$ 364,000	\$ 389,041	\$ 389,041	\$ -	Complete
Park St	NASHUA	1300216 1400205	\$ 68,950	\$ 104,539	\$ 104,539	\$ 4,084	Complete
Court St	NASHUA	1300217 1400204	\$ 47,000	\$ 103,843	\$ 103,843	\$ 4,506	Complete
Foundry Street	AMHERST		\$ 234,400	\$ -	\$ -	\$-	Postponed
Mack Hill Road (Bridge	AMHERST		\$ 70,500	\$ -	\$ -	\$-	Postponed
Boston Post Road	AMHERST	1401073	\$ 471,960	\$ 454,689	\$ 454,689	\$-	Completed
Cross St	AMHERST	1401072	\$ 65,600	\$ 52,501	\$ 52,501	\$-	Completed
Burke St	NASHUA	1401070	\$ 537,200	\$ 896,827	\$ 896,827	\$ 40,681	Completed
Eldrige St	NASHUA	1400209	\$ 143,500	\$ 92,201	\$ 92,201	\$ 5,206	Completed
Grove Street	NASHUA	1402912	\$ 49,400	\$ 55,517	\$ 55,517	\$ 3,166	Completed
Oak Street	NASHUA	1402916	\$ 106,600	\$ 118,819	\$ 118,819	\$ 5,978	Completed
Robinson Court	NASHUA	1402913	\$ 98,800	\$ 55,528	\$ 55,528	\$ 2,132	Completed
Ridge Street	NASHUA		\$ 71,500	\$ -	\$ -	\$-	Postponed
Cross Street	NASHUA	1402914	\$ 77,000	\$ 134,710	\$ 134,710	\$ 4,827	Completed
Broad Street	NASHUA	1400208	\$ 81,900	\$ 188,803	\$ 188,803	\$-	Completed
Belmont Street	NASHUA	1402915	\$-	\$ 97,173	\$ 97,173	\$ 6,942	Completed
Fairmount Street	NASHUA	1400210	\$-	\$ 8,124	\$ -	\$ -	To be completed in 2015
Temple Street	NASHUA		\$ 278,100	\$ -	\$ -	\$-	Postponed
Franklin Street	NASHUA		\$ 138,735	\$ -	\$ -	\$-	Postponed

18 Projects		\$ 2,905,145	\$ 2,752,315	\$ 2,744,191	\$ 77,522
2013 Anticipated Paving		\$ 110,000			
Valves		\$ 30,000	\$ 22,855	\$ 10,031	
Services		\$ 54,936	\$ 82,444	\$ 87,884	
Hydrants		\$ 22,800	\$ 33,369	\$ 35,249	
Contingency		\$ 145,257			
		<u>\$ 3,268,138</u>	<u>\$ 2,890,983</u>	<u>\$ 2,877,355</u>	

Audit notes the total estimated cost of the approved projects in the above table sum to \$2,905,145 with the remaining costs attributed to valves, hydrants, services and paving costs summing to a grand total of \$3,268,138. The total of all replacements noted by the Company as documented in the filing on 1/30/15 of the instant docket, page 1 of 4 of Attachment B (Attachment B) and sent separately to PUC Audit was \$3,235,215 and a grand total including vales, hydrants, services & paving of \$3,373,884. The company has subsequently sent PUC Audit a revised project total of \$2,752,315, a valve, hydrant and service total of \$138,669 and a new grand total of \$2,890,984. The total reflects an under expenditure (of the estimated budget) of \$377,154. Any changes reflected in the Audited Cost column are discussed later in the report.

As found in the 2013 WICA Audit Report, the following is a list of approved projects not undertaken in 2013:

1-Replace 100 feet cast iron 8” unlined main on Baldwin St Nashua – estimated	\$ 84,000
2-Replace 1,198 feet cast iron 8” unlined main on Baldwin St Nashua –estimated	\$ 280,000
3-Replace 415 feet cast iron 8” unlined main on Elm Street Nashua	\$ 75,222
4-Replace 312 feet cast iron 6” unlined main on Park Street Nashua	\$ 68,950
5-Replace 435 feet cast iron 8” unlined main on Court Street Nashua	\$ 90,175
6-Replace 1,045 feet cast iron 8” and 6” unlined main on Broad Street Nashua	\$ 360,000

Audit has concluded that the only project from this list that was not included in the approved 2014 list was the Elm Street Project. From the previous report, the Company has stated that the Elm Street project was dropped from Nashua’s FY14 budget so correspondingly it was dropped from the Company’s current capital expenditure plans.

As found in the Order, and given certain conditions, PWW may substitute approved projects with different projects given proper notification to the Commission. On June 19, 2014, PWW notified the Commission of the following two changes:

Change 1.

A-Defer replacement of 264 feet cast iron unlined main on Franklin St Nashua	\$138,735
B-Defer replacement of 325 feet cast iron unlined main on Ridge St Nashua	<u>\$71,500</u>
	\$210,235

C-Add replacement of 627 feet lined galvanized steel on Ninth St Nashua	\$102,000
D-Add replacement of 50 feet cast iron unlined main on Mulberry St Nashua	\$46,500
E-Add replacement of 372 feet cast iron unlined main on Belmont St Nashua	\$74,360
F-Add replacement of 215 feet cast iron unlined main on Fairmont St Nashua	<u>\$37,500</u>
	\$260,360

Change 2.

A-Defer replacement of 1,465 feet of transite on Foundry St Amherst	\$234,400
B-Add replacement of 150 feet of transite on Mack Hill Rd Amherst	\$70,500

According to the information in DW 13-358 and the instant docket, no other changes were submitted to the PUC. According to the information submitted to PUC Audit, PWW did

not complete the Fairmount Street project in 2014. PWW also did not initiate replacement of the following projects **Audit Issue #1:**

- 1-Ninth Street, Nashua
- 2-Mulberry Street, Nashua
- 3-Mack Hill Road, Amherst
- 4-Temple Street, Nashua

Audit notes that the Company is not seeking to include any projects that were not authorized or of which the Commission was not notified. Any discrepancies in the details of specific projects are discussed in the 2014 Project Review section.

Bid Summary

Audit requested and was provided with the record of bid proposals for the 2014 projects. There were three project areas identified on the Bid Summary sheet provided to PUC Audit. Specifically, one project covered Amherst, one project covered Nashua and one project covered the Burke Street Water Main replacement. In each of the cases there were at least two competing bidders and the Company chose the lowest bidder.

Additionally, the projects originally approved in 2013 but deferred until 2014 were also listed on the Bid Summary sheet. Each of these projects had at least two bidders and in each case the Company chose the lowest bidder. The Bid Summary sheet provided to PUC Audit noted the competing bidders were: Park Construction Corp., N.E. Earth, CSSI, Albanese D&S, RH White, Defelice Corp., & RD Edmunds.

2014 Project Review

On page 3 of Commission Order 25,661 is an approved budget of \$2,905,145. Actual project expenses reported to the Commission were \$2,752,315. Audit inquired about the \$110,000 of anticipated paving costs from 2013 projects and PWW stated they have not received billings from the City of Nashua and therefore have not sought to include an amount in the currently sought WICA surcharge. For the 2014 project year the Company anticipates \$77,522 in paving costs to be incurred and paid in 2015. Concerning the main WICA projects, PUC Audit has reviewed the projects which the Company has indicated are used and useful as of the end of 2014. PUC Audit agrees with the Company the Fairmount St. project is not used and useful as of the end of 2014 and therefore should be deducted from the \$2,752,315 total bringing the total of the main replacements to \$2,744,191. The following chart summarizes the costs incurred for all used and useful projects, their respective cost of removal, retirements and Net Plant impact.

Total Used and Useful Project Costs	\$ 2,744,191*
Cost of removal (Dr. Accum Dep, Cr. Plant)	\$ (273,203)**
Net book value of 2014 Projects	\$ 2,470,176
Retirements related to replacements	\$ (0)***
Net Plant	\$ 2,470,176

*Fairmount St Nashua – WO #1400210, \$8,124; was not Used and Useful as of 12/31/14.
 **Cost of Removal generally equals \$2,744,191 less the \$12,108 easement *10%.
 ***PWW indicated all assets replaced under the main WICA approved projects were “fully depreciated” and have no retirement value. **Audit Issue #2**

Baldwin St & Baldwin St Bridge Nashua – Work Order #1400207 & 1300347

Commission Order # 25,661 approved replacement of 1,298 feet main on Baldwin St – Baldwin St Bridge /RR Crossing Nashua with new main at a cost of \$364,000.

The Attachment indicates actual replacement of 1,298 feet of main on Baldwin St – Baldwin St Bridge /RR Crossing in Nashua being replaced with 1,796 ft. of new main at a total cost of \$389,041.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 provided estimates 1,298 ft. of main being replaced. Contractor information sheets in the files provided to PUC Audit indicate 1,641 ft. of 12 in. main and 176 ft. of 4 in. main installed. The contractor total was \$91,568 or 95% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead, and various small miscellaneous charges. The general ledger reflects the following accounts were impacted by this project:

Baldwin Street		
331200	Distribution Mains-New	\$ 127,423
331200	Distribution Mains-New	\$ 240,482
331250	Distribution Mains-Gate Valves	\$ 3,484
331253	Gates 6" and Larger	\$ 3,100
333200	Renewed Services	\$ 2,232
335000	Hydrants	\$ 11,620
335000	Hydrants	\$ 700
		\$ 389,041

Park Street Nashua – Work Order #1400205 & 1300216

Commission Order # 25,661 approved replacement of 312 feet cast iron 6” unlined main on Park St Nashua with 12” main at a cost of \$68,950.

The Attachment indicates actual replacement of 312 feet of 6” cast iron unlined main on Baldwin St Nashua being replaced with 12” main at a total cost of \$104,539.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 provided estimates 312 ft. of main being replaced. Contractor information sheets in the files provided to PUC Audit indicate 307 ft. of main installed. The contractor total was \$84,401 or 90% of the total incurred cost. The remaining

costs are divided between labor, truck charges, engineering and overhead, surveyors, legal fees for easement work and various small miscellaneous charges. The general ledger reflects the following accounts were impacted by this project:

Park Street		
303300	Easements	\$ 12,108
331200	Distribution Mains-New	\$ 67,628
331250	Distribution Mains-Gate Valves	\$ 1,400
333200	Renewed Services	\$ 19,096
335000	Hydrants	\$ 4,306
		\$104,539

Court Street Nashua – Work Order #1400204

Commission Order # 25,661 approved replacement of 435 feet cast iron 8” unlined main on Court St Nashua with 12” main at a cost of \$47,000.

The Attachment indicates actual replacement of 435 feet of 8” cast iron unlined main on Court St Nashua being replaced with 12” main at a total cost of \$103,843.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 provided estimates 432 ft. of main being replaced. Contractor information sheets in the files provided to PUC Audit indicate 435 ft. of main installed. The contractor total was \$91,568 or 95% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead, and various small miscellaneous charges. The general ledger reflects the following accounts were impacted by this project:

Court Street		
331200	Distribution Mains-New	\$ 87,039
331250	Distribution Mains-Gate Valves	\$ 6,200
333200	Renewed Services	\$ 6,110
335000	Hydrants	\$ 4,495
		\$103,844

Boston Post Road Amherst – Work Order #1401073

Commission Order # 25,661 approved replacement of 2,052 feet cast iron 6” unlined main on Boston Post Road Amherst with 12” main at a cost of \$471,960.

