

THE STATE OF NEW HAMPSHIRE



CHAIRMAN  
Martin P. Honigberg

COMMISSIONERS  
Robert R. Scott  
Kathryn M. Bailey

EXECUTIVE DIRECTOR  
Debra A. Howland

TDD Access: Relay NH  
1-800-735-2964

Tel. (603) 271-2431

FAX (603) 271-3878

Website:  
[www.puc.nh.gov](http://www.puc.nh.gov)

**PUBLIC UTILITIES COMMISSION**  
21 S. Fruit Street, Suite 10  
Concord, N.H. 03301-2429

NHPUC 19DEC16 9:51

December 19, 2016

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

Re: DW 16-828, Aquarion Water Company of New Hampshire, Inc.  
Water Infrastructure and Conservation Adjustment (WICA)  
2017-19 Capital Projects and 2017 WICA Surcharge  
Staff Recommendation for Approval

Dear Ms. Howland:

On October 13, 2016, Aquarion Water Company of New Hampshire, Inc. (Aquarion), filed a petition for approval of its 2017 WICA surcharge and its 2017-19 capital projects under its WICA tariff provisions. Accompanying the petition was the testimony of Carl McMorran, Operations Manager, and Troy M. Dixon, Director of Rates and Regulation of Aquarion Water Company of Connecticut, Inc., an affiliate of Aquarion. Aquarion seeks approval of a 2017 WICA surcharge of 5.72%, based on its completed 2013, 2014, 2015 and 2016 WICA capital projects, said surcharge to be effective for service rendered on and after January 1, 2017. Aquarion also requests approval of its planned 2017 capital expenditures, estimated to cost within a range of approximately \$360,000 to \$523,500. Aquarion further seeks preliminary approval of its planned 2018 projects in the cost range of between \$340,000 and \$503,500. Aquarion also submitted its preliminary budget for its 2019 WICA projects, for informational purposes. The specific water main replacement projects for these three years, as well as the other WICA capital investments, are all detailed in Attachment CM-1 to Mr. McMorran's testimony.

The Commission originally approved the WICA as a pilot program in Docket No. DW 08-098. The WICA was continued as a pilot program by the Commission in Aquarion's most recent rate case, DW 12-085. A settlement agreement between Aquarion, Staff, and the Office of the Consumer Advocate (OCA) in that docket provided for modifications to the WICA program by, among other things, excluding customer

meters from WICA-eligible improvements, and requiring the company to provide an updated main replacement prioritization analysis and updated infrastructure inventory in its annual WICA filing. Order No. 25,539 (June 28, 2013).

Upon receipt of Aquarion's filing and in accordance with the procedure approved by the Commission in Docket No. DW 08-098, Staff contacted the parties to both DW 08-098 and DW 12-085 including OCA, the North Hampton Water Commission, and the Towns of Hampton, North Hampton and Rye, to establish a timeframe to review the filing and submit recommendations to the Commission. Staff and the Town of Hampton conducted discovery, and Staff, the North Hampton Water Commission, the Town of Hampton and Aquarion met in a technical session on December 12, 2016, to review and discuss the filing and Aquarion's discovery responses.

On December 13, 2016, Jayson P. Laflamme, Utility Analyst for the Commission's Gas & Water Division, prepared a memorandum summarizing his review of Aquarion's proposed 2017 WICA surcharge. Mr. Laflamme reviewed the calculation of the proposed surcharge of 5.72%, which is based on total completed WICA investment of \$3,001,753 for the four program years 2013-16. Mr. Laflamme reviewed the Staff Audit Report relating to documentation of the completed 2016 WICA projects, and he incorporated adjustments recommended in that report in his calculation of the WICA surcharge. Based on those adjustments, the recommended WICA surcharge for 2017 is 5.69%. Aquarion is in agreement with the adjustments and the revised surcharge percentage. Mr. Laflamme's memorandum is attached to this letter.

Also on December 13, 2016, Staff received a memorandum from Douglas W. Brogan, a consulting engineer for Staff that provides the details of his review of the completed 2016 WICA projects. He further comments on Aquarion's proposed WICA projects for 2017 and 2018. Mr. Brogan concludes that the company's 2016 WICA capital investments are used and useful and were prudently-incurred. He further recommends approval of Aquarion's WICA budgets for 2017 and 2018. Mr. Brogan's memorandum is attached to this letter.

Based on its review, Staff recommends that the Commission approve the revised 2017 WICA surcharge of 5.69% effective for service on and after January 1, 2017, consistent with Aquarion's WICA tariff provision. Staff further recommends the Commission approve Aquarion's 2017 WICA project list and provide its preliminary approval of the 2018 projects. For informational purposes, using the high end of the estimated range of proposed 2017 WICA spending, or \$523,500 (see Company's response to Staff data request 1-10 Attachment C-Attachment TD-3, page 1 of 9), the WICA surcharge would be 6.68%, for service rendered on and after January 1, 2018.

If there is anything further I can provide, please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark A. Naylor". The signature is written in a cursive style with a large initial "M".

Mark A. Naylor  
Director, Gas & Water Division

**Attachments:**

Jayson P. Laflamme memorandum  
Douglas W. Brogan memorandum  
Staff Audit Report

cc: Service List

**SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED**

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**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  
amanda.noonan@puc.nh.gov  
jayson.laflamme@puc.nh.gov  
john.clifford@puc.nh.gov  
mab@nhbrownlaw.com  
mark.naylor@puc.nh.gov  
mgearreald@town.hampton.nh.us  
mmagnant@town.rye.nh.us  
ocalitigation@oca.nh.gov  
papple@northhampton-nh.gov  
rlandman@hlinstruments.com  
steve.frink@puc.nh.gov

Docket #: 16-828-1      Printed: December 19, 2016

**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.

# STATE OF NEW HAMPSHIRE

## Inter-Department Communication

**DATE:** December 13, 2016  
**AT (OFFICE):** NHPUC

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

**SUBJECT:** DW 16-828, Aquarion Water Company of New Hampshire, Inc.  
2017 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 16-828, the petition of Aquarion Water Company of New Hampshire, Inc. (Aquarion) relative to its 2017 Water Infrastructure and Conservation Adjustment (WICA) filing. Aquarion's petition, submitted in accordance with its WICA tariff provisions, requested approval of a WICA surcharge of 5.72% for effect as of January 1, 2017, on a service-rendered basis, as well as final approval of proposed projects for 2017 to be eligible for recovery through the WICA surcharge mechanism in 2018, and preliminary approval of proposed projects for 2018. Aquarion also provided a preliminary proposal of 2019 projects for informational purposes, only. Aquarion's petition was accompanied by the direct testimonies of Carl McMorran, Operations Manager for Aquarion, and Troy M. Dixon, Director of Rates and Regulation of Aquarion Water Company of Connecticut, Inc. After reviewing Aquarion's filing in this case and other associated information, I am recommending approval of a WICA surcharge of 5.69% for effect as of January 1, 2017. An explanation for the basis of my recommendation follows.

My review focused primarily on Aquarion's calculation of the proposed WICA surcharge for 2017 as described in Mr. Dixon's testimony. My review included the gathering and analysis of additional information from Aquarion, through formal and informal data requests, and specifically, Aquarion's response to Staff data request 1-10. A copy of Aquarion's initial response as well as its supplemental response to that data request is attached to this recommendation. I also reviewed the recommendations contained in a Staff Audit Report dated November 3, 2016 relative to an examination of the underlying costs associated with Aquarion's 2016 WICA projects which form the basis for the 2017 WICA surcharge. A copy of that Final Audit Report is also attached to this recommendation.

Aquarion's original filing proposed a total of \$929,592 in 2016 project costs, comprised of the following:

Main Replacement: Lafayette Road – Park Ave to Winnacunnet Rd	\$556,619
Main Replacement: Manchester Street – off Ashworth Ave	187,725
Main Replacement: Sunsurf Avenue – off Cliff Ave	149,120
Hydrants	3,618
Services	31,936
Valves	573
Total	<u>\$929,592</u>

The adjustments indicated in the Final Audit Report have been incorporated into the determination of the 5.69% revised 2017 WICA surcharge which I am recommending for approval. These adjustments include a reduction of \$1,078 relative to the costs associated with the Lafayette Road project from \$556,619 to \$555,541, as well as a \$13,488 reduction in the Sunsurf Avenue project cost from \$149,120 to \$135,632. The total reduction in project costs is \$14,566, resulting in a revised total cost for the 2016 WICA projects of \$915,025, as follows:

Main Replacement: Lafayette Road – Park Ave to Winnacunnet Rd	\$555,541
Main Replacement: Manchester Street – off Ashworth Ave	187,725
Main Replacement: Sunsurf Avenue – off Cliff Ave	135,632
Hydrants	3,618
Services	31,936
Valves	<u>573</u>
Total	<u>\$915,025</u>

Based on the project cost adjustments stemming from the audit, the Company provided a revised calculation of its proposed 2017 WICA surcharge in its response to Staff 1-10, resulting in a proposed WICA surcharge for 2017 of 5.69%. The revised 2017 surcharge is estimated to result in a total WICA surcharge of \$2.42 on the monthly bills of Aquarion’s average, single-family residential customers, based on an average usage of 5.94 hundred cubic feet per month. This represents an estimated monthly increase of \$0.72 in the average WICA surcharge over that for 2016.