The Attachment indicates actual replacement of 2,052 feet of 6” asbestos cement main on Boston Post Road Amherst being replaced with 12” main at a total cost as of \$454,689.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 provided estimates 540 ft. of main being replaced.

Contractor information sheets in the files provided to PUC Audit indicate 2,088 ft. of 12 in. main installed. The contractor total was \$407,729 or 90% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead and various small miscellaneous charges. The general ledger reflects the following accounts were impacted by this project:

Boston Post Road		
331200	Distribution Mains-New	\$ 374,929
331250	Distribution Mains-Gate Valves	\$ 20,915
333200	Renewed Services	\$ 37,498
335000	Hydrants	\$ 21,348
		\$ 454,689

Cross St Amherst – Work Order #14001072

Commission Order # 25,661 approved replacement of 410 feet cast iron 4” unlined main on Cross St Amherst with 6” main at a cost of \$65,600.

The Attachment indicates actual replacement of 410 feet of 4” cast iron unlined main on Cross St Amherst being replaced with 6” main at a total cost of \$52,501.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 provided estimates 400 ft. of main being replaced. The documentation provided indicated that the main had been relined in 2010 as the City of Nashua did not indicate there were any problems with the sewer at that time. Since the sewer now needs to be replaced, the water main proximity to the sewer is causing that main to be replaced as well. Contractor information sheets in the files provided to PUC Audit indicate 407 ft. of 6 in. main installed. The contractor total was \$40,756 or 78% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead, vibration monitoring and various small miscellaneous charges. The general ledger reflects the following account was impacted by this project:

Cross Street		
331200	Distribution Mains-New	\$ 52,501

Burke St Nashua – Work Order #1401070

Commission Order # 25,661 approved replacement of 3,160 feet cast iron 6” unlined main on Burke St Nashua with 12” main at a cost of \$537,200.

The Attachment indicates actual replacement of 3,160 feet of 6” cast iron unlined main on Burke St Nashua being replaced with 12” main at a total cost of \$896,827.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 provided estimates 2,800 ft. of main being replaced. Contractor information sheets in the files provided to PUC Audit indicate 3,101 ft. of 12 in. main installed. The contractor total was \$838,677 or 94% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead, shipping and various

small miscellaneous charges. The general ledger reflects the following accounts were impacted by this project:

Burke Street		
331200	Distribution Mains-New	\$ 740,320
331250	Distribution Mains-Gate Valves	\$ 42,400
333200	Renewed Services	\$ 68,437
335000	Hydrants	\$ 45,670
		\$ 896,827

Eldridge Street Nashua – Work Order #1400209

Commission Order # 25,661 approved replacement of 410 feet cast iron 6” unlined main on Eldridge St Nashua with 6” main at a cost of \$143,500.

The Attachment indicates actual replacement of 410 feet of 6” cast iron unlined main on Eldridge St Nashua being replaced with 6” main at a total cost of \$92,201.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 provided estimates 410 ft. of main being replaced. Contractor information sheets in the files provided to PUC Audit indicate 388 ft. of 6 in. main installed. The contractor total was \$83,606 or 91% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead and various small miscellaneous charges. The general ledger reflects the following accounts were impacted by this project:

Eldridge Street		
331200	Distribution Mains-New	\$ 87,625
331251	Gates 4" and Under	\$ 653
331253	Gates 6" and Larger	\$ 2,361
333200	Renewed Services	\$ 1,173
335000	Hydrants	\$ 388
		\$ 92,201

Grove Street Nashua – Work Order #1402912

Commission Order # 25,661 approved replacement of 260 feet cast iron 4” unlined main on Grove St Nashua with 4” main at a cost of \$49,400.

The Attachment indicates actual replacement of 260 feet of 4” cast iron unlined main on Grove St Nashua being replaced with 4” main at a total cost of \$55,517.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 generally supports the project details listed above. Contractor information sheets in the files provided to PUC Audit indicate 225 ft. of 4” main was installed. The contractor total was \$51,681 or 93% of the total incurred cost. The remaining

costs are divided between labor, truck charges, engineering and overhead. The general ledger reflects the following accounts were impacted by this project:

Grove Street		
331200	Distribution Mains-New	\$ 47,315
333200	Renewed Services	\$ 8,202
		\$ 55,517

Oak Street Nashua – Work Order #1402916

Commission Order # 25,661 approved replacement of 520 feet cast iron 4” unlined main on Oak St Nashua with 6” main at a cost of \$106,600.

The Attachment indicates actual replacement of 520 feet of 4” cast iron unlined main on Oak St Nashua being replaced with 6” main at a total cost of \$118,819.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 supports the project details listed above. Contractor information sheets in the files provided to PUC Audit indicate 419 ft. of 6” main, 9 ft. of 8” main, and 8 ft. of 4” main was installed. The contractor total was \$109,600 or 93% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead and one invoice from Inner City Materials of Nashua. The general ledger reflects the following accounts were impacted by this project:

Oak Street		
331200	Distribution Mains-New	\$103,891
331253	Gates 6" and Larger	\$ 2,720
333200	Renewed Services	\$ 12,040
335000	Hydrants	\$ 168
		\$118,819

Robinson Court Nashua – Work Order #1402913

Commission Order # 25,661 approved replacement of 260 feet cast iron 2” unlined main on Robinson Court Nashua with 4” main at a cost of \$98,800.

The Attachment indicates actual replacement of 260 feet of 2” cast iron unlined main on Robinson Court Nashua being replaced with 4” main at a total cost of \$55,528.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 generally supports the project details listed above. Contractor information sheets in the files provided to PUC Audit indicate 205 ft. of 4” main and 6 ft. of 2” main was installed. The contractor total was \$47,535 or 86% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead, shipping and stationary and one invoice from the Union Leader. The general ledger reflects the following accounts were impacted by this project:

Robinson Court		
331200	Distribution Mains-New	\$ 48,577
331252	Gates 4" and Under-Comm Sys	\$ 653
333200	Renewed Services	\$ 6,298
		\$ 55,528

Cross Street Nashua – Work Order #1402914

Commission Order # 25,661 approved replacement of 350 feet cast iron 6” unlined main on Cross St Nashua with 6” main at a cost of \$77,000.

The Attachment indicates actual replacement of 350 feet of 6” cast iron unlined main on Cross St Nashua being replaced with 6” main at a total cost of \$134,710.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 generally supports the project details listed above. Contractor information sheets in the files provided to PUC Audit indicate 358 ft. of 8” main and 5 ft. of 6” main was installed. The contractor total was \$127,920 or 95% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead, shipping and stationary and one invoice from the Union Leader. The general ledger reflects the following accounts were impacted by this project:

Cross Street		
331200	Distribution Mains-New	\$ 113,091
331253	Gates 6" and Larger	\$ 787
333200	Renewed Services	\$ 16,152
335000	Hydrants	\$ 4,680
		\$ 134,710

Broad Street Parkway – Work Order #1400208

Commission Order # 25,661 approved replacement of 260 feet cast iron 6” unlined main on Broad St Parkway Nashua with 8” main at a cost of \$81,900.

The Attachment indicates actual replacement of 260 feet of 6” cast iron unlined main on Broad St Parkway Nashua being replaced with 8” main at a total cost of \$188,803.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. Contractor information sheets in the files provided to PUC Audit indicate 269 ft. of main installed. The contractor total was \$171,151 or 90% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead and various small miscellaneous charges. The general ledger reflects the following accounts were impacted by this project:

Broad Street		
331200	Distribution Mains-New	\$ 164,727
331250	Distribution Mains-Gate Valves	\$ 7,300
333200	Renewed Services	\$ 10,976
335000	Hydrants	\$ 5,800
		\$ 188,803

Belmont Street Nashua -- Work Order #1402915

The Company notified the Commission via letter dated June 19, 2014 of the inclusion of replacement main on Belmont St Nashua.

The Company has indicated actual replacement of 372 feet of 8” cast iron unlined main on Belmont St Nashua being replaced with 8” main at a total cost of \$97,173.

Audit reviewed supporting documentation for all charges listed in the Work Order Detail Report without exception. The E-22 generally supports the project details listed above. Contractor information sheets in the files provided to PUC Audit indicate 395 ft. of 6” main and 9 ft. of 8” main was installed. The contractor total was \$87,014 or 90% of the total incurred cost. The remaining costs are divided between labor, truck charges, engineering and overhead and miscellaneous inventory parts. The general ledger reflects the following accounts were impacted by this project:

Belmont Street		
331200	Distribution Mains-New	\$ 92,715
333200	Renewed Services	\$ 4,458
		\$ 97,173

Fairmount St Nashua – Work Order #1400210

PWW has included \$8,124 in their 2014 totals for money spent on the Fairmount St project, but that completion of the project was deferred until sometime in 2015. **Audit Issue # 3.**

Valve, Hydrant & Services Projects

Renewed Services Unrelated to the Main WICA Projects

<u>Estimated Replacements</u>	<u>Actual Replacements</u>
Service 28 @ \$ 54,936	Service 30 @ \$ 87,884

These replacements were separate, distinct from and in addition to the water main projects. Audit requested and was provided with the work order summary supporting the total.

Work Order #	Location		City	Cost
1400441 / 01	RUSSELL	ST	NASHUA	\$ 1,867
1400470 / 01	SULLIVAN	ST	NASHUA	\$ 3,083
1401710 / 01	MASSACHUSETTS	DR	NASHUA	\$ 4,015
1401894 / 01	TINKER	RD	NASHUA	\$ 9,163
1401934 / 01	DEERHAVEN		NASHUA	\$ 2,961
1401935 / 01	MONZA		NASHUA	\$ 3,068
1402039 / 01	CHANDLER	ST	NASHUA	\$ 2,547
1402350 / 01	BISCAYNE	PKWY	NASHUA	\$ 2,706
1402367 / 01	MCCOY		NASHUA	\$ 3,762
1402623 / 01	BISCAYNE	PKWY	NASHUA	\$ 2,883
1403195 / 01	CONCORD	ST	NASHUA	\$ 2,299
1403285 / 01	SEARLES	RD	NASHUA	\$ 5,928
1403361 / 01	WOODLAND		NASHUA	\$ 2,229
1403553 / 01	FARMINTON	RD	NASHUA	\$ 2,781
1403663 / 01	PINE HILL	AVE	NASHUA	\$ 2,425
1403716 / 01	GLOUCESTER		NASHUA	\$ 2,788
1403831 / 01	AUBURN	ST	NASHUA	\$ 1,789
1404022 / 01	TODD	RD	NASHUA	\$ 2,874
1405557 / 01	KIPFORD		NASHUA	\$ 3,985
1405776 / 01	DEERHAVEN		NASHUA	\$ 3,034
1405849 / 01	GREENLAY	ST	NASHUA	\$ 2,104
1406198 / 01	RITTER		NASHUA	\$ 1,063
1406203 / 01	LOVEWELL	ST	NASHUA	\$ 1,991
1406283 / 01	BURRITT	ST	NASHUA	\$ 905
1406284 / 01	NEWBURGH	RD	NASHUA	\$ 2,911
1407018 / 01	LAKE	ST	NASHUA	\$ 1,539
1407448 / 01	CHESTER		NASHUA	\$ 5,744
Submitted Total				\$82,444
1407989 / 01	KIPFORD		NASHUA	\$ 1,630
1407988 / 01	AUBURN	ST	NASHUA	\$ 2,148
1407325 / 01	KIPFORD		NASHUA	\$ 1,662
				\$ 5,440
Actual total				\$87,884

The total amount of Renewed Services costs PWW submitted was \$82,444. Audit has determined and verified with PWW that there was an additional \$15,306 of renewed services costs and out of that total, \$5,440 is eligible for inclusion in the WICA surcharge. The audited total therefore is \$87,884. PWW has indicated they “were aware that there were a few line items of the total \$15,306 that would have been allowable for WICA but because of the low dollar amount of those items and the amount of time it would have taken to research the retirement value, we decided to finalize our submission excluding those items. We also did not want to

delay finalizing our response yesterday by the additional research required for these small items. Therefore, we have chosen to exclude all of the items from the filing”.

Audit selected the two work orders which were outside of the average costs, to review in detail. There were no exceptions noted in the work orders. Overhead calculations are automatically calculated and posted to the general ledger when the work orders are interfaced with the general ledger each month-end. The work order summaries include labor hours, costs related to dump truck, backhoe, and foreman truck hours, and parts for the repair necessary.

Hydrants Replaced Unrelated to the Approved Main WICA Projects

At the bottom of page 2 of 4 of the response to Staff 1-3 of Attachment B dated 2/5/2014 within DW 13-358, there is a list of Valve, Service and Hydrant replacements outside of the pipe replacement projects. Specifically:

<u>Estimated Replacements</u>		<u>Actual Replacements</u>	
Hydrant 4 @ \$22,800		Hydrant 6 @ \$35,249	
<u>Work Order #</u>	<u>Location</u>	<u>City</u>	<u>Cost</u>
1406183 / 01	MIZORAS	Dr NASHUA	\$ 859
1405316 / 01	W.HOLLIS	ST NASHUA	\$ 9,966
1405110 / 01	MIZORAS	Dr NASHUA	\$ 8,872
1404766 / 01	FRONT	ST NASHUA	\$ 3,372
1404421 / 01	FRONT	ST NASHUA	\$ 5,750
1404254 / 01	MEADE	ST NASHUA	\$ 4,551
Submitted Total			\$ 33,369
1407987 / 01 FRONT ST NASHUA			\$ 1,880
Actual Total			\$ 35,249

The total amount of Hydrant related costs PWW submitted was \$33,369. Audit has determined and verified with PWW that the actual cost of the hydrants was \$35,249, \$1,880 more than what was submitted. PWW indicated that the additional costs were not submitted as part of the WICA surcharge because projections indicated they would be over the Commission approved budget.

Audit selected one work order to review in detail. The work order summary included the total labor hours and amounts, overhead, truck costs, backhoe services, and related overheads, and materials used for the repairs. The work order was closed to plant in 2014 and the total was verified to general ledger account 335-000, Fire Protection Equipment: Hydrants. The general ledger includes \$136,783 of new hydrants placed in service in connection with the WICA water main projects described earlier in this report. Overall credits to the general ledger account, \$(54,915) currently include no retirements with all credits remaining identified as cost of removal.

Valves Replaced Unrelated to the Approved Main WICA Projects

<u>Estimated Replacements</u>	<u>Actual Replacements</u>
Valve 15 @ \$30,000	Valve 2 @ \$10,031

<u>Work Order #</u>	<u>Location</u>	<u>City</u>	<u>State</u>	<u>Cost</u>
1403925 / 01	COURT @ TEMPLE	NASHUA	NH	\$ 6,148
1401052 / 01	CANNON GATE III	NASHUA	NH	\$ 3,883
				<u>\$10,031</u>

Audit confirmed that both of the valve replacements were on the GL and in the correct GL Account for the size of the valve being replaced. PWV has indicated all other valve related transactions on the GL are new installations and do not correspond to the WICA program.

Retirements

PWV has stated that all of the WICA water mains replaced were fully depreciated and therefore have no retirement value to credit. PWV has also indicated that for the valve, hydrant and services projects completed, the retirement value is \$755. **Audit Issue #2**

Summary

Audit reviewed the used and useful WICA projects for 2014 which total \$2,744,191 excluding 2015 anticipated paving costs. Support for all of the costs noted below, including easements, was provided in the form of detailed general ledger accounts, work orders, contracts and invoices. Audit also reviewed the valve, services and hydrant only projects for 2014 and increased the total from the submitted \$127,724 to \$133,164. Support for all of these costs is similar to the main WICA projects. Audit also reviewed the Net Book Value reports for all of the assets which also verify the addition of those assets to the continuing property records. Note that the Company added the majority of the assets to their plant accounts in 2014 with a small portion being accrued and added to the appropriate plant accounts in 2015. The table below summarizes all of the costs noted:

	<u>Submitted as of 3/19/15</u>	<u>Audited as of 3/19/15</u>
Gross Used and Useful WICA Project Assets Added to Books in 2014	\$ 2,577,428.00	\$ 2,577,428.00
Gross Used and Useful WICA Project Assets Added to Books in 2015	\$ 154,654.00	\$ 154,654.00
WICA Easement Added in 2014	\$ 12,108.00	\$ 12,108.00
	<u>\$ 2,744,191.00</u>	<u>\$ 2,744,191.00</u>
Gross Used and Useful Hydrant, Valve and Services Added to Books in 2014	\$ 127,724.00	\$ 133,164.00
	<u>\$ 2,871,915.00</u>	<u>\$ 2,877,355.00</u>

Audit Issue #1
Projects Approved but not Begun

Background

PWW provided the Commission with a listing of specific projects proposed for replacement in 2014. The Company subsequently sent a letter to the Commission indicating it was deferring some projects and instead initiating other projects.

Issue

Four of the projects that the Company added in the letter were never started.

Audit Recommendation

The Company should notify the Commission of any addition, deletion, substitution, or non-initiation of any project in a timely manner.

Company Comment

The Company agrees that the Commission should be notified of any addition, deletion, substitution or non-initiation of any project in a timely manner. As of November 1, 2014 the Mack Hill Road and Foundry Street projects in Amherst were under contract and the Contractor was still considering completing the work in 2014, subject to weather conditions. The Contractor did not determine to postpone those projects until late November 2014. As of November 1, 2014 the Ridge, Temple and Franklin Street projects were still being considered by the City for potential project completion in 2014. The City decided to postpone these projects in early November. As of November 1, 2014 the Fairmount Street project was under contract and the Contractor was still considering completing the work in 2014, subject to weather conditions. The Contractor did not determine to postpone those projects until late November 2014. Based on the time frame when Pennichuck got final determinations on these projects it decided that the WICA filing to be completed by the end of January 2015 would provide the notification in a timely fashion. Based on the concern provided by the audit request, Pennichuck proposed submitting quarterly updates (within 15 days of the end of a quarter) regarding project status's, specifically in regards to any additions, deletions, substitutions and non-initiation of any projects on the current year WICA filing. Pennichuck is open for any suggestions from the Commission staff regarding notification time frames that the staff is comfortable with.

Audit Response

Audit appreciates and understands that completion of the Company's WICA projects later in the year may be dependent not only upon weather but also overlapping projects undertaken by a City / Municipality in an effort to in lessen costs and agrees with the Company's recommendation of quarterly updates regarding project status.

Audit Issue #2 Accounting Records

Background

PWW was authorized to replace several water mains during the 2014 calendar year under the WICA program.

Issue

PWW was not able to produce information regarding the retirement of assets associated with the WICA program for 2014.

Audit Recommendation

PWW is reminded of Puc 607.07 relating to the Uniform System of Accounts (USoA). Within the USoA are instructions regarding the retirement of utility assets and the utility accounting related to the retirement.

Company Comment

The Company has provided the retirement information regarding the WICA eligible projects, main replacements, service replacements, hydrant replacements and valve replacements. The retirement information is reflected in the attached revised WICA schedules.

Please note that the notation regarding whether the Boston Post Road water main replacement found on Attachment B, Page 1 of 4 was incorrect. The original submission indicated that the water main was not fully depreciated based on a 70 depreciation life. The correct depreciation life for the existing 6" AC water main that was replaced is 40 years, not 70 years, hence the water main that was replaced was fully depreciated.

Audit Response

Audit would like to remind the Company that with respect to USoA, Utility Accounting, and PUC 607.07 (formerly 610.01(e)(10)B-2. When plant is retired and the plant is of a depreciable class, the book cost (original cost) of the unit retired is credited to the appropriate utility plant account and also shall be charged to the accumulated depreciation account. PWW has continually indicated there were \$0 of retirements related to the main WICA water main projects and only \$755 of retirements for the valve, hydrant and service replacements.

Audit Issue #3
Accounting of Used and Useful Projects

Background

PWW was authorized to replace several water mains during the 2014 calendar year under the WICA program.

Issue

Once a water main is complete, that is used and useful and providing service to the water customers, the costs to replace the water main are moved from Construction Work in Process (CWIP) to the appropriate Utility Plant Account.

Audit Recommendation

The General Ledger and supporting material provided indicates that the cost of the Fairmount Street project, \$8,124 incurred in 2014, was included in the Company's Plant Accounts as of 12/31/14. This project is not scheduled to be used and useful until sometime in 2015. These costs should be placed back in CWIP until that time.

Company Comment

The Company agrees with the audit recommendation. The \$8,124 incurred in 2014 for this project will be removed from the Company's Plant Accounts and reclassified as CWIP. A revised copy of the Company's WICA schedules is attached reflecting this change.

Audit Response

Audit has confirmed with the Company that the reclassification would be made to the Company's books for the 2015 year pending project completion.