In conclusion, I recommend approval of the proposed, revised WICA surcharge for 2017 of 5.69%. This amount has been shown to be adequately supported through Staff discovery as well as the Audit Staff’s examination. I believe that the proposed calculation of the 2017 surcharge will result in just and reasonable rates for both Aquarion and its customers.

DW 16-828  
AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.  
WICA FILING  
STAFF DATA REQUESTS – SET 1

Date Request Received: November 3, 2016  
Request No.: Staff 1-10

Date of Response: November 10, 2016  
Witness: Troy Dixon

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**REQUEST: Re: Staff Audit Report dated November 3, 2016; Page 5; Summary:** Based on the Staff Audit Report, it appears that the total cost of the 2016 projects upon which the proposed 2017 WICA surcharge is based is now \$915,024, instead of \$929,592 as reflected in the Company's filing.

Please provide updated Testimony Attachments TD-1, TD-2 and TD-3 which reflect the changes in the total cost of the 2016 projects as indicated in the Staff Audit Report.

**RESPONSE:** Please refer to Staff 1-10 Attachments A-C for updates to TD-1, TD-2 and TD-3 to include adjustments from the Final Audit Report and adjustment of the mil rate from Staff 1-9.

**Aquarion Water Company of New Hampshire**  
**2017 Annual WICA Surcharge Filing**

**WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT  
 CALCULATION OF SURCHARGE**

Line					<u>Schedule Ref.</u>	
1						
2	Total Investment through 09/30/2016				TD-1, Pg 3 Col 6b Ln 41	\$ 2,987,186
3						
4	Accumulated Depreciation				TD-1, Pg 3 Col 8a Ln 41	(68,781)
5						
6	Net Investment				Ln 2 + Ln 4	<u>\$ 2,918,405</u>
7						
8	Allowed Return on Rate Base				TD-1, Pg 2 Col 10	<u>7.49%</u>
9						
10	Allowed Return on Investment				Ln 6 x Ln 8	\$ 218,589
11						
12	Income Tax on Equity Component					
13						
14		(a)	(b)	(c)	(d)	
15		Weighted	Tax	Pre tax	Tax Gross Up	
16		Cost	Multiplier	Cost	Col (c) - Col (a)	
17						
18	Debt	3.58%	1.00	3.58%	0.00%	
19	Equity	<u>3.91%</u>	1.68	<u>6.57%</u>	<u>2.66%</u>	
20						
21		7.49%		10.15%	2.66%	
22						
23	Total Eligible Investment (Line 6 above)				\$	2,918,405
24						
25						
26	Income Tax Expense				Ln 21 Col D X Ln 23	77,630
27						
28	Depreciation Expense				TD-1, Pg 3 Col 8 Ln 41	36,035
29						
30	Property Tax Expense				TD-1, Pg 3 Col 10 Ln 41	62,559
31						
32	Adjustment: Annual Revenues Allowed				Lines 10 + 26 + 28 + 30	<u>\$ 394,813</u>
33						
34						
35	Base Revenues on which Adjustment will be applied					
36	Revenues allowed DW 12-085				\$	7,129,043
37	Misc. Charges not subject to WICA					<u>(189,059)</u>
38					\$	<u>6,939,984</u>
39						
40	Surcharge Percent (Line 32 divided by Line 38)					5.69%



Aquarion Water Company of New Hampshire  
 2017 Annual WICA Surcharge Filing

WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT  
 ELIGIBLE PROJECTS PLACED IN SERVICE

Line	Description of Project	Street	Town	1 FUC Acct	2 Depr Rate	3 Type of Project**	4 Date in Service	5 Date of 1st Filing	6a Total Capital Costs	6b Eligible Capital Costs	7a Total Retirements	7b Eligible Retirements	8 = (6b - 7b) x 2 Depreciation Expense	8a = 8 x 50% Accumulated Depreciation	9 MI Rates Town State Total	10 = ((6a-8a)/1000) Prop. Tax Expense
<b>Project Surcharge Approved in DW 13-314</b>																
4	Production Meters	Rye		328	4.00%	Other Pumping	9/30/2013	10/31/2013	\$ 3,432	\$ 3,432	\$ 3,033	\$ 3,033	\$ 18	\$ 61	6.44 6.80 15.04	\$ 51
5	Production Meters	North Hampton		328	4.00%	Other Pumping	9/30/2013	10/31/2013	\$ 4,511	\$ 4,511	\$ 2,331	\$ 2,331	\$ 86	\$ 396	15.01 6.80 21.81	\$ 90
6	Production Meters	Hampton		328	4.00%	Other Pumping	9/30/2013	10/31/2013	\$ 5,522	\$ 5,522	\$ -	\$ -	\$ 375	\$ 1,312	16.87 6.80 23.27	\$ 168
7	Church Street-Highland Avenue to Williams Street	Hampton		343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 133,335	\$ 133,335	\$ 6,243	\$ 6,243	\$ 1,525	\$ 5,336	16.87 6.80 23.27	\$ 2,976
8	Auburn Avenue	Hampton		343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 206,750	\$ 206,750	\$ 10,348	\$ 10,348	\$ 2,357	\$ 8,249	16.87 6.80 23.27	\$ 4,819
9	Auburn Avenue Extension	Hampton		343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 85,554	\$ 85,554	\$ 359	\$ 359	\$ 1,022	\$ 3,578	16.87 6.80 23.27	\$ 1,908
10	Ferkins Avenue	Hampton		343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 284,216	\$ 284,216	\$ 1,760	\$ 1,790	\$ 3,149	\$ 11,023	16.87 6.80 23.27	\$ 5,882
11	Hydrants*	Hampton		348	2.40%	Hydrants	9/30/2013	10/31/2013	\$ 22,839	\$ 8,147	\$ 2,498	\$ 891	\$ 174	\$ 810	16.87 6.80 23.27	\$ 175
12	Services*	Hampton		345	1.85%	Services	9/30/2013	10/31/2013	\$ 33,841	\$ 12,108	\$ 1,894	\$ 711	\$ 211	\$ 738	16.87 6.80 23.27	\$ 268
13	Services*	Rye		345	1.85%	Services	9/30/2013	10/31/2013	\$ 4,494	\$ 2,308	\$ 230	\$ 82	\$ 41	\$ 144	6.44 6.80 15.04	\$ 33
14	Valves*	Hampton		349	5.00%	Other T&D Plant	9/30/2013	10/31/2013	\$ 6,351	\$ 2,265	\$ -	\$ -	\$ 113	\$ 398	16.87 6.80 23.27	\$ 43
15	Valves*	North Hampton		349	5.00%	Other T&D Plant	9/30/2013	10/31/2013	\$ 8,133	\$ 2,801	\$ -	\$ -	\$ 145	\$ 508	15.01 6.80 21.81	\$ 52
									\$ 784,050	\$ 734,050	\$ 28,784	\$ 25,757	\$ 9,227	\$ 32,284		\$ 16,273
<b>Project Surcharge Approved in DW 14-309</b>																
18	Production Meters	Hampton		328	4.00%	Other Pumping	9/30/2014	10/31/2014	\$ 3,044	\$ 3,044	\$ 264	\$ 264	\$ 122	\$ 308	16.87 6.80 23.27	\$ 64
20	Well # Transambion Main	Hampton		343	1.20%	Main Replacement	9/30/2014	10/31/2014	\$ 57,506	\$ 57,506	\$ 3,180	\$ 3,180	\$ 652	\$ 1,630	16.87 6.80 23.27	\$ 1,300
21	Ocean Boulevard- Dumas Ave to Wincunnet Rd	Hampton		343	1.20%	Main Replacement	9/30/2014	10/31/2014	\$ 536,096	\$ 536,096	\$ 6,801	\$ 6,801	\$ 6,352	\$ 15,479	16.87 6.80 23.27	\$ 12,105
									\$ 596,646	\$ 596,646	\$ 10,225	\$ 10,225	\$ 7,126	\$ 17,615		\$ 13,469
<b>Project Surcharge Approved in DW 15-474</b>																
24	Great Bears Head - Cliff Circle to Ocean Blvd	Hampton		343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 169,733	\$ 169,733	\$ 551	\$ 551	\$ 2,030	\$ 3,045	16.87 6.80 23.27	\$ 3,876
25	Kings Hwy - 11th, 13th, 14th & 15th St	Hampton		343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 385,374	\$ 385,374	\$ 2,324	\$ 2,324	\$ 4,587	\$ 6,885	16.87 6.80 23.27	\$ 6,807
27	Ross Avenue	Hampton		343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 188,358	\$ 188,358	\$ 2,637	\$ 2,637	\$ 2,205	\$ 3,307	16.87 6.80 23.27	\$ 4,260
									\$ 741,465	\$ 741,465	\$ 5,512	\$ 5,512	\$ 8,831	\$ 13,247		\$ 16,948
<b>Project Surcharge Proposed Herein</b>																
31	Lafayette Road - Park Ave to Wincunnet Rd	Hampton		343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 555,541	\$ 555,541	\$ 7,581	\$ 7,581	\$ 6,576	\$ 3,288	16.87 6.80 23.27	\$ 9,636
32	Manchester St- off Ashworth Ave	Hampton		343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 187,725	\$ 187,725	\$ 1,810	\$ 1,810	\$ 2,231	\$ 1,115	16.87 6.80 23.27	\$ 3,257
33	Dunbart Ave- off Cliff Ave	Hampton		343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 135,632	\$ 135,632	\$ 739	\$ 739	\$ 1,819	\$ 808	16.87 6.80 23.27	\$ 2,353
34	Hydrants*	Hampton		348	2.40%	Hydrants	9/30/2016	10/31/2016	\$ 5,488	\$ 2,501	\$ 708	\$ 267	\$ 48	\$ 24	16.87 6.80 23.27	\$ 40
35	Hydrants*	North Hampton		348	2.40%	Hydrants	9/30/2016	10/31/2016	\$ 3,140	\$ 1,317	\$ 1,036	\$ 435	\$ 21	\$ 11	15.01 6.80 21.81	\$ 21
36	Services*	Hampton		345	1.85%	Services	9/30/2016	10/31/2016	\$ 71,364	\$ 28,935	\$ 31,890	\$ 13,422	\$ 305	\$ 153	16.87 6.80 23.27	\$ 250
37	Services*	North Hampton		345	1.85%	Services	9/30/2016	10/31/2016	\$ 4,770	\$ 2,001	\$ 1,997	\$ 828	\$ 22	\$ 11	15.01 6.80 21.81	\$ 32
38	Valves*	Hampton		349	5.00%	Other T&D Plant	9/30/2016	10/31/2016	\$ 1,367	\$ 573	\$ -	\$ -	\$ 29	\$ 34	16.87 6.80 23.27	\$ 10
									\$ 995,025	\$ 815,025	\$ 43,850	\$ 25,102	\$ 10,850	\$ 5,475		\$ 15,671
<b>TOTALS</b>									\$ 3,097,166	\$ 2,897,188	\$ 90,381	\$ 69,580	\$ 36,035	\$ 68,781		\$ 82,559