DW 15-043
PENNICHUCK WATER WORKS, INC.
SUMMARY SCHEDULE OF WICA INVESTMENTS
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEARS 2015 - 2017

(1) (2) (3) (4) (5) (6) (7) (8)

2013 ¹	Actual Investment (DW 13-358)					Depreciation Expense	
	Gross Investment	Cost of Removal	Book Cost (2) - (3)	Retirement	Net Investment (4) - (5)	Depreciation Rate ⁷	Depreciation Expense (6) x (7)
Mains	\$ 1,563,037	\$ (156,234)	\$ 1,406,803	\$ (14,422)	\$ 1,392,381	1.60%	\$ 22,278
Contingency	-	-	-	-	-	1.60%	-
Paving	28,395	(2,839)	25,556	-	25,556	1.57%	401
Hydrants	59,164	(5,063)	54,101	(2,293)	51,808	2.24%	1,160
Services	241,199	(22,980)	218,219	(6,924)	211,295	2.34%	4,944
Valves	69,084	(6,908)	62,176	(2,174)	60,002	1.60%	960
Total	\$ 1,960,879	\$ (194,024)	\$ 1,766,855	\$ (25,813)	\$ 1,741,042		\$ 29,744

2014 ²	Actual Investment					Depreciation Expense	
	Gross Investment	Cost of Removal ⁶	Book Cost (2) - (3)	Retirement	Net Investment (4) - (5)	Depreciation Rate ⁷	Depreciation Expense (6) x (7)
Mains	\$ 2,744,191	(273,203)	\$ 2,470,988	\$ -	\$ 2,470,988	1.60%	\$ 39,536
Contingency	-	-	-	-	-	1.60%	-
Paving	-	-	-	-	-	1.57%	-
Hydrants	35,249	(3,525)	31,724	(215)	31,509	2.24%	706
Services	82,444	(8,244)	74,200	(1)	74,199	2.34%	1,736
Valves	10,031	(1,003)	9,028	(538)	8,490	1.60%	136
Total	\$ 2,871,915	\$ (285,975)	\$ 2,585,940	\$ (754)	\$ 2,585,186		\$ 42,114

2015 ³	Projected Investment					Depreciation Expense	
	Gross Investment	Cost of Removal ⁶	Book Cost (2) - (3)	Retirement	Net Investment (4) - (5)	Depreciation Rate ⁷	Depreciation Expense (6) x (7)
Mains	\$ 4,503,600	\$ (450,360)	\$ 4,053,240	\$ -	\$ 4,053,240	1.60%	\$ 64,852
Contingency	450,360	(45,036)	\$ 405,324	-	405,324	1.60%	\$ 6,485
Paving	77,522	(7,752)	\$ 69,770	-	69,770	1.57%	\$ 1,095
Hydrants	29,374	(2,937)	\$ 26,437	-	26,437	2.24%	\$ 592
Services	85,388	(8,539)	\$ 76,850	-	76,850	2.34%	\$ 1,798
Valves	16,050	(1,605)	\$ 14,445	-	14,445	1.60%	\$ 231
Total	\$ 5,162,295	\$ (516,229)	\$ 4,646,065	\$ -	\$ 4,646,065		\$ 75,054

DW 15-043
PENNICHUCK WATER WORKS, INC.
SUMMARY SCHEDULE OF WICA INVESTMENTS
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEARS 2015 - 2017

(1) (2) (3) (4) (5) (6) (7) (8)

2016 ⁴	Projected Investment					Depreciation Expense	
	Gross Investment	Cost of Removal ⁶	Book Cost (2) - (3)	Retirement	Net Investment (4) - (5)	Depreciation Rate ⁷	Depreciation Expense (6) x (7)
Mains	\$ 4,764,000	\$ (476,400)	\$ 4,287,600	\$ -	\$ 4,287,600	1.60%	\$ 68,602
Contingency	476,400	(47,640)	428,760	-	428,760	1.60%	6,860
Paving	-	-	-	-	-	1.57%	-
Hydrants	33,369	(3,337)	30,032	-	30,032	2.24%	673
Services	67,722	(6,772)	60,950	-	60,950	2.34%	1,426
Valves	22,855	(2,286)	20,570	-	20,570	1.60%	329
Total	\$ 5,364,347	\$ (536,435)	\$ 4,827,912	\$ -	\$ 4,827,912		\$ 77,890

2017 ⁵	Projected Investment					Depreciation Expense	
	Gross Investment	Cost of Removal ⁶	Book Cost (2) - (3)	Retirement	Net Investment (4) - (5)	Depreciation Rate ⁷	Depreciation Expense (6) x (7)
Mains	\$ 3,963,000	\$ (396,300)	\$ 3,566,700	\$ -	\$ 3,566,700	1.60%	\$ 57,067
Contingency	396,300	(39,630)	356,670	-	356,670	1.60%	\$ 5,707
Paving	-	-	-	-	-	1.57%	\$ -
Hydrants	33,369	(3,337)	30,032	-	30,032	2.24%	\$ 673
Services	67,722	(6,772)	60,950	-	60,950	2.34%	\$ 1,426
Valves	22,855	(2,286)	20,570	-	20,570	1.60%	\$ 329
Total	\$ 4,483,247	\$ (448,325)	\$ 4,034,922	\$ -	\$ 4,034,922		\$ 65,202

Notes:

¹ Based on PW's WICA Filing in DW 13-358.

² Based on Attachment B, Page 1 of 4.

³ Based on Attachment B, Page 2 of 4.

⁴ Based on Attachment B, Page 3 of 4.

⁵ Based on Attachment B, Page 4 of 4.

⁶ The Cost of Removal for 2014 Mains is from Page 4 of the Final Audit Report in DW 15-043 dated 3/19/15. All other Cost of Removal amounts in 2014 - 2017 are based upon 10.00% of the Gross Investment.

⁷ The Depreciation Rates are based on the depreciation study approved in DW 06-073.

**DW 15-043
PENNICHUCK WATER WORKS, INC.
CALCULATION OF PROPOSED 2015 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014**

	Actual		
	2013	2014	Total
Plant in Service			
Gross Plant Investment (Att A; Sch 1; Col (2))	\$ 1,960,879	\$ 2,871,915	\$ 4,832,794
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(479,999)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	(26,567)
Net Plant Investment	1,741,042	2,585,186	4,326,228
Accumulated Depreciation			
Depreciation Expense ¹ (Att A; Sch 1; Col (8)):			
2013 Net Plant Investment	14,872	29,744	44,616
2014 Net Plant Investment	-	21,057	21,057
Total Depreciation Expense	14,872	50,801	65,673
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(479,999)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	(26,567)
Net Accumulated Depreciation	(204,965)	(235,928)	(440,893)
Net Plant in Service	\$ 1,946,007	\$ 2,821,114	\$ 4,767,121
Pre-tax Rate of Return ²		x	6.17%
Return on Investment			\$ 294,050
Property Tax Expense³	@	\$28.17 per \$1,000	134,290
Annual Depreciation Expense(Att A; Sch 1; Col (8))			
2013 Net Plant Investment			29,744
2014 Net Plant Investment			42,114
Total Annual Depreciation Expense			71,858
2015 Cumulative Revenue Requirement			\$ 500,198
Less: 2014 Cumulative Revenue Requirement ⁴			(181,151)
2015 Revenue Requirement			\$ 319,047
Water Revenues per DW 13-130 ⁵			\$ 27,689,214
2015 Revenue Surcharge %			1.15%
2015 Cumulative Revenue Surcharge %			1.81%
Customer Impact			
5/8 Inch Meter Monthly Charge			\$ 20.34
Volumetric Charge			\$ 3.30
Average Single Family Residential Usage (CCF)			7.88
Average Monthly Usage Charge			\$ 26.00
Total Average Monthly Charge			\$ 46.34
Average Monthly \$ Impact per Customer of 2015 Surcharge			\$ 0.53
Average Monthly \$ Impact per Customer of 2015 Cumulative Surcharge			\$ 0.84

**DW 15-043
PENNICHUCK WATER WORKS, INC.
CALCULATION OF PROPOSED 2015 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014**

Notes:

¹ The half-year convention for depreciation expense is employed whereby one-half of the annual depreciation expense is recorded in the first and last year of an asset's service life.

² Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Filing in DW 13-130)

	<u>Weighted Cost</u>	<u>Tax Multiplier</u>	<u>Pre Tax Cost</u>
Debt	5.59%	1.000	5.59%
Equity	0.35%	1.656	0.58%
	5.94%		6.17%

³ Combined City of Nashua 2014 Mill Rate of \$21.57 and State Utility Property Tax Rate of \$6.60.

⁴ WICA revenue requirement approved in DW 13-358 by Commission Order No. 25,661 (5/5/14).

⁵ Base rate revenue requirement approved in DW 13-130 by Commission Order No. 25,693 (7/15/14).

DW 15-043
PENNICHUCK WATER WORKS, INC.
PROJECTED CALCULATION OF 2016 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEAR 2015

	Actual		Projected	
	2013	2014	2015	Total
Plant in Service				
Gross Plant Investment (Att A; Sch 1; Col (2))	\$ 1,960,879	\$ 2,871,915	\$ 5,162,295	\$ 9,995,089
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(516,229)	(996,229)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	-	(26,567)
Net Plant Investment	1,741,042	2,585,186	4,646,065	8,972,293
Accumulated Depreciation				
Depreciation Expense ¹ (Att A; Sch 1; Col (8)):				
2013 Net Plant Investment	14,872	29,744	29,744	74,360
2014 Net Plant Investment	-	21,057	42,114	63,171
2015 Net Plant Investment	-	-	37,527	37,527
Total Depreciation Expense	14,872	50,801	109,385	175,058
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(516,229)	(996,229)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	-	(26,567)
Net Accumulated Depreciation	(204,965)	(235,928)	(406,845)	(847,738)
Net Plant in Service	\$ 1,946,007	\$ 2,821,114	\$ 5,052,910	\$ 9,820,031
Pre-tax Rate of Return ²			x	6.17%
Return on Investment				\$ 605,728
Property Tax Expense³	@	\$28.17 per \$1,000		276,630
Annual Depreciation Expense(Att A; Sch 1; Col (8))				
2013 Net Plant Investment				29,744
2014 Net Plant Investment				42,114
2015 Net Plant Investment				75,054
Total Annual Depreciation Expense				146,912
2016 Cumulative Revenue Requirement				\$ 1,029,270
Less: 2015 Cumulative Revenue Requirement				(500,198)
2016 Revenue Requirement				\$ 529,073
Water Revenues per DW 13-130 ⁵				\$ 27,689,214
2016 Revenue Surcharge %				1.91%
2016 Cumulative Revenue Surcharge %				3.72%
Customer Impact				
5/8 Inch Meter Monthly Charge				\$ 20.34
Volumetric Charge				\$ 3.30
Average Single Family Residential Usage (CCF)				7.88
Average Monthly Usage Charge				\$ 26.00
Total Average Monthly Charge				\$ 46.34
Average Monthly \$ Impact per Customer of 2016 Surcharge				\$ 0.89
Average Monthly \$ Impact per Customer of 2016 Cumulative Surcharge				\$ 1.72

DW 15-043
PENNICHUCK WATER WORKS, INC.
PROJECTED CALCULATION OF 2016 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEAR 2015

Notes:

¹ The half-year convention for depreciation expense is employed whereby one-half of the annual depreciation expense is recorded in the first and last year of an asset's service life.

² Calculation of Pre-Tax Rate of Return (Based on PWW's Rate Filing in DW 13-130)

	Weighted Cost	Tax Multiplier	Pre Tax Cost
Debt	5.59%	1.000	5.59%
Equity	0.35%	1.656	0.58%
	5.94%		6.17%

³ Combined City of Nashua 2014 Mill Rate of \$21.57 and State Utility Property Tax Rate of \$6.60.

⁴ Attachment A; Schedule 2a

⁵ Base rate revenue requirement approved in DW 13-130 by Commission Order No. 25,693 (7/15/14).