\*Total capital costs are reduced by \$50,000 proportionately per Order No. 25,639. Retirements are also proportionately reduced.  
 \*\* Type of Project (designations will be given for various types of projects)

NHPUC No. 1 – Water

~~Eighth-Ninth~~ Revised Page 16

Aquarion Water Company of New Hampshire Superseding ~~Seventh-Eighth~~ Revised Page 16

**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 ~~3.995.69%~~ will apply to all bills with services rendered on or after January 1, 201~~6~~7.

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 over and above an annual; \$50,000 threshold (account 333) and hydrants (account 335) installed as in-kind (i.e., same size) replacements for customers;

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

replacement of production meters (account 304 ); and

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

II. Computation of the WICA

Calculation: The initial charge, effective January 1, 2011, will be calculated to recover the fixed costs of eligible plant additions that have not previously been reflected in the Company's rate base and will have been placed in service between January 1, 2010 and September 30, 2010. Thereafter, the WICA will be updated on an annual basis to reflect eligible plant additions placed in service during the twelve month period ending three months prior to the effective date of each WICA update (the “Project Year”). Thus, changes in the WICA rate will occur as follows:

Issued: January 1, 201~~7~~6

Issued by: \_\_\_\_\_  
Donald Morrissey

Effective: January 1, 201~~7~~6

Title: Chief Financial Officer \_\_\_\_\_

As authorized by in Order No. \_\_\_\_\_ 25,857-in Docket No. DW 16- \_\_\_\_\_ Case DW 15-476

NHPUC No. 1 – Water  
Aquarion Water Company of New Hampshire

Fourth Revised Page 17  
Superseding Third Revised Page 17

Effective Date  
Of WICA Change

Date To Which WICA  
Eligible  
Plant Additions Reflected

January 1, 2XXX+1

September 30, 2XXX

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.

Property Taxes: The property tax expense will reflect an estimate of the tax expense for such projects based on the property tax rate in effect for each town at the end of the most recent Project Year completed (the "tax rate"), and shall be applied to the cumulative Project Year ending net book value of all eligible WICA projects included from the first Project Year thru the end of the most recent Project Year..

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 08-098, or a subsequent docket.

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 for calculation of the WICA surcharge is as follows:

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

Where:

Issued: January 1, 2016

Issued by: \_\_\_\_\_  
Donald Morrissey

Effective: January 1, 2016  
Officer \_\_\_\_\_

Title: Chief Financial

As authorized by in Order No. 25,857XX,XXX in Case Docket No. DW 156-476  
XXX

NHPUC No. 1 – Water  
Aquarion Water Company of New Hampshire

Third Revised Page 18  
Superseding Second Revised Page 18

- ISI= the original cost to the Company of eligible infrastructure system improvement projects, less accumulated depreciation.
- 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 08-098, or a subsequent docket.

Annual updates: Supporting data for each annual update will be filed with the Commission and the Office of Consumer Advocate sixty (60) days prior to the effective date of the update. The Company shall also provide notice to the Towns.

### 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 five percent (5%) of such revenues for any twelve-month period.

Project Changes: 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 promptly 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 subsequent project years, based upon information known on a project year-to-date basis, from the beginning of the project year through the following effective dates, on the associated reporting dates:

| Issued: January 1, 2016~~7~~

Issued by: \_\_\_\_\_  
Donald Morrissey

| Effective: January 1, 2016~~7~~  
Officer \_\_\_\_\_

Title: Chief Financial

| As authorized by ~~in~~ Order No. XX,XXX25,857 in Case DW 16~~5~~-XXX476

NHPUC No. 1 – Water  
Aquarion Water Company of New Hampshire

First Revised Page 18-A  
Original Page 18-A

Effective Date

Reporting Date

December 31  
March 31  
June 30  
September 30

January 15  
April 15  
July 15  
October 15

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: Customers shall be notified of changes in the WICA by including appropriate information on the first bill they receive following any change. An explanatory bill insert shall also be included with the first billing. Before sending, the Company will review the notice with the Commission's Consumer Affairs division.

| Issued: January 1, 2016~~7~~

Issued by: \_\_\_\_\_  
Donald Morrissey

| Effective: January 1, 2016~~7~~  
Officer

Title: Chief Financial

| As authorized by in Order No. XX,XXX25,857 in Case DW 16~~5~~-XXX476

**Aquarion Water Company of New Hampshire  
 2018 Annual WICA Surcharge Filing (2016 Estimate)**

**WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT  
 CALCULATION OF SURCHARGE**

Line		<u>Schedule Ref.</u>	
1			
2	Total Investment through 09/30/2018	2018 3 Col 6b Ln 39	\$ 3,510,686
3			
4	Accumulated Depreciation	2018 3 Col 8a Ln 39	(107,963)
5			
6	Net Investment	Ln 2 + Ln 4	<u>\$ 3,402,723</u>
7			
8	Allowed Return on Rate Base	2018 2 Col 10	<u>7.49%</u>
9			
10	Allowed Return on Investment	Ln 6 x Ln 8	\$ 254,864
11			
12	Income Tax on Equity Component		
13			
14			
15			
16			
17			
18	Debt		
19	Equity		
20			
21			
22			
23	Total Eligible Investment (Line 6 above)		\$ 3,402,723
24			
25			
26	Income Tax Expense	Ln 21 Col D X Ln 23	90,512
27			
28	Depreciation Expense	2018 3 Col 8 Ln 39	42,330
29			
30	Property Tax Expense	2018 3 Col 10 Ln 39	76,097
31			
32	Adjustment: Annual Revenues Allowed	Lines 10 + 26 + 28 + 30	<u>\$ 463,803</u>
33			
34			
35	Base Revenues on which Adjustment will be applied		
36	Revenues allowed DW 12-085		\$ 7,129,043
37	Misc. Charges not subject to WICA		(189,059)
38			<u>\$ 6,939,984</u>
39			
40	Surcharge Percent (Line 32 divided by Line 38)		6.68%

**Aquarion Water Company of New Hampshire**  
**2018 Annual WICA Surcharge Filing (2016 Estimate)**

**WATER INFRASTRUCTURE & CONSERVATION ADJUSTMENT  
 COMPLETED PROJECTS**

Line	Project Name or Class Category	1	2	3	4	5	6	7	8	9	10	11	12 = ((4-5) x 10) + 7 + 8 + 9 WICA Adjustment Dollars
		Estimated Completion Date**	Actual Completion Date	Estimated Project Cost**	Actual Project Cost	Accumulated Depreciation	Project Cost minus Accumulated Depreciation	Depreciation Expense	Property Tax Expense	Income Tax Expense	Rate of Return	Annual Retail Revenues	
1													
2	<b>2013 Projects</b>												
3	Production Meters	30-Sep-13	30-Sep-13	\$ 18,050	\$ 16,466	\$ 2,198	\$ 14,268	\$ 488	\$ 298	\$ 380	7.49%	\$ 7,129,043	2,234
4	Main Replacements	30-Sep-13	30-Sep-13	\$ -	\$ 699,858	\$ 38,242	\$ 653,614	\$ 8,054	\$ 16,210	\$ 17,386	7.49%	\$ 7,129,043	89,615
5	Hydrants*	30-Sep-13	30-Sep-13	\$ 32,700	\$ 8,147	\$ 784	\$ 7,364	\$ 174	\$ 171	\$ 186	7.49%	\$ 7,129,043	1,093
6	Services*	30-Sep-13	30-Sep-13	\$ 80,600	\$ 14,414	\$ 1,134	\$ 13,280	\$ 252	\$ 292	\$ 353	7.49%	\$ 7,129,043	1,801
7	Valves*	30-Sep-13	30-Sep-13	\$ 10,800	\$ 5,167	\$ 1,183	\$ 4,004	\$ 258	\$ 89	\$ 107	7.49%	\$ 7,129,043	754
8				\$ 142,150	\$ 734,050	\$ 41,520	\$ 692,530	\$ 9,227	\$ 16,060	\$ 18,421			95,578
9													
10	<b>2014 Projects</b>												
11	Production Meters	30-Sep-14	30-Sep-14	\$ 1,600	\$ 3,044	\$ 428	\$ 2,616	\$ 122	\$ 81	\$ 70	7.49%	\$ 7,129,043	449
12	Main Replacements	30-Sep-14	30-Sep-14	\$ 937,988	\$ 593,863	\$ 24,513	\$ 569,090	\$ 7,004	\$ 13,243	\$ 15,138	7.49%	\$ 7,129,043	76,009
13				\$ 939,588	\$ 596,846	\$ 24,941	\$ 571,705	\$ 7,126	\$ 13,304	\$ 15,207			78,458
14													
15	<b>2015 Projects</b>												
16	Main Replacements	30-Sep-15	30-Sep-15	\$ 741,465	\$ 741,465	\$ 22,079	\$ 719,386	\$ 8,831	\$ 16,740	\$ 19,136	7.49%	\$ 7,129,043	98,690
17				\$ 741,465	\$ 741,465	\$ 22,079	\$ 719,386	\$ 8,831	\$ 16,740	\$ 19,136			98,689
18													
19	<b>2016 Projects</b>												
20	Main Replacements	30-Sep-16	30-Sep-16	\$ 798,000	\$ 878,868	\$ 15,038	\$ 863,260	\$ 10,425	\$ 20,088	\$ 22,963	7.49%	\$ 7,129,043	118,134
21	Hydrants*	30-Sep-16	30-Sep-16	\$ 12,000	\$ 3,618	\$ 104	\$ 3,514	\$ 89	\$ 80	\$ 83	7.49%	\$ 7,129,043	506
22	Services*	30-Sep-16	30-Sep-16	\$ 29,000	\$ 31,936	\$ 491	\$ 31,445	\$ 327	\$ 732	\$ 836	7.49%	\$ 7,129,043	4,250
23	Valves*	30-Sep-16	30-Sep-16	\$ 5,000	\$ 573	\$ 43	\$ 530	\$ 29	\$ 12	\$ 14	7.49%	\$ 7,129,043	95
24				\$ 812,000	\$ 915,025	\$ 16,276	\$ 898,750	\$ 10,850	\$ 20,912	\$ 23,907			122,985
25													
26	<b>2017 Projects</b>												
27	Production Meters	30-Sep-17	30-Sep-17	\$ 7,000	\$ 3,500	\$ 70	\$ 3,430	\$ 141	\$ 80	\$ 91	7.49%	\$ 7,129,043	549
28	Main Replacements	30-Sep-17	30-Sep-17	\$ 520,000	\$ 520,000	\$ 3,078	\$ 516,922	\$ 6,155	\$ 9,022	\$ 13,750	7.49%	\$ 7,129,043	67,644
29				\$ 527,000	\$ 523,500	\$ 3,148	\$ 520,352	\$ 6,296	\$ 9,081	\$ 13,841			68,193
30													
31	<b>TOTALS</b>			\$ 3,182,163	\$ 3,510,688	\$ 107,993	\$ 3,402,723	\$ 42,330	\$ 76,097	\$ 80,512			\$ 463,803

\* Emergency Replacement  
 \*\* Par Docket Filing DW 14-300



**Aquarion Water Company of New Hampshire**  
**2019 Annual WICA Surcharge Filing (2016 Estimate)**

**WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT  
 CALCULATION OF SURCHARGE**

Line		<u>Schedule Ref.</u>	
1			
2	Total Investment through 09/30/2019	2019 3 Col 6b Ln 44	\$ 4,014,186
3			
4	Accumulated Depreciation	2019 3 Col 8a Ln 44	(153,323)
5			
6	Net Investment	Ln 2 + Ln 4	<u>\$ 3,860,863</u>
7			
8	Allowed Return on Rate Base	2019 2 Col 10	<u>7.49%</u>
9			
10	Allowed Return on Investment	Ln 6 x Ln 8	\$ 289,179
11			
12	Income Tax on Equity Component		
13			
14			
15		(a)	(b)
16		Weighted	Tax
17		Cost	Multiplier
18	Debt	3.58%	1.00
19	Equity	<u>3.91%</u>	1.68
20			
21		7.49%	10.15%
22			
23	Total Eligible Investment (Line 6 above)		\$ 3,860,863
24			
25			
26	Income Tax Expense	Ln 21 Col D X Ln 23	102,699
27			
28	Depreciation Expense	2019 3 Col 8 Ln 44	48,389
29			
30	Property Tax Expense	2019 3 Col 10 Ln 44	86,874
31			
32	Adjustment: Annual Revenues Allowed	Lines 10 + 26 + 28 + 30	<u>\$ 527,141</u>
33			
34			
35	Base Revenues on which Adjustment will be applied		
36	Revenues allowed DW 12-085		\$ 7,129,043
37	Misc. Charges not subject to WICA		<u>(189,059)</u>
38			<u>\$ 6,939,984</u>
39			
40	Surcharge Percent (Line 32 divided by Line 38)		7.60%

Aquarion Water Company of New Hampshire  
 2019 Annual WICA Surcharge Filing (2016 Estimate)