DW 15-043
PENNICHUCK WATER WORKS, INC.
PROJECTED CALCULATION OF 2017 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEARS 2015 - 2016

	Actual		Projected		Total
	2013	2014	2015	2016	
Plant in Service					
Gross Plant Investment (Att A; Sch 1; Col (2))	\$ 1,960,879	\$ 2,871,915	\$ 5,162,295	\$ 5,364,347	\$ 15,359,435
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(516,229)	(536,435)	(1,532,664)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	-	-	(26,567)
Net Plant Investment	<u>1,741,042</u>	<u>2,585,186</u>	<u>4,646,065</u>	<u>4,827,912</u>	<u>13,800,205</u>
Accumulated Depreciation					
Depreciation Expense ¹ (Att A; Sch 1; Col (8)):					
2013 Net Plant Investment	14,872	29,744	29,744	29,744	104,105
2014 Net Plant Investment	-	21,057	42,114	42,114	105,284
2015 Net Plant Investment	-	-	37,527	75,054	112,581
2016 Net Plant Investment	-	-	-	38,945	38,945
Total Depreciation Expense	<u>14,872</u>	<u>50,801</u>	<u>109,385</u>	<u>185,857</u>	<u>360,915</u>
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(516,229)	(536,435)	(1,532,664)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	-	-	(26,567)
Net Accumulated Depreciation	<u>(204,965)</u>	<u>(235,928)</u>	<u>(406,845)</u>	<u>(350,578)</u>	<u>(1,198,316)</u>
Net Plant in Service	<u>\$ 1,946,007</u>	<u>\$ 2,821,114</u>	<u>\$ 5,052,910</u>	<u>\$ 5,178,490</u>	<u>\$ 14,998,521</u>
Pre-tax Rate of Return ²				x 6.17%	
Return on Investment					<u>\$ 925,153</u>
Property Tax Expense³	@	\$28.17 per \$1,000			<u>422,508</u>
Annual Depreciation Expense(Att A, Sch 1; Col (8))					
2013 Net Plant Investment					29,744
2014 Net Plant Investment					42,114
2015 Net Plant Investment					75,054
2016 Net Plant Investment					77,890
Total Annual Depreciation Expense					<u>224,802</u>
2017 Cumulative Revenue Requirement					\$ 1,572,463
Less: 2016 Cumulative Revenue Requirement					(1,029,270)
2017 Revenue Requirement					<u>\$ 543,192</u>
Water Revenues per DW 13-130 ⁵					<u>\$ 27,689,214</u>
2017 Revenue Surcharge %					<u>1.96%</u>
2017 Cumulative Revenue Surcharge %					<u>5.68%</u>
Customer Impact					
5/8 Inch Meter Monthly Charge					\$ 20.34
Volumetric Charge					\$ 3.30
Average Single Family Residential Usage (CCF)					7.88
Average Monthly Usage Charge					\$ 26.00
Total Average Monthly Charge					<u>\$ 46.34</u>
Average Monthly \$ Impact per Customer of 2017 Surcharge					<u>\$ 0.91</u>
Average Monthly \$ Impact per Customer of 2017 Cumulative Surcharge					<u>\$ 2.63</u>

**DW 15-043
PENNICHUCK WATER WORKS, INC.
PROJECTED CALCULATION OF 2017 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEARS 2015 - 2016**

Notes:

¹ The half-year convention for depreciation expense is employed whereby one-half of the annual depreciation expense is recorded in the first and last year of an asset's service life.

² Calculation of Pre-Tax Rate of Return (Based on PW's Rate Filing in DW 13-130)

	Weighted Cost	Tax Multiplier	Pre Tax Cost
Debt	5.59%	1.000	5.59%
Equity	0.35%	1.656	0.58%
	5.94%		6.17%

³ Combined City of Nashua 2014 Mill Rate of \$21.57 and State Utility Property Tax Rate of \$6.60.

⁴ Attachment A; Schedule 2b

⁵ Base rate revenue requirement approved in DW 13-130 by Commission Order No. 25,693 (7/15/14).

DW 15-043
PENNICHUCK WATER WORKS, INC.
PROJECTED CALCULATION OF 2018 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEARS 2015 - 2017

	Actual		Projected			Total
	2013	2014	2015	2016	2017	
Plant Investment						
Gross Plant Investment (Att A; Sch 1; Col (2))	\$ 1,960,879	\$ 2,871,915	\$ 5,162,295	\$ 5,364,347	\$ 4,483,247	\$ 19,842,682
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(516,229)	(536,435)	(448,325)	(1,980,988)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	-	-	-	(26,567)
Net Plant Investment	<u>1,741,042</u>	<u>2,585,186</u>	<u>4,646,065</u>	<u>4,827,912</u>	<u>4,034,922</u>	<u>17,835,127</u>
Accumulated Depreciation						
Depreciation Expense ¹ (Att A; Sch 1; Col (8)):						
2013 Net Plant Investment	14,872	29,744	29,744	29,744	29,744	133,849
2014 Net Plant Investment	-	21,057	42,114	42,114	42,114	147,398
2015 Net Plant Investment	-	-	37,527	75,054	75,054	187,635
2016 Net Plant Investment	-	-	-	38,945	77,890	116,835
2017 Net Plant Investment	-	-	-	-	32,601	32,601
Total Depreciation Expense	<u>14,872</u>	<u>50,801</u>	<u>109,385</u>	<u>185,857</u>	<u>257,403</u>	<u>618,317</u>
Less: Cost of Removal (Att A; Sch 1; Col (3))	(194,024)	(285,975)	(516,229)	(536,435)	(448,325)	(1,980,988)
Less: Plant Retirements (Att A; Sch 1; Col (5))	(25,813)	(754)	-	-	-	(26,567)
Net Accumulated Depreciation	<u>(204,965)</u>	<u>(235,928)</u>	<u>(406,845)</u>	<u>(350,578)</u>	<u>(190,922)</u>	<u>(1,389,238)</u>
Net Plant in Service	<u>\$ 1,946,007</u>	<u>\$ 2,821,114</u>	<u>\$ 5,052,910</u>	<u>\$ 5,178,490</u>	<u>\$ 4,225,844</u>	<u>\$ 19,224,365</u>
Pre-tax Rate of Return ²					x 6.17%	
Return on Investment						<u>\$ 1,185,815</u>
Property Tax Expense³	@	\$28.17	per \$1,000			<u>541,550</u>
Annual Depreciation Expense(Att A; Sch 1; Col (8))						
2013 Net Plant Investment						29,744
2014 Net Plant Investment						42,114
2015 Net Plant Investment						75,054
2016 Net Plant Investment						77,890
2017 Net Plant Investment						65,202
Total Annual Depreciation Expense						<u>290,004</u>
2018 Cumulative Revenue Requirement						\$ 2,017,369
Less: 2017 Cumulative Revenue Requirement ⁴						(1,572,463)
2018 Revenue Requirement						<u>\$ 444,906</u>
Water Revenues per DW 13-130 ⁵						<u>\$ 27,689,214</u>
2018 Revenue Surcharge %						<u>1.61%</u>
2018 Cumulative Revenue Surcharge %						<u>7.29%</u>
Customer Impact						
5/8 Inch Meter Monthly Charge						\$ 20.34
Volumetric Charge						\$ 3.30
Average Single Family Residential Usage (CCF)						7.88
Average Monthly Usage Charge						\$ 26.00
Total Average Monthly Charge						<u>\$ 46.34</u>
Average Monthly \$ Impact per Customer of 2018 Surcharge						<u>\$ 0.74</u>
Average Monthly \$ Impact per Customer of 2018 Cumulative Surcharge						<u>\$ 3.38</u>

**DW 15-043
PENNICHUCK WATER WORKS, INC.
PROJECTED CALCULATION OF 2018 WICA SURCHARGE
FOR COMPLETED CONSTRUCTION YEARS 2013 - 2014
and PROJECTED CONSTRUCTION YEARS 2015 - 2017**

Notes:

¹ The half-year convention for depreciation expense is employed whereby one-half of the annual depreciation expense is recorded in the first and last year of an asset's service life.

² Calculation of Pre-Tax Rate of Return (Based on PW's Rate Filing in DW 13-130)

	Weighted Cost	Tax Multiplier	Pre Tax Cost
Debt	5.59%	1.000	5.59%
Equity	0.35%	1.656	0.58%
	5.94%		6.17%

³ Combined City of Nashua 2014 Mill Rate of \$21.57 and State Utility Property Tax Rate of \$6.60.

⁴ Attachment A; Schedule 2c

⁵ Base rate revenue requirement approved in DW 13-130 by Commission Order No. 25,693 (7/15/14).

DW 15-043
PENNICHUCK WATER WORKS, INC.
SUMMARY OF WICA SURCHARGE CALCULATIONS
FOR APPROVED 2014 WICA SURCHARGE, PROPOSED 2015 WICA SURCHARGE
and PROJECTED 2016 - 2018 WICA SURCHARGES

	Actual	Proposed	Projected		
	2014	2015	2016	2017	2018
<u>SUMMARY OF CALCULATIONS (Att A; Sch's 2):</u>					
Annual Revenue Requirement	\$ 181,151	\$ 319,047	\$ 529,073	\$ 543,192	\$ 444,906
Cumulative Revenue Requirement	<u>\$ 181,151</u>	<u>\$ 500,198</u>	<u>\$ 1,029,270</u>	<u>\$ 1,572,463</u>	<u>\$ 2,017,369</u>
Annual Revenue Surcharge %	0.67%	1.15%	1.91%	1.96%	1.61%
Cumulative Revenue Surcharge %	<u>0.67%</u>	<u>1.81%</u>	<u>3.72%</u>	<u>5.68%</u>	<u>7.29%</u>
Annual Average Monthly \$ Impact per Customer	\$ 0.31	\$ 0.53	\$ 0.89	\$ 0.91	\$ 0.74
Cumulative Average Monthly \$ Impact per Customer	<u>\$ 0.31</u>	<u>\$ 0.84</u>	<u>\$ 1.72</u>	<u>\$ 2.63</u>	<u>\$ 3.38</u>
<u>PER ORIGINAL FILING:</u>					
Annual Revenue Requirement	\$ 181,151	\$ 348,629	\$ 531,667	\$ 545,504	\$ 451,678
Cumulative Revenue Requirement	<u>\$ 181,151</u>	<u>\$ 529,779</u>	<u>\$ 1,061,446</u>	<u>\$ 1,606,950</u>	<u>\$ 2,058,628</u>
Annual Revenue Surcharge %	0.67%	1.26%	1.92%	1.97%	1.63%
Cumulative Revenue Surcharge %	<u>0.67%</u>	<u>1.91%</u>	<u>3.83%</u>	<u>5.80%</u>	<u>7.43%</u>
Annual Average Monthly \$ Impact per Customer	\$ 0.31	\$ 0.58	\$ 0.89	\$ 0.91	\$ 0.76
Cumulative Average Monthly \$ Impact per Customer	<u>\$ 0.31</u>	<u>\$ 0.89</u>	<u>\$ 1.78</u>	<u>\$ 2.69</u>	<u>\$ 3.45</u>