WATER INFRASTRUCTURE & CONSERVATION ADJUSTMENT  
 COMPLETED PROJECTS

Line	Project Name or Class Category	1	2	3	4	5	6	7	8	9	10	11	12 = ((4-5) x 10) + 7 + 8 + 9 WICA Adjustment Dollars
		Estimated Completion Date**	Actual Completion Date	Estimated Project Cost**	Actual Project Cost	Accumulated Depreciation	Project Cost minus Accumulated Depreciation	Depreciation Expense	Property Tax Expense	Income Tax Expense	Rate of Return	Annual Retail Revenues	
2	<b>2013 Projects</b>												
3	Production Meters	30-Sep-13	30-Sep-13	\$ 18,030	\$ 16,466	\$ 2,687	\$ 13,779	\$ 488	\$ 287	\$ 367	7.49%	\$ 7,129,043	2,174
4	Main Replacements	30-Sep-13	30-Sep-13	-	\$ 689,856	\$ 44,266	\$ 645,560	\$ 8,054	\$ 15,022	\$ 17,172	7.49%	\$ 7,129,043	68,600
5	Hydrants*	30-Sep-13	30-Sep-13	\$ 32,700	\$ 8,147	\$ 958	\$ 7,189	\$ 174	\$ 167	\$ 191	7.49%	\$ 7,129,043	1,071
6	Services*	30-Sep-13	30-Sep-13	\$ 80,600	\$ 14,414	\$ 1,386	\$ 13,028	\$ 252	\$ 286	\$ 347	7.49%	\$ 7,129,043	1,860
7	Valves*	30-Sep-13	30-Sep-13	\$ 10,600	\$ 5,167	\$ 1,421	\$ 3,746	\$ 258	\$ 84	\$ 100	7.49%	\$ 7,129,043	722
				\$ 142,130	\$ 734,050	\$ 50,747	\$ 683,303	\$ 9,227	\$ 15,846	\$ 18,176			94,428
10	<b>2014 Projects</b>												
11	Production Meters	30-Sep-14	30-Sep-14	\$ 1,600	\$ 3,044	\$ 551	\$ 2,493	\$ 122	\$ 58	\$ 66	7.49%	\$ 7,129,043	433
12	Main Replacements	30-Sep-14	30-Sep-14	\$ 937,968	\$ 593,603	\$ 31,517	\$ 562,086	\$ 7,004	\$ 13,080	\$ 14,851	7.49%	\$ 7,129,043	77,135
				\$ 939,568	\$ 596,646	\$ 32,067	\$ 564,579	\$ 7,126	\$ 13,138	\$ 15,018			77,569
15	<b>2015 Projects</b>												
16	Main Replacements	30-Sep-15	30-Sep-15	\$ 741,465	\$ 741,465	\$ 30,910	\$ 710,555	\$ 8,831	\$ 16,535	\$ 18,001	7.49%	\$ 7,129,043	87,487
				\$ 741,465	\$ 741,465	\$ 30,910	\$ 710,555	\$ 8,831	\$ 16,535	\$ 18,001			87,487
19	<b>2016 Projects</b>												
20	Main Replacements	30-Sep-16	30-Sep-16	\$ 766,000	\$ 878,898	\$ 26,064	\$ 852,834	\$ 10,425	\$ 19,845	\$ 22,685	7.49%	\$ 7,129,043	116,834
21	Hydrants*	30-Sep-16	30-Sep-16	\$ 12,000	\$ 3,618	\$ 173	\$ 3,445	\$ 69	\$ 78	\$ 92	7.49%	\$ 7,129,043	497
22	Services*	30-Sep-16	30-Sep-16	\$ 29,000	\$ 31,936	\$ 818	\$ 31,118	\$ 327	\$ 724	\$ 828	7.49%	\$ 7,129,043	4,210
23	Valves*	30-Sep-16	30-Sep-16	\$ 5,000	\$ 573	\$ 72	\$ 502	\$ 29	\$ 12	\$ 13	7.49%	\$ 7,129,043	91
				\$ 812,000	\$ 915,025	\$ 27,126	\$ 887,899	\$ 10,850	\$ 20,659	\$ 23,618			121,632
26	<b>2017 Projects</b>												
27	Production Meters	30-Sep-17	30-Sep-17	\$ 7,000	\$ 3,500	\$ 211	\$ 3,289	\$ 141	\$ 77	\$ 87	7.49%	\$ 7,129,043	651
28	Main Replacements	30-Sep-17	30-Sep-17	\$ 520,000	\$ 520,000	\$ 9,233	\$ 510,767	\$ 8,155	\$ 11,886	\$ 13,586	7.49%	\$ 7,129,043	69,884
				\$ 527,000	\$ 523,500	\$ 9,444	\$ 510,056	\$ 6,296	\$ 11,962	\$ 13,674			70,435
32	<b>2017 Projects</b>												
33	Production Meters	30-Sep-17	30-Sep-17	\$ 7,000	\$ 3,500	\$ 70	\$ 3,430	\$ 141	\$ 60	\$ 91	7.49%	\$ 7,129,043	549
34	Main Replacements	30-Sep-17	30-Sep-17	\$ 500,000	\$ 500,000	\$ 2,959	\$ 497,041	\$ 5,918	\$ 8,675	\$ 13,221	7.49%	\$ 7,129,043	65,043
				\$ 507,000	\$ 503,500	\$ 3,030	\$ 500,470	\$ 6,059	\$ 8,734	\$ 13,313			65,591
36	<b>TOTALS</b>			\$ 3,689,163	\$ 4,014,186	\$ 153,323	\$ 3,860,863	\$ 48,389	\$ 86,874	\$ 102,899			\$ 527,141

\* Emergency Replacement  
 \*\* Per Docket Filing DW 14-300

Aquarion Water Company of New Hampshire  
 2018 Annual WICA Surcharge Filing (2018 Estimate)

WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT  
 ELIGIBLE PROJECTS PLACED IN SERVICE

Line	Description of Project	District	Town	1 PUC Acct	2 Depr Rate	3 Type of Project**	4 Date In Service	5 Date of 1st Filing	6a Total Capital Costs	6b Eligible Capital Costs	7a Total Retirements	7b Eligible Retirements	8 = (6b - 7b) x 2 Depreciation Expense	9a = 8 x 50% Accumulated Depreciation	9 M/R Rates Town	10 = ((6a-9a)/1000 x 12) Prop. Tax Expense	
																	10 M/R Rates Total
<b>2013 Projects</b>																	
1	Production Meters		Rye	328	4.40%	Other Pumping	9/30/2013	10/31/2013	\$ 3,432	\$ 3,432	\$ 3,033	\$ 3,033	\$ 16	\$ 87	8.44	6.60 15.04	\$ 50
2	Production Meters		North Hampton	328	4.40%	Other Pumping	9/30/2013	10/31/2013	\$ 4,511	\$ 4,511	\$ 2,331	\$ 2,331	\$ 98	\$ 528	15.01	6.60 21.61	\$ 86
3	Production Meters		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 5,822	\$ 5,822	\$ -	\$ -	\$ 375	\$ 2,062	19.87	6.60 23.27	\$ 150
4	Chamsh Street/Highland Avenue to Williams Street		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 133,335	\$ 133,335	\$ 8,243	\$ 8,243	\$ 1,525	\$ 6,368	19.87	6.60 23.27	\$ 2,908
5	Auburn Avenue		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 208,750	\$ 208,750	\$ 10,348	\$ 10,348	\$ 2,357	\$ 12,063	19.87	6.60 23.27	\$ 4,598
6	Auburn Avenue Extension		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 85,554	\$ 85,554	\$ 359	\$ 359	\$ 1,022	\$ 5,623	19.87	6.60 23.27	\$ 1,840
7	Parkins Avenue		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 284,218	\$ 284,218	\$ 1,700	\$ 1,700	\$ 3,149	\$ 17,322	19.87	6.60 23.27	\$ 5,745
8	Hydrants*		Hampton	348	2.40%	Hydrants	9/30/2013	10/31/2013	\$ 22,839	\$ 8,147	\$ 2,498	\$ 861	\$ 174	\$ 958	19.87	6.60 23.27	\$ 107
9	Services*		Hampton	345	1.85%	Services	9/30/2013	10/31/2013	\$ 33,841	\$ 12,108	\$ 1,694	\$ 711	\$ 211	\$ 1,160	19.87	6.60 23.27	\$ 255
10	Services*		Rye	345	1.85%	Services	9/30/2013	10/31/2013	\$ 4,884	\$ 2,306	\$ 230	\$ 82	\$ 41	\$ 226	8.44	6.60 15.04	\$ 31
11	Valves*		Hampton	349	6.00%	Other T&D Plant	9/30/2013	10/31/2013	\$ 6,351	\$ 2,295	\$ -	\$ -	\$ 113	\$ 623	19.87	6.60 23.27	\$ 38
12	Valves*		North Hampton	349	6.00%	Other T&D Plant	9/30/2013	10/31/2013	\$ 8,133	\$ 2,901	\$ -	\$ -	\$ 145	\$ 788	15.01	6.60 21.61	\$ 45
13								\$ 784,050	\$ 734,050	\$ 25,794	\$ 25,757	\$ 8,227	\$ 50,747			\$ 15,848	
14	<b>2014 Projects</b>																
15	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2014	10/31/2014	\$ 3,044	\$ 3,044	\$ 294	\$ 294	\$ 122	\$ 551	19.87	6.60 23.27	\$ 58
16	Well # Transmission Main		Hampton	343	1.20%	Main Replacement	9/30/2014	10/31/2014	\$ 57,506	\$ 57,506	\$ 3,180	\$ 3,160	\$ 852	\$ 2,935	19.87	6.60 23.27	\$ 1,270
17	Ocean Boulevard- Dumas Ave to Wenacumna Rd		Hampton	343	1.20%	Main Replacement	9/30/2014	10/31/2014	\$ 836,098	\$ 836,098	\$ 6,801	\$ 6,801	\$ 8,352	\$ 25,582	19.87	6.60 23.27	\$ 11,810
18								\$ 588,848	\$ 596,848	\$ 10,255	\$ 10,255	\$ 7,126	\$ 32,067			\$ 13,138	
19	<b>2015 Projects</b>																
20	Great Boars Head - Cliff Circle to Ocean Blvd		Hampton	343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 169,733	\$ 169,733	\$ 951	\$ 551	\$ 2,030	\$ 7,100	19.87	6.60 23.27	\$ 3,784
21	Kings Hwy - 11th, 13th, 14th & 15th St		Hampton	343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 385,374	\$ 385,374	\$ 2,324	\$ 2,324	\$ 4,997	\$ 16,088	19.87	6.60 23.27	\$ 8,593
22	Ross Avenue		Hampton	343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 188,358	\$ 188,358	\$ 2,837	\$ 2,837	\$ 2,205	\$ 7,716	19.87	6.60 23.27	\$ 4,157
23								\$ 741,465	\$ 741,465	\$ 5,512	\$ 5,512	\$ 8,831	\$ 32,910			\$ 16,535	
24	<b>2016 Projects</b>																
25	Lafayette Road - Park Ave to Winnacumna Rd		Hampton	343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 555,541	\$ 555,541	\$ 7,561	\$ 6,578	\$ 16,439	\$ 16,439	19.87	6.60 23.27	\$ 12,545
26	Manchester St - off Ashworth Ave		Hampton	343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 187,725	\$ 187,725	\$ 1,810	\$ 1,810	\$ 2,231	\$ 5,577	19.87	6.60 23.27	\$ 4,236
27	Sunurf Ave - off Cliff Ave		Hampton	343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 135,832	\$ 135,832	\$ 739	\$ 739	\$ 1,818	\$ 4,047	19.87	6.60 23.27	\$ 3,082
28	Hydrants*		Hampton	348	2.40%	Hydrants	9/30/2016	10/31/2016	\$ 55,486	\$ 2,301	\$ 708	\$ 297	\$ 46	\$ 120	19.87	6.60 23.27	\$ 51
29	Hydrants*		North Hampton	348	2.40%	Hydrants	9/30/2016	10/31/2016	\$ 33,140	\$ 1,317	\$ 1,036	\$ 435	\$ 21	\$ 53	15.01	6.60 21.61	\$ 27
30	Services*		Hampton	345	1.85%	Services	9/30/2016	10/31/2016	\$ 71,384	\$ 29,935	\$ 31,998	\$ 13,422	\$ 305	\$ 784	19.87	6.60 23.27	\$ 678
31	Services*		North Hampton	345	1.85%	Services	9/30/2016	10/31/2016	\$ 4,770	\$ 2,091	\$ 1,997	\$ 838	\$ 22	\$ 54	15.01	6.60 23.27	\$ 45
32	Valves*		Hampton	349	6.00%	Other T&D Plant	9/30/2016	10/31/2016	\$ 1,387	\$ 573	\$ -	\$ -	\$ 28	\$ 72	19.87	6.60 23.27	\$ 12
33								\$ 865,025	\$ 915,025	\$ 45,950	\$ 28,162	\$ 10,850	\$ 27,128			\$ 20,659	
34	<b>2017 Projects</b>																
35	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2017	10/31/2017	\$ 3,500	\$ 3,500	\$ 303	\$ 303	\$ 141	\$ 211	19.87	6.60 23.27	\$ 77
36	Main Replacements		Hampton	343	1.20%	Main Replacement	9/30/2017	10/31/2017	\$ 520,000	\$ 520,000	\$ 7,075	\$ 7,075	\$ 6,195	\$ 9,233	19.87	6.60 23.27	\$ 11,888
37								\$ 523,500	\$ 523,500	\$ 7,381	\$ 7,381	\$ 6,296	\$ 9,444			\$ 11,962	
38	<b>2018 Projects</b>																
39	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2017	10/31/2017	\$ 3,500	\$ 3,500	\$ 303	\$ 303	\$ 141	\$ 211	19.87	6.60 23.27	\$ 80
40	Main Replacements		Hampton	343	1.20%	Main Replacement	9/30/2017	10/31/2017	\$ 500,000	\$ 500,000	\$ 6,805	\$ 6,805	\$ 5,918	\$ 2,659	19.87	6.60 23.27	\$ 8,875
41								\$ 503,500	\$ 503,500	\$ 7,108	\$ 7,108	\$ 6,059	\$ 3,030			\$ 8,734	
42																	
43																	
44																	
45																	
46																	
47																	
48																	
<b>TOTALS</b>									\$ 4,114,188	\$ 4,014,188	\$ 104,870	\$ 81,055	\$ 49,349	\$ 153,333			\$ 84,674
									to TD-1, Pg 1, Ln 2		to TD-1, Pg 1, Ln 28		to TD-1, Pg 1, Ln 4		to TD-1, Pg 1, Ln 30		

\*Total capital costs are reduced by \$50,000 proportionately per Order No. 26,829. Retirements are also proportionately reduced.  
 \*\* Type of Project (designations will be given for various types of projects)

**Aquarion Water Company of New Hampshire  
 2020 Annual WICA Surcharge Filing (2016 Estimate)**

**WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT  
 CALCULATION OF SURCHARGE**

Line		<u>Schedule Ref.</u>	
1			
2	Total Investment through 09/30/2020	2020 3 Col 6b Ln 49	\$ 5,087,686
3			
4	Accumulated Depreciation	2020 3 Col 8a Ln 49	(208,115)
5			
6	Net Investment	Ln 2 + Ln 4	<u>\$ 4,879,571</u>
7			
8	Allowed Return on Rate Base	2020 2 Col 10	<u>7.49%</u>
9			
10	Allowed Return on Investment	Ln 6 x Ln 8	\$ 365,480
11			
12	Income Tax on Equity Component		
13			
14			
15		(a)	(b)
16		Weighted	Tax
17		Cost	Multiplier
18	Debt	3.58%	1.00
19	Equity	<u>3.91%</u>	1.68
20			
21		7.49%	10.15%
22			2.66%
23	Total Eligible Investment (Line 6 above)		\$ 4,879,571
24			
25			
26	Income Tax Expense	Ln 21 Col D X Ln 23	129,797
27			
28	Depreciation Expense	2020 3 Col 8 Ln 49	61,195
29			
30	Property Tax Expense	2020 3 Col 10 Ln 49	107,284
31			
32	Adjustment: Annual Revenues Allowed	Lines 10 + 26 + 28 + 30	<u>\$ 663,756</u>
33			
34			
35	Base Revenues on which Adjustment will be applied		
36	Revenues allowed DW 12-085		\$ 7,129,043
37	Misc. Charges not subject to WICA		<u>(189,059)</u>
38			<u>\$ 6,939,984</u>
39			
40	Surcharge Percent (Line 32 divided by Line 38)		9.56%

Aquarion Water Company of New Hampshire  
 2020 Annual WICA Surcharge Filing (2016 Estimate)

WATER INFRASTRUCTURE & CONSERVATION ADJUSTMENT  
 COMPLETED PROJECTS

Line	Project Name or Class Category	1	2	3	4	5	6	7	8	9	10	11	12 = ((4-5) x 10) + 7 + 8 + 9 WICA Adjustment Dollars
		Estimated Completion Date**	Actual Completion Date	Estimated Project Cost**	Actual Project Cost	Accumulated Depreciation	Project Cost minus Accumulated Depreciation	Depreciation Expense	Property Tax Expense	Income Tax Expense	Rate of Return	Annual Retail Revenues	
1													
2	<b>2013 Projects</b>												
3	Production Meters	30-Sep-13	30-Sep-13	\$ 18,030	\$ 16,466	\$ 3,175	\$ 13,291	\$ 488	\$ 276	\$ 354	7.49%	\$ 7,129,043	2,113
4	Main Replacements	30-Sep-13	30-Sep-13	\$ -	\$ 699,856	\$ 52,350	\$ 637,507	\$ 8,054	\$ 14,835	\$ 16,958	7.49%	\$ 7,129,043	87,595
5	Hydrants*	30-Sep-13	30-Sep-13	\$ 32,709	\$ 8,147	\$ 1,132	\$ 7,015	\$ 174	\$ 163	\$ 187	7.49%	\$ 7,129,043	1,049
6	Services*	30-Sep-13	30-Sep-13	\$ 80,600	\$ 14,414	\$ 1,638	\$ 12,776	\$ 252	\$ 281	\$ 340	7.49%	\$ 7,129,043	1,829
7	Valves*	30-Sep-13	30-Sep-13	\$ 10,800	\$ 5,167	\$ 1,679	\$ 3,488	\$ 258	\$ 78	\$ 93	7.49%	\$ 7,129,043	690
8				\$ 142,130	\$ 734,050	\$ 59,974	\$ 674,076	\$ 9,227	\$ 15,632	\$ 17,830			93,277
9													
10	<b>2014 Projects</b>												
11	Production Meters	30-Sep-14	30-Sep-14	\$ 1,600	\$ 3,044	\$ 673	\$ 2,371	\$ 122	\$ 55	\$ 63	7.49%	\$ 7,129,043	418
12	Main Replacements	30-Sep-14	30-Sep-14	\$ 937,968	\$ 503,603	\$ 38,520	\$ 555,082	\$ 7,004	\$ 12,917	\$ 14,765	7.49%	\$ 7,129,043	76,261
13				\$ 939,568	\$ 506,646	\$ 39,193	\$ 557,453	\$ 7,126	\$ 12,972	\$ 14,828			76,679
14													
15	<b>2016 Projects</b>												
16	Main Replacements	30-Sep-15	30-Sep-15	\$ 741,465	\$ 741,465	\$ 39,741	\$ 701,723	\$ 8,831	\$ 16,329	\$ 18,666	7.49%	\$ 7,129,043	96,385
17				\$ 741,465	\$ 741,465	\$ 39,741	\$ 701,723	\$ 8,831	\$ 16,329	\$ 18,666			96,385
18													
19	<b>2016 Projects</b>												
20	Main Replacements	30-Sep-16	30-Sep-16	\$ 766,000	\$ 878,898	\$ 36,489	\$ 842,409	\$ 10,425	\$ 19,603	\$ 22,408	7.49%	\$ 7,129,043	115,533
21	Hydrants*	30-Sep-16	30-Sep-16	\$ 12,000	\$ 3,618	\$ 242	\$ 3,376	\$ 69	\$ 76	\$ 90	7.49%	\$ 7,129,043	488
22	Services*	30-Sep-16	30-Sep-16	\$ 29,000	\$ 31,936	\$ 1,145	\$ 30,791	\$ 327	\$ 717	\$ 819	7.49%	\$ 7,129,043	4,169
23	Valves*	30-Sep-16	30-Sep-16	\$ 5,000	\$ 573	\$ 100	\$ 473	\$ 29	\$ 11	\$ 13	7.49%	\$ 7,129,043	86
24				\$ 812,000	\$ 915,025	\$ 37,976	\$ 877,049	\$ 10,850	\$ 20,407	\$ 23,330			120,278
25													
26	<b>2017 Projects</b>												
27	Production Meters	30-Sep-17	30-Sep-17	\$ 7,000	\$ 3,500	\$ 352	\$ 3,148	\$ 141	\$ 73	\$ 84	7.49%	\$ 7,129,043	533
28	Main Replacements	30-Sep-17	30-Sep-17	\$ 520,000	\$ 520,000	\$ 15,386	\$ 504,612	\$ 6,155	\$ 11,742	\$ 13,423	7.49%	\$ 7,129,043	69,116
29				\$ 527,000	\$ 523,500	\$ 15,739	\$ 507,761	\$ 6,296	\$ 11,816	\$ 13,506			69,649
30													
31	<b>2018 Projects</b>												
32	Production Meters	30-Sep-17	30-Sep-17	\$ 7,000	\$ 3,500	\$ 211	\$ 3,289	\$ 141	\$ 77	\$ 87	7.49%	\$ 7,129,043	551
33	Main Replacements	30-Sep-17	30-Sep-17	\$ 500,000	\$ 500,000	\$ 8,878	\$ 491,122	\$ 5,918	\$ 11,428	\$ 13,064	7.49%	\$ 7,129,043	67,196
34				\$ 507,000	\$ 503,500	\$ 9,089	\$ 494,411	\$ 6,059	\$ 11,505	\$ 13,151			67,747
35													
36	<b>2019 Projects</b>												
37	Production Meters	30-Sep-17	30-Sep-17	\$ 7,000	\$ 3,500	\$ 70	\$ 3,430	\$ 141	\$ 80	\$ 91	7.49%	\$ 7,129,043	549
38	Main Replacements	30-Sep-17	30-Sep-17	\$ 1,070,000	\$ 1,070,000	\$ 6,333	\$ 1,063,667	\$ 12,665	\$ 18,564	\$ 28,294	7.49%	\$ 7,129,043	139,191
39				\$ 1,077,000	\$ 1,073,500	\$ 6,403	\$ 1,067,097	\$ 12,806	\$ 18,624	\$ 28,385			139,740
40													
41	<b>TOTALS</b>			\$ 4,746,163	\$ 5,087,686	\$ 208,116	\$ 4,679,571	\$ 61,195	\$ 107,284	\$ 129,797			\$ 663,756