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	Work Order Number	MATERIAL	ORIGINAL LENGTH (FEET)	PROJECTED LENGTH AS OF JUNE 2014 (FEET)	PROJECTED LENGTH AS OF END OF 2014 (FEET)	EXISTING PIPE DIAMETER (INCHES)	PROPOSED NEW PIPE DIAMETER (INCHES)	ORIGINAL WICA FILING ESTIMATED COST	ESTIMATED COST AS OF JUNE 2014	END OF YEAR (2014) COSTS	ANTICIPATED FINAL PAVING COSTS IN 2015 FOR 2014 USED AND USEFUL PROJECTS	AGE OF PIPE	PIPE AGE USEFUL LIFE	FULLY DEPREC	EXPLANATION
Baldwin St - Bridge/RR Crossing*	NASHUA	1300347 1400207	CAST IRON UNLINED	100	176	176	8	4	\$ 84,000	\$ 84,000	\$ 389,041	\$-	1938	70	YES	COMPLETE - End of Year costs are the total costs for this Railroad crossing project as well as the Baldwin Street water main project below
Baldwin Street ¹	NASHUA	1400207	CAST IRON UNLINED	1,198	1,620	1,620	8	12	\$ 280,000	\$ 280,000	\$	\$	1938	70	YES	COMPLETE - Final design required significant change in the route of the water main in comparison to preliminary design. RR fees greater than anticipated
Park St	NASHUA	1300216 1400205	CAST IRON UNLINED	312	312	312	6	12	\$ 68,950	\$ 68,950	\$ 104,539	\$ 4,084	1890	70	YES	USED AND USEFUL - Larger water main than planned and alternate route w/assessments due to conflicts in Main St. Final paving to be completed in 2015.
Court St	NASHUA	1300217 1400204	CAST IRON UNLINED	435	435	435	8	12	\$ 47,000	\$ 47,000	\$ 103,843	\$ 4,506	1931	70	YES	USED AND USEFUL - Multiple day difficulties with shutdowns - resorted to insertion valve and night work. Final paving to be completed in 2015
Foundry Street ¹	AMHERST		TRANSITE	1,465	-	-	6	8	\$ 234,400	\$-	\$-	\$-	1950	70	NO	Postponed by Town of Amherst until 2015
Mack Hill Road (Bridge Crossing) ¹	AMHERST		TRANSITE	150	300	-	6	12	\$ 70,500	\$ 141,000	\$-	\$-	1950	70	NO	Postponed by Town of Amherst until 2015
Boston Post Road	AMHERST	1401073	TRANSITE	2,052	2,052	2,052	6	12	\$ 471,960	\$ 471,960	\$ 454,689	\$-	1951	40	YES	COMPLETE
Cross St	AMHERST	1401072	TRANSITE	410	410	410	4	6	\$ 65,600	\$ 65,600	\$ 52,501	\$-	1950	40	YES	COMPLETE
Burke St	NASHUA	1401070	CAST IRON UNLINED	3,160	3,160	3,160	6	12	\$ 537,200	\$ 537,200	\$ 896,827	\$ 40,681	1892-1906	70	YES	USED AND USEFUL - underestimated bids were higher than expected. Final Paving to be completed in 2015
Eldrige St	NASHUA	1400209	CAST IRON UNLINED	410	410	410	6	6	\$ 143,500	\$ 143,500	\$ 92,201	\$ 5,206	1888	70	YES	USED AND USEFUL - Final paving to be completed in 2015
Grove Street	NASHUA	1402912	CAST IRON UNLINED	260	260	260	4	4	\$ 49,400	\$ 49,400	\$ 55,517	\$ 3,166	1888	70	YES	USED AND USEFUL - Final paving to be completed in 2015
Oak Street	NASHUA	1402916	CAST IRON UNLINED	520	520	520	4	6	\$ 106,600	\$ 106,600	\$ 118,819	\$ 5,978	1887-1924	40	YES	USED AND USEFUL - Final paving to be completed in 2015
Rabinson Court	NASHUA	1402913	CAST IRON UNLINED	260	260	260	2	4	\$ 98,800	\$ 98,900	\$ 55,528	\$ 2,132	1888	40	YES	Bids were lower than expected. USED AND USEFUL - Final paving to be completed in 2015
Ridge Street ²	NASHUA		CAST IRON UNLINED	325	-	-	4	4	\$ 71,500	\$-	\$-	\$-	1092-1959	40	YES	Postponed indefinitely
Cross Street	NASHUA	1402914	CAST IRON UNLINED	350	350	350	6	6	\$ 77,000	\$ 77,000	\$ 134,710	\$ 4,827	1891	70	YES	3 days of unanticipated ledge removal increased the price on this project. USED AND USEFUL - Final paving to be completed in 2015
Broad Street	NASHUA	1400208	UNLINED	260	260	260	6	8	\$ 81,900	\$ 81,900	\$ 188,803	\$-	1903	70	YES	USED AND USEFUL - multiple piping changed caused by elevation conflicts with sewer.
Ninth Street ¹	NASHUA		GALV. STEEL LINED	-	627	-	2	4	\$-	\$ 102,000	\$-	\$-	1952-1957	50	YES	
Mulberry Street ¹	NASHUA		CAST IRON UNLINED	-	50	-	8	8	\$-	\$ 46,500	\$-	\$-	1932	70	YES	Project part of City FY2104 Sewer replacement program. Work to be completed in 2015
Belmont Street	NASHUA	1402915	CAST IRON UNLINED	-	372	372	8	8	\$-	\$ 74,360	\$ 97,173	\$ 6,942	1937	70	YES	USED AND USEFUL - Final paving to be completed in 2015
Fairmount Street ¹	NASHUA	1400210	CAST IRON UNLINED	-	215	-	6	4	\$-	\$ 37,500	\$-	\$-	1887	70	YES	Project part of City FY2104 Sewer replacement program. Work to be completed in 2015
Temple Street ¹	NASHUA		CAST IRON UNLINED	1,030	1,030	-	10	12	\$ 278,100	\$ 278,100	\$-	\$-	1908	85	YES	City needs to determine a course of action for the sewer once they have all the data. The City's decision will dictate our course of action.
Franklin Street ²	NASHUA		CAST IRON UNLINED	264	-	-	24	24	\$ 138,735	\$-	\$-	\$-	1897	100	YES	Postponed indefinitely
Total LF -				12,961	12,819	10,597	Projected Total \$ \$ -		2,905,145	2,791,470	2,744,191	77,522				
Paving from 2013 projects -									\$ 110,000	\$ 110,000	\$ -					
Valve Replacements ⁴ -				15	@	\$2,000 =			\$ 30,000	\$ 30,000	\$ 10,031					
Service Replacements ⁴ -				28	@	\$1,962 =			\$ 54,936	\$ 54,936	\$ 82,444					
Hydrant Replacements ⁴ -				4	@	\$5,700 =			\$ 22,800	\$ 22,800	\$ 35,249					
Planning/Change Order Contingency ¹ -									\$ 145,257	\$ 258,931	\$ -					
Total Estimated WICA \$ \$ In 2014 -									\$ 3,268,138	\$ 3,268,138	\$ 2,871,915					

Carol Ann Howes
 add invoice for RBH write

Carol Ann Howes
 cost removed - project not completed

NOTES:

1. Project Deferred until 2015
2. Project postponed by City to future date.
3. Total project contingency set at 5% at the beginning of 2014. Project contingency adjusted in June of 2014 to result in projected WICA total staying the same as the original filing. Contingency has been eliminated from Year Ending 2014 \$. These \$ may change subject to audit.
4. 2014 Year end costs reflect actual \$ spent on 5 valve replacements, 28 service replacements and 6 hydrant replacements
5. The Baldwin Street Project is broken out into two separate line items based on the different segments of the project but the combined project costs are shown on one line.

Pennichuck Water Works, Inc.
Proposed 2015 WICA Water Main Projects
1/16/2015

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	EXISTING PIPE DIAMETER (INCHES)	PROPOSED NEW PIPE DIAMETER (INCHES)	ESTIMATED COST	PIPE INSTALLATION DATE	PPF AGE USEFUL LIFE	FULLY DEPR.	BREAK HISTORY	KEY CUSTOMERS	WATER QUALITY	FIRE PROTECTION FLOWS ¹	Work coordination with Sewer or Storm Drain Replacement	Subtotal prior to Geographical Area	Geographic Points	TOTAL	Funding Source	Included in 2014-2015 WICA projects filed in Dec. 2013	
Chesley Street (Lake to Lovell)	MASHUA	CAST IRON UNLINED	715	6	12	\$ 314,000	1918-1924	70	YES	1	1		5	5	10	3	15	Series A Bond	Yes - 2015	
Chester Street (Lovell to Erie)	MASHUA	CAST IRON UNLINED	263	6	12	\$ 105,000	1918-1925	70	YES	0	0		5	5	10	3	13	Series A Bond	Yes - 2015	
Lovell Street (Chester to Ash)	MASHUA	CAST IRON UNLINED	420	6	12	\$ 185,000	1892-1898	70	YES	1	5	1	4	5	11	3	14	Series A Bond	Yes - 2016	
Lovell Street (Ash to Pine)	MASHUA	CAST IRON UNLINED	750	4	8	\$ 269,000	1924-1934	40	YES	0	5		4	5	9	3	12	Series A Bond	Yes - 2016	
Lovell Street (Easterly of Chester to end)	MASHUA	GANVAZED STEEL	187	1 1/4	4	\$ 48,000	1955	40	YES	0	0		0	0	0	3	3	Series A Bond	Yes - 2016	
Furney Street	AMHERST	TRANSITE	1,465	8	8	\$ 209,000	1950	40	YES	0	0		0	5	5	2	7	2014 SIF	Yes - 2014	
Manchester Road (Bridge Crossing)	AMHERST	TRANSITE	300	6	12	\$ 116,000	1950	40	YES	0	0		0	5	5	2	7	2014 SIF	Yes - 2014	
School Street	AMHERST	TRANSITE	240	4	5	\$ 40,000	1950	40	YES	0	0		0	5	5	2	7	2014 SIF	Yes - 2014	
Main Street (Oronoke to Tupper)	MASHUA	GANVAZED STEEL	427	2	8	\$ 148,000	1927	40	YES	1	1	1	4	5	6	2	8	Series A Bond	No	
Brook Street (Ash to Fubon)	MASHUA	CAST IRON UNLINED	1,141	6	8	\$ 397,000	1887-1924	70	YES	0	1		3	5	4	2	6	Series A Bond	Yes - 2015	
Harrison Street (Lake to Brook)	MASHUA	CAST IRON UNLINED	411	6	6	\$ 130,000	1909-1941	70	YES	0	1		3	5	4	2	3	Series A Bond	Yes - 2015	
Burnt Street (Lake to Brook)	MASHUA	CAST IRON UNLINED	424	6	6	\$ 155,000	1887-1921	70	YES	0	1		3	5	4	2	6	Series A Bond	Yes - 2015	
Burnt Street (Brook St. southerly)	MASHUA	CAST IRON UNLINED	182	4	4	\$ 43,000	1941	40	YES	0	1		0	0	2	2	2	Series A Bond	Yes - 2015	
Ash Street (Lake to Lovell)	MASHUA	CAST IRON UNLINED	517	6	6	\$ 166,000	1892	70	YES	0	0		0	0	0	3	3	Series A Bond	No	
Ash Street (Lovell to Erie)	MASHUA	CAST IRON UNLINED	190	4 1/2	4	\$ 62,000	1921	40	YES	0	0		0	0	0	3	3	Series A Bond	No	
Lake Street (Pine St. easterly)	MASHUA	CAST IRON UNLINED	154	6	12	\$ 113,000	1888	70	YES	2	2		4	5	6	2	8	Series A Bond	Yes - Revised 2014	
Mulberry Street	MASHUA	CAST IRON UNLINED	50	8	8	\$ 46,500	1932	70	YES	0	0		0	5	5	2	5	2014 SIF	Yes - Revised 2014	
North Street	MASHUA	GANVAZED STEEL	627	2	4	\$ 102,000	1952-1957	40	YES	0	0		0	5	5	2	5	2014 SIF	Yes - 2014	
Temple Street	MASHUA	CAST IRON UNLINED	1,030	10	12	\$ 274,100	1908	70	YES	0	0		0	5	5	2	5	Series A Bond	Yes - Revised 2014	
Falmouth Street	MASHUA	CAST IRON UNLINED	215	6	4	\$ 57,000	1887	70	YES	0	0		0	5	5	2	5	Series A Bond	Yes - Revised 2014	
Rochelle Avenue (Chester easterly)	MASHUA	CEMENT LINED STEEL	163	2	4	\$ 46,000	1952-1956	40	YES	1	1	1	1	2	2	2	2	Series A Bond	Yes - 2015	
Marquis Avenue (Lovell southerly)	MASHUA	CEMENT LINED STEEL	125	1-1/2	4	\$ 39,000	1945	40	YES	1	1		1	2	2	4	4	Series A Bond	Yes - 2015	
Aids Street (Main to Harbor), parallels TPAC below	MASHUA	CAST IRON UNLINED	1,722	8	Abandon	\$ 123,000	1931	70	YES	3	1		3	1	4	3	7	Series A Bond	Yes - 2016	
Aids Street (Main to Harbor, parallels of bridge crossing)	MASHUA	TRANSITE	962	12	16	\$ 324,000	1961	85	NO	1	1		1	2	2	5	5	Series A Bond	No	
Aids Street - Salmon Brook Crossing	MASHUA	TRANSITE	760	12	16	\$ 415,000	1961	85	NO	0	1		1	2	2	3	3	Series A Bond	No	
Harbor Avenue (Aids northwly)	MASHUA	CAST IRON UNLINED	480	6	12	\$ 279,000	1888	70	YES	1	1		1	2	2	4	4	Series A Bond	No	
Coburn Woods	MASHUA	POLYBUTYLENE	700	2	4	\$ 274,000	1963	60	NO	31	1		1	2	2	2	4	Series A Bond	No	
Total LF -			14,640			\$ 4,363,600														
Priving from 2014 projects -																				
Valve Replacements ²			8	@	\$ 2,006	\$														
Service Replacements ³			29	@	\$ 2,944	\$														
Hydrant Replacements ⁴			5	@	\$ 5,875	\$														
						Planning Contingency ⁵														
Total Estimated WICA \$ in 2015 -						\$ 5,162,295														
																				\$ 573,500