\* Emergency Replacement  
 \*\* Per Docket Filing DW 14-300

Aquarion Water Company of New Hampshire  
 2020 Annual WIOA Surcharge Filing (2016 Estimate)

WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT  
 ELIGIBLE PROJECTS PLACED IN SERVICE

Line	Description of Project	Street	Town	1 PUC Acct	2 Depr Rate	3 Type of Project**	4 Date In Service	5 Date of 1st Filing	6a Total Capital Costs	6b Eligible Capital Costs	7a Total Retirements	7b Eligible Retirements	8 = (6b - 7b) x 2 Depreciation Expense	9a = 8 x 50% Accumulated Depreciation	10 = (((6b-9a)/1000) x 12)					
															Town	MI Rates	State Total	Prop Tax Expense		
<b>2013 Projects</b>																				
1	Production Meters		Rye	328	4.40%	Other Pumping	9/30/2013	10/31/2013	\$ 3,432	\$ 3,432	\$ 3,033	\$ 3,033	\$ 16	\$ 114	16.87	6.80	15.04	\$ 50		
2	Production Meters		North Hampton	328	4.40%	Other Pumping	9/30/2013	10/31/2013	\$ 4,511	\$ 4,511	\$ 2,331	\$ 2,331	\$ 96	\$ 524	15.01	6.80	21.81	\$ 64		
3	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2013	10/31/2013	\$ 8,822	\$ 8,822	\$ -	\$ -	\$ 375	\$ 2,437	16.87	6.80	23.27	\$ 142		
4	Church Street-Highland Avenue to Williams Street		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 133,335	\$ 133,335	\$ 8,243	\$ 8,243	\$ 1,525	\$ 8,913	16.87	6.80	23.27	\$ 2,872		
5	Auburn Avenue		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 208,750	\$ 208,750	\$ 10,348	\$ 10,348	\$ 2,357	\$ 15,320	16.87	6.80	23.27	\$ 4,455		
6	Auburn Avenue Extension		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 85,554	\$ 85,554	\$ 359	\$ 359	\$ 1,022	\$ 6,645	16.87	6.80	23.27	\$ 1,898		
7	Parkina Avenue		Hampton	343	1.20%	Main Replacement	9/30/2013	10/31/2013	\$ 264,216	\$ 264,216	\$ 1,780	\$ 1,780	\$ 3,149	\$ 20,472	16.87	6.80	23.27	\$ 5,872		
8	Hydrants*		Hampton	348	2.40%	Hydrants	9/30/2013	10/31/2013	\$ 22,838	\$ 6,147	\$ 2,498	\$ 891	\$ 174	\$ 1,132	16.87	6.80	23.27	\$ 163		
9	Services*		Hampton	345	1.85%	Services	9/30/2013	10/31/2013	\$ 33,841	\$ 12,108	\$ 1,884	\$ 711	\$ 211	\$ 1,370	16.87	6.80	23.27	\$ 250		
10	Services*		Rye	345	1.85%	Services	9/30/2013	10/31/2013	\$ 6,484	\$ 2,308	\$ 230	\$ 82	\$ 41	\$ 287	16.87	6.80	15.04	\$ 31		
11	Valves*		Hampton	349	5.00%	Other T&D Plant	9/30/2013	10/31/2013	\$ 6,351	\$ 2,285	\$ -	\$ -	\$ 113	\$ 738	16.87	6.80	23.27	\$ 36		
12	Valves*		North Hampton	349	5.00%	Other T&D Plant	9/30/2013	10/31/2013	\$ 8,133	\$ 2,991	\$ -	\$ -	\$ 145	\$ 843	15.01	6.80	21.61	\$ 43		
13									\$ 704,050	\$ 734,050	\$ 28,784	\$ 25,757	\$ 8,227	\$ 58,974				\$ 15,632		
<b>2014 Projects</b>																				
14	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2014	10/31/2014	\$ 3,044	\$ 3,044	\$ 294	\$ 294	\$ 122	\$ 873	16.87	6.80	23.27	\$ 55		
15	Well B Transmission Main		Hampton	343	1.20%	Main Replacement	9/30/2014	10/31/2014	\$ 57,508	\$ 57,508	\$ 3,189	\$ 3,189	\$ 692	\$ 3,587	16.87	6.80	23.27	\$ 1,255		
17	Ocean Boulevard-Dunes Ave to Winnacunnal Rd		Hampton	343	1.20%	Main Replacement	9/30/2014	10/31/2014	\$ 538,096	\$ 538,096	\$ 8,801	\$ 8,801	\$ 9,352	\$ 34,533	16.87	6.80	23.27	\$ 11,683		
18									\$ 599,846	\$ 598,848	\$ 10,225	\$ 10,225	\$ 7,128	\$ 38,193				\$ 12,972		
<b>2015 Projects</b>																				
19	Gisat Boars Head - Cliff Circle to Ocean Blvd		Hampton	343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 169,733	\$ 169,733	\$ 551	\$ 551	\$ 3,030	\$ 9,138	16.87	6.80	23.27	\$ 3,737		
20	Kings Hwy - 11th, 13th, 14th & 15th St		Hampton	343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 395,374	\$ 385,374	\$ 2,324	\$ 2,324	\$ 4,597	\$ 20,885	16.87	6.80	23.27	\$ 6,488		
22	Ross Avenue		Hampton	343	1.20%	Main Replacement	9/30/2015	10/31/2015	\$ 189,358	\$ 185,358	\$ 7,637	\$ 7,637	\$ 2,355	\$ 9,921	16.87	6.80	23.27	\$ 4,196		
23									\$ 741,465	\$ 741,465	\$ 5,512	\$ 5,512	\$ 8,931	\$ 30,741				\$ 18,323		
<b>2016 Projects</b>																				
24	Lafayette Road - Park Ave to Winnacunnal Rd		Hampton	343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 855,541	\$ 555,541	\$ 7,581	\$ 7,581	\$ 6,578	\$ 23,015	16.87	6.80	23.27	\$ 12,262		
25	Manchester St. off Ashworth Ave		Hampton	343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 187,725	\$ 187,725	\$ 1,810	\$ 1,810	\$ 2,231	\$ 7,808	16.87	6.80	23.27	\$ 4,167		
27	Sunburst Ave. off Cliff Ave		Hampton	343	1.20%	Main Replacement	9/30/2016	10/31/2016	\$ 138,832	\$ 135,832	\$ 738	\$ 738	\$ 1,818	\$ 5,695	16.87	6.80	23.27	\$ 3,024		
28	Hydrants*		Hampton	348	2.40%	Hydrants	9/30/2016	10/31/2016	\$ 5,486	\$ 2,301	\$ 708	\$ 297	\$ 48	\$ 188	16.87	6.80	23.27	\$ 50		
29	Hydrants*		North Hampton	348	2.40%	Hydrants	9/30/2016	10/31/2016	\$ 33,140	\$ 1,317	\$ 1,036	\$ 435	\$ 21	\$ 74	15.01	6.80	21.61	\$ 27		
30	Services*		Hampton	345	1.85%	Services	9/30/2016	10/31/2016	\$ 71,364	\$ 26,835	\$ 31,988	\$ 13,422	\$ 305	\$ 1,086	16.87	6.80	23.27	\$ 872		
31	Services*		North Hampton	345	1.85%	Services	9/30/2016	10/31/2016	\$ 4,770	\$ 2,001	\$ 1,967	\$ 838	\$ 22	\$ 79	15.01	6.80	23.27	\$ 45		
32	Valves*		Hampton	349	5.00%	Other T&D Plant	9/30/2016	10/31/2016	\$ 1,367	\$ 973	\$ -	\$ -	\$ 28	\$ 197	16.87	6.80	23.27	\$ 11		
33									\$ 865,025	\$ 615,025	\$ 45,850	\$ 25,102	\$ 10,850	\$ 37,978				\$ 20,407		
<b>2017 Projects</b>																				
34	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2017	10/31/2017	\$ 3,500	\$ 3,500	\$ 303	\$ 303	\$ 141	\$ 352	16.87	6.80	23.27	\$ 73		
35	Main Replacements		Hampton	343	1.20%	Main Replacement	9/30/2017	10/31/2017	\$ 520,000	\$ 520,000	\$ 7,078	\$ 7,078	\$ 6,155	\$ 15,388	16.87	6.80	23.27	\$ 11,742		
36									\$ 523,500	\$ 523,500	\$ 7,381	\$ 7,381	\$ 6,296	\$ 15,739				\$ 11,816		
<b>2018 Projects</b>																				
39	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2017	10/31/2017	\$ 3,500	\$ 3,500	\$ 303	\$ 303	\$ 141	\$ 211	16.87	6.80	23.27	\$ 77		
40	Main Replacements		Hampton	343	1.20%	Main Replacement	9/30/2017	10/31/2017	\$ 500,000	\$ 500,000	\$ 6,805	\$ 6,805	\$ 5,918	\$ 8,878	16.87	6.80	23.27	\$ 11,428		
41									\$ 503,500	\$ 503,500	\$ 7,108	\$ 7,108	\$ 6,058	\$ 9,089				\$ 11,505		
<b>2019 Projects</b>																				
45	Production Meters		Hampton	328	4.40%	Other Pumping	9/30/2017	10/31/2017	\$ 3,500	\$ 3,500	\$ 303	\$ 303	\$ 141	\$ 70	16.87	6.80	23.27	\$ 60		
46	Main Replacements		Hampton	343	1.20%	Main Replacement	9/30/2017	10/31/2017	\$ 1,070,000	\$ 1,070,000	\$ 14,867	\$ 14,867	\$ 12,665	\$ 6,333	16.87	6.80	23.27	\$ 16,564		
47									\$ 1,073,500	\$ 1,073,500	\$ 14,867	\$ 14,867	\$ 12,806	\$ 6,403				\$ 16,624		
48																				
49																				
50																				
<b>TOTALS</b>									\$ 5,187,888	\$ 5,007,688	\$ 118,737	\$ 95,652	\$ 81,185	\$ 206,115				\$ 107,354		
									to TD-1, Pg 1, Ln 2			to TD-1, Pg 1, Ln 28			to TD-1, Pg 1, Ln 4			to TD-1, Pg 1, Ln 30		