1. Material integrity - Rating of 1 point for each break in the last 20 years.
2. ISO fire ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.
3. Number of Service, Valve and Hydrant replacements is the average of the past 5 years. The average cost for each replacement type is the average cost for 2014.
4. The City plans to add to its FY14 projects with projected FY15 projects.
5. The City operates on a fiscal year basis between July 1 and June 30 of the following calendar year.
6. PWV must complete replacement of its main when the City replaces its sewer main.
7. A contingency of 10% is carried to account for this.

Pennichuck Water Works, Inc.
Proposed 2016 WICA Water Main Projects
1/9/2015

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	PIPE DIAMETER (INCHES)	PROPOSED NEW PIPE DIAMETER (INCHES)	ESTIMATED COST	AGE OF PIPE	PPE AGE USEFUL LIFE	FULLY DEPRECIATED	BREAK HISTORY	KEY CUSTOMERS	WATER QUALITY	FIRE PROTECTION FLOWS ²	Work coordination with Sewer or Storm Drain Replacement	Subtotal prior to Geographical Area Points	Geographic Points	TOTAL	Funding Source	Included in 2014-2016 WICA projects filed in Dec. 2013	Yes - 2015	Yes - 2016
Vermont Street (Sarasota to Marlette)	MASHUA	CAST IRON UNLINED	698	6	8	\$ 267,000	1913	70	YES	0	1		2		3	2	5		No	Yes - 2015	
Sarasota Avenue (Pine to Verina)	MASHUA	CAST IRON UNLINED	250	6	8	\$ 99,000	1926-1949	70	YES	0	1				1	2	3		No	Yes - 2015	
Temple Street (South St. to Arroyo)	MASHUA	CAST IRON UNLINED	1256	12	8	\$ 472,000	1888	70	YES	0	1	1			2	2	2		No	Yes - 2016	
Temple Street (Arroyo to East Holde)	MASHUA	CAST IRON UNLINED	915	10	12	\$ 348,000	1908	70	YES	0	0				0	0	0		No	No	
Lanwade Avenue (Revere to Stevens)	MASHUA	CAST IRON UNLINED	664	6	8	\$ 207,000	1927	70	YES	1	1	1	2		4	2	6		No	No	
Farmwood Street (Field to Revere)	MASHUA	CAST IRON UNLINED	307	6	8	\$ 100,000	1924	70	YES	0	1		1		1	3	4		Yes - 2015	Yes - 2015	
Field Street (Main to Farmwood)	MASHUA	CAST IRON UNLINED	306	6	8	\$ 117,000	1922	70	YES	0	1		1		1	4	4		Yes - 2015	Yes - 2015	
Foxes Avenue (Main to end)	MASHUA	CAST IRON UNLINED	282	6	8	\$ 125,000	1928	70	YES	0	1		4		4	7	7		Yes - 2015	Yes - 2015	
Pratt St (Main to Zahwood)	MASHUA	CAST IRON UNLINED	464	6	8	\$ 200,000	1908-1933	70	YES	0	1		1		1	2	3		Yes - 2015	Yes - 2015	
Zahwood Avenue (Pratt to Fowell)	MASHUA	CAST IRON UNLINED	367	6	4	\$ 92,000	1933	70	YES	0	1				1	3	4		No	No	
Stevens Street (Lumdale to end)	MASHUA	CAST IRON UNLINED	150	6	4	\$ 61,000	1946	70	YES	0	1				1	2	3		No	No	
Stevens Street (Main to Lumdale)	MASHUA	CAST IRON UNLINED	800	6 & 4	8	\$ 280,000	1896	70	YES	0	1				1	2	3		Combination of 2014 Series A Bond and Future SIF Funding	Yes - 2016	
Revere Avenue (Main to Lumdale)	MASHUA	CAST IRON UNLINED	792	8	8	\$ 250,000	1919-1923	70	YES	1	1	1			3	3	6		No	No	
Fowell Avenue (Main to Lumdale)	MASHUA	CAST IRON UNLINED	799	6	8	\$ 287,000	1921	70	YES	1	1				1	2	3		No	No	
Burnett Street (East Dorsetdale to Rice)	MASHUA	CAST IRON UNLINED	482	6	8	\$ 155,000	1925	70	YES	0	1		1		1	2	3		No	No	
Buchanan Street (Main to Nut)	MASHUA	CAST IRON UNLINED	590	6	8	\$ 143,000	1908	70	YES	0	1		1		1	2	3		No	No	
Faxon Street (Faxon St. to end)	MASHUA	CEMENT LINED STEEL	195	2	4	\$ 34,000	1940	40	YES	1	1				2	2	3		No	No	
Nutt Street (Faxon to Lincoln)	MASHUA	CAST IRON UNLINED	420	4	6	\$ 87,000	1890	40	YES	1	1		1		2	4	4		No	No	
Faxon Street (Main to Nut)	MASHUA	CAST IRON UNLINED	586	6 & 8	8	\$ 128,000	1912	70	YES	1	1		1		2	2	4		No	No	
Lincoln Avenue (Main to Field)	MASHUA	CAST IRON UNLINED	833	6	8	\$ 190,000	1889	70	YES	2	2		1		3	5	5		No	No	
Russell Street (Main to Field)	MASHUA	CAST IRON UNLINED	948	6	8	\$ 233,000	1906	40	YES	0	1		1		1	2	3		No	No	
Circle Avenue (Nut to end)	MASHUA	CEMENT LINED STEEL	164	2	4	\$ 27,000	1930	40	YES	0	0				0	2	2		No	No	
Taylor Street (Main to Lynn)	MASHUA	CAST IRON UNLINED	1639	6 & 8	12	\$ 405,000	1892	70	YES	0	1		2		2	4	4		No	No	
Morton Street (Pratt to Evergreen)	MASHUA	CEMENT LINED STEEL	456	2	4	\$ 116,000	1945	40	YES	0	1				1	2	3		Yes - 2016	Yes - 2015	
Evergreen St (Morton to Stevens)	MASHUA	STEEL	315	2	4	\$ 83,000	1945	40	YES	1	1				1	2	3		Yes - 2015	Yes - 2015	
Colum Woods	MASHUA	Polyethylene	770	2	4	\$ 246,000	1969	40	YES	31	1				31	31	31		No	No	
Total (SF -			15,668			\$ 4,764,000															
Valve Replacements*	5	@	\$	4,571	*	\$	22,855														
Service Replacements*	23	@	\$	2,944	*	\$	67,722														
Hydrant Replacements*	6	@	\$	5,562	*	\$	33,369														
Planning Contingency*						\$	476,400														
Total Estimated WICA \$\$ to 2016 -						\$ 5,366,347															

1. Material quantity - Rating of 1 point for each bank in the last 20 years.
 2. ISO Fire Ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.
 3. Number of Service, Valve and hydrant replacements is the average of the past 5 years. The average cost for each replacement type is the average cost for 2014.
 4. The City typically adds to its FY budget's new projects for the second half of the calendar year with projected next FY projects in July of each year.
 PWW must complete replacement of its mains when the City replaces its sewer mains. A contingency of 10% is carried to account for this.

Pennichuck Water Works, Inc.
Proposed 2017 WICA Water Main Projects
3/6/2015

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	PIPE DIAMETER (INCHES)	PROPOSED NEW		ESTIMATED COST	AGE OF PIPE	PIPE AGE		BREAK HISTORY	KEY CUSTOMERS	WATER QUALITY	FIRE PROTECTION FLOWS ¹	Work coordination with Sewer or Storm Drain Replacement	Subtotal prior to Geographical Area Points	Geographic Points	TOTAL	Funding Source	Included in 2014-2016 WICA projects filed in Dec 2013
					PIPE DIAMETER (INCHES)				USEFUL LIFE	FULLY DEPREC										
Alds St (Harbor to McKean)	NASHUA	CAST IRON UNLINED	1084	8	12	\$	393,000	1974-1930	70	YES	1					1	2	1		No
Worcester Street (Scripture to Shedd)	NASHUA	CAST IRON UNLINED	399	6	8	\$	128,000	1888-1924	70	YES	0	1		2		3	2	5		Yes - 2016
Scripture Street (Temple to Worcester)	NASHUA	CEMENT LINED STEEL	458	6	8	\$	129,000	1924	70	YES	0					0	2	2		No
Shedd Avenue (Scripture to Worcester)	NASHUA	CEMENT LINED STEEL	209	2	4	\$	50,000	1948	40	YES	2	1				3	2	5		Yes - 2016
Proctor Street (Alds to Mullanly)	NASHUA	CAST IRON UNLINED	206	8	8	\$	85,000	1929-1940	70	YES	1		1			2	3	5		Yes 2015
Proctor Street (Mullanly to end)	NASHUA	CEMENT LINED STEEL	116	2	4	\$	37,000	1922-1940	40	YES	1		1			2	2	4		Yes 2015
Mullanly Street (Proctor to end)	NASHUA	CEMENT LINED STEEL	284	2	4	\$	67,000	1940-1954	40	YES	0		1			1	2	3		Yes - 2015
Newbury Street (Underhill to Bowers)	NASHUA	CAST IRON UNLINED	1896	6 & 8	8	\$	608,000	1888-1940	70	YES	1	1				2	2	4		Yes - 2016
Gills Street (Alds to Arlington)	NASHUA	CAST IRON UNLINED	1090	4	8	\$	364,000	1888	40	YES	1	1	3			5	3	8	To Be Determined	Yes - 2016
Thomas Street (Haines to McKean)	NASHUA	CAST IRON UNLINED	449	6	6	\$	184,000	1892-1908	70	YES	1					1	2	3	Combination of future	Yes - 2015
Barker Street (Burke to King)	NASHUA	CAST IRON UNLINED	603	6	6	\$	135,000	1892	70	YES	0					0	2	2	Bond and future SRF	No
Williams Street (Alds to Arlington)	NASHUA	CAST IRON UNLINED	1495	6	8	\$	411,000	1910-1934	70	YES	0					0	3	3	Funding	No
McKean Street (Alds to Arlington)	NASHUA	CAST IRON UNLINED	1714	6	8	\$	478,000	1888	70	YES	2					2	3	5		No
Cherry Street (McKean to end)	NASHUA	CAST IRON UNLINED	236	4	4	\$	51,000	1926	40	YES	0					0	2	2		No
Copp Street (Gills to Bowers)	NASHUA	CAST IRON UNLINED	359	6	8	\$	91,000	1907	70	YES	0					0	2	2		No
Gray Street (Gills to Bowers)	NASHUA	CAST IRON UNLINED	358	6	6	\$	87,000	1907	70	YES	0					0	2	2		No
Arlington Avenue (Gills to end)	NASHUA	CAST IRON UNLINED	200	4	4	\$	41,000	1922	40	YES	0					0	2	2		No
Spaulding Street (Alds to Benson)	NASHUA	CAST IRON UNLINED	920	6	8	\$	244,000	1890-1924	40	YES	0					0	3	3		No
Benson Street (Burke to Spaulding)	NASHUA	CAST IRON UNLINED	630	4	6	\$	144,000	1889-1890	40	YES	0					0	2	2		No
Coburn Woods	NASHUA	Polybutylene	585	2	4	\$	236,000	1969	40	YES	31					31		31		No
			Total LF -	13,311	Total -	\$	3,963,000													
Valve Replacements ¹ -			5	@	\$	4,571	=	\$	22,855											
Service Replacements ² -			23	@	\$	2,944	=	\$	67,722											
Hydrant Replacements ³ -			6	@	\$	5,562	=	\$	33,369											
					Planning Contingency ⁴ -	\$	396,300													
					Total Estimated WICA \$\$ in 2015 -	\$	4,483,247													

1. Material Integrity - Rating of 1 point for each break in the last 20 years.

2. ISO Fire Ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.

3. Number of Service, Valve and hydrant replacements is the average of the past 5 years. The average cost for each replacement types is the average cost for 2014

4. The City typically adds to its FY budgets new projects for the second half of the calendar year with projected next FY projects in July of each year.

PWW must complete replacement of its mains when the City replaces its sewer mains.

A contingency of

10%

is carried to account for this.

WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

In addition to the net charges provided for in this Tariff, a Water Infrastructure and Conservation Adjustment ("WICA") surcharge of ~~1.911.81065%~~ will apply to all bills issued on or after June 1, 2015.

I. General Description

Purpose: To recover the fixed costs (depreciation, property taxes and pre-tax return) of certain Commission-approved non-revenue producing system improvement projects completed and placed in service and to be recorded in the individual accounts, as noted below, between base rate cases. In addition, WICA provides the Company with the resources to accelerate asset replacement for infrastructure for the purpose of improving or protecting water quality and the reliability of service and to comply with evolving regulatory requirements imposed by the Safe Drinking Water Act.

Eligible Property: The WICA-eligible property will consist of the following:

~~services~~ Services (account 333), and hydrants (account 335) installed as in-kind (i.e., same size) replacements for customers;

~~mains~~ Mains and valves (account 331) installed as replacements for existing facilities that have either reached the end of their useful life, are worn out or are in deteriorated condition,

~~main~~ Main cleaning and re-lining projects and relocations that are non-reimbursable (account 331);

~~replacement~~ Replacement of pressure reducing valves (accounts 309, 331);

II. Computation of the WICA '

Calculation: The charge effective for all bills issued on or after June 1, 2015, will be calculated to recover the fixed costs of eligible plant additions ~~not previously reflected~~ ~~previously reflected~~ in the Company's rate base and ~~placed and placed~~ in service between January 1, 2013 and December 31, 2014. Thereafter, the WICA will be updated on an annual basis to reflect eligible plant additions placed in service during the prior calendar year. ~~twelve-month period ending five months prior to the effective date of each WICA update, which will be on May 1.~~ Thus, changes in the WICA rate will occur as follows:

Issued: _____, 2015

Issued by: _____
Donald L. Ware

Effective: _____, 2015

Title: Chief Operating Officer

<u>Effective Date Of WICA WICA Change</u>	<u>Date To Which WICA Eligible Plant Additions Reflected</u>
June 1	December 31

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The fixed costs of eligible infrastructure system improvement projects will consist of depreciation, property taxes and pre-tax return, calculated as follows:

Depreciation: The depreciation expense will be calculated by applying the depreciation rates employed in the Company's last base rate case for the plant accounts to the original cost of WICA-eligible property minus the corresponding retirement unit recorded, and giving consideration for any applicable cost of removal on a project by project basis.

Property Taxes: For the first year that a WICA for any particular project is in effect, the property tax expense will reflect an estimate of the tax expense for such projects based on the tax rate then in effect times the year ending net book value of the eligible WICA infrastructure improvement projects. If such property taxes will be due for only a portion of the calendar year, then the WICA for the first year shall reflect only the property taxes projected to be paid. For the second and subsequent years that a WICA for those projects is in effect, the WICA shall be determined using the property tax rate in effect at the end of the most recent year completed (the "tax rate"), and shall be applied to the cumulative pre-tax effect of the Return on Investment for year ending net book value of all eligible all-WICA projects included from the first year thru the end of the current year, as it relates to the calculation of property tax expense for actual amounts incurred on WICA projects. This tax rate will also be utilized in the calculations of the projected cumulative effect of WICA projects, including projects actually completed in the first year and any subsequent actual years of the projects, and giving cumulative impact for the Return on Investment for three projected years projects, and the related projected project costs and calculated costs of depreciation.

Pre-tax return: The pre-tax return will be calculated using the state and federal income tax rates. The cost of equity and debt will be the rates approved in the Company's last base rate case, DW 10-091, or a subsequent docket.

Issued: _____, 2015

Issued by: _____
Donald L. Ware

Effective: _____, 2015

Title: Chief Operating Officer

WICA Surcharge Amount: The charge will be expressed as a percentage carried to two decimal places and will be applied to the effective portion of the total amount billed to each customer under the Company's otherwise applicable rates and charges.

~~Formula:~~ ~~The Formula~~ The formula for calculation of the WICA surcharge is as follows:

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$$WICA = \frac{(ISI \times PTRR) + Dep + PT}{BRWR}$$

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Where:

ISI = the original cost to the Company of eligible infrastructure system improvement projects ~~less accumulated depreciation~~ ~~-depreciation.~~

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PTRR = the pre-tax return rate applicable to eligible infrastructure system improvement projects.

Dep = annual depreciation expense related to eligible infrastructure system improvement projects.

PT = annual property taxes related to eligible infrastructure system improvement projects.

BRWR = base retail water revenues as approved by the Commission in the Company's last rate proceeding, DW 10-091, or a subsequent docket.

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Annual updates: Supporting data for each annual update will be filed with the Commission and the Office of Consumer Advocate ~~ninety (90) days prior~~ ~~no later than~~ January 31.

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III. Safeguards

Cap: The amount of the WICA applied between general rate case filings shall not exceed seven and one-half percent (7.5%) of the Company's annual retail water revenues as approved in its most recent rate filing, and shall not exceed two percent (2%) of such revenues for any twelve-month period.

Issued: _____, 2015

Issued by: _____

Donald L. Ware

Effective: _____, 2015

Title: Chief Operating Officer

Audits: The WICA will be subject to audit prior to the determination by the Commission.

New Base Rates: The WICA charge will be reset at zero as of the effective date of new base rates that provide for prospective recovery of the annual costs that had theretofore been recovered under the WICA. Thereafter, only the fixed costs of new eligible plant additions that have not previously been reflected in the Company's rate ~~base~~ would be reflected in the annual updates of the WICA.

Customer Notice: At least thirty (30) days in advance of a WICA filing, the Company will notify Customers of the filing by including an explanatory bill insert with the bills. ~~Before sending, the Company will review the notice with the Commission's Consumer Affairs division. Customers shall also be notified of changes in the WICA by including appropriate information with the first bill they receive following any change. inform Customers of the filing by including a message on with the bills. Customers shall be notified of changes in the WICA by including appropriate information with the first bill they receive following any change.~~

Notice of Project Substitution: If, after the Company has received Commission approval for Year 1 projects, because of changed circumstances or significant new information the Company plans to undertake projects in Year 1 that were not included on the list of approved WICA projects for that year or it has decided not to proceed with one or more projects that were included on the Commission-approved list, it shall notify the Commission and all parties to the proceeding in which the list of WICA projects was approved that the Company plans to add to or delete projects and the reason for the proposed changes, in accordance with the following schedule. The Company will submit updates for approved WICA projects for that year, based upon information known on a year-to-date basis, from the beginning of the year through the following effective dates, on the associated reporting dates:

<u>Effective Date</u>	<u>Reporting Date</u>
March 31	April 15
June 30	July 15
September 30	October 15
November 30	December 15

Issued: _____, 2015

Issued by: _____
Donald L. Ware

Effective: _____, 2015

Title: Chief Operating Officer

SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED

Pursuant to N.H. Admin Rule Puc 203.11 (a) (1): Serve an electronic copy on each person identified on the service list.

Executive.Director@puc.nh.gov
achesley@devinemillimet.com
amanda.noonan@puc.nh.gov
carolann.howe@pennichuck.com
donald.ware@pennichuck.com
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FILING INSTRUCTIONS:

- a) **Pursuant to N.H. Admin Rule Puc 203.02 (a), with the exception of Discovery, file 7 copies, as well as an electronic copy, of all documents including cover letter with:**
- DEBRA A HOWLAND
EXECUTIVE DIRECTOR
NHPUC
21 S. FRUIT ST, SUITE 10
CONCORD NH 03301-2429
- b) **Serve an electronic copy with each person identified on the Commission's service list and with the Office of Consumer Advocate.**
- c) **Serve a written copy on each person on the service list not able to receive electronic mail.**