\*Total capital costs are reduced by \$60,000 proportionately per Order No. 26,638. Retirements are also proportionately reduced.

\*\* Type of Project (designations will be given for various types of projects)

DW 16-828  
AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.  
WICA FILING  
STAFF DATA REQUESTS – SET 1

Date Request Received: November 3, 2016  
Request No.: Staff 1-10

Date of Response: December 8, 2016  
Witness: Troy Dixon

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**REQUEST: Re: Staff Audit Report dated November 3, 2016; Page 5; Summary:** Based on the Staff Audit Report, it appears that the total cost of the 2016 projects upon which the proposed 2017 WICA surcharge is based is now \$915,024, instead of \$929,592 as reflected in the Company's filing.

Please provide updated Testimony Attachments TD-1, TD-2 and TD-3 which reflect the changes in the total cost of the 2016 projects as indicated in the Staff Audit Report.

**RESPONSE:** Please refer to Staff 1-10 Attachments A-C for updates to TD-1, TD-2 and TD-3 to include adjustments from the Final Audit Report and adjustment of the mil rate from Staff 1-9.

**SUPPLEMENTAL RESPONSE:** Attachment A-Attachment TD-1, page 2 of 3 has been corrected as follows: "Project Surcharge Proposed in DW 16-828" instead of "Project Surcharge ~~Approved in DW 13-314.~~"

**Aquarion Water Company of New Hampshire  
 2017 Annual WICA Surcharge Filing**

**WATER INFRASTRUCTURE & CONSERVATION ADJUSTMENT  
 COMPLETED PROJECTS**

Line	Project Name or Class Category	1 Estimated Completion Date**	2 Actual Completion Date	3 Estimated Project Cost**	4 Actual Project Cost	5 Accumulated Depreciation	6 Project Cost minus Accumulated Depreciation	7 Depreciation Expense	8 Property Tax Expense	9 Income Tax Expense	10 Rate of Return	11 Annual Retail Revenues	12 = ((4-5) x 10) + 7 + 8 + 9 WICA Adjustment Dollars
1													
2	<b>Project Surcharge Approved in DW 13-314</b>												
3	Production Meters	30-Sep-13	30-Sep-13	\$ 18,030	\$ 16,466	\$ 1,710	\$ 14,756	\$ 488	\$ 309	\$ 393	7.49%	\$ 7,129,043	2,295
4	Main Replacements	30-Sep-13	30-Sep-13	\$ -	\$ 689,856	\$ 28,188	\$ 661,668	\$ 8,054	\$ 15,397	\$ 17,600	7.49%	\$ 7,129,043	90,610
5	Hydrants*	30-Sep-13	30-Sep-13	\$ 32,700	\$ 8,147	\$ 610	\$ 7,538	\$ 174	\$ 175	\$ 201	7.49%	\$ 7,129,043	1,115
6	Services*	30-Sep-13	30-Sep-13	\$ 80,600	\$ 14,414	\$ 882	\$ 13,532	\$ 252	\$ 297	\$ 360	7.49%	\$ 7,129,043	1,923
7	Valves*	30-Sep-13	30-Sep-13	\$ 10,800	\$ 5,167	\$ 904	\$ 4,263	\$ 258	\$ 95	\$ 113	7.49%	\$ 7,129,043	786
8				\$ 142,130	\$ 734,050	\$ 32,294	\$ 701,757	\$ 9,227	\$ 16,273	\$ 18,667			96,728
9													
10	<b>Project Surcharge Approved in DW 14-300</b>												
11	Production Meters	30-Sep-14	30-Sep-14	\$ 1,600	\$ 3,044	\$ 306	\$ 2,738	\$ 122	\$ 64	\$ 73	7.49%	\$ 7,129,043	464
12	Main Replacements	30-Sep-14	30-Sep-14	\$ 937,968	\$ 593,603	\$ 17,509	\$ 578,093	\$ 7,004	\$ 13,406	\$ 15,324	7.49%	\$ 7,129,043	78,883
13				\$ 939,568	\$ 596,646	\$ 17,815	\$ 578,831	\$ 7,126	\$ 13,469	\$ 15,397			79,347
14													
15	<b>Project Surcharge Approved in DW 15-476</b>												
16	Main Replacements	30-Sep-15	30-Sep-15	\$ 741,465	\$ 741,465	\$ 13,247	\$ 728,217	\$ 8,831	\$ 16,946	\$ 19,371	7.49%	\$ 7,129,043	99,691
17				\$ 741,465	\$ 741,465	\$ 13,247	\$ 728,217	\$ 8,831	\$ 16,946	\$ 19,371			99,691
18													
19	<b>Project Surcharge Proposed in DW 16-828</b>												
20	Main Replacements	30-Sep-16	30-Sep-16	\$ 766,000	\$ 878,898	\$ 5,213	\$ 873,685	\$ 10,425	\$ 15,248	\$ 23,240	7.49%	\$ 7,129,043	114,353
21	Hydrants*	30-Sep-16	30-Sep-16	\$ 12,000	\$ 3,618	\$ 35	\$ 3,584	\$ 69	\$ 61	\$ 95	7.49%	\$ 7,129,043	494
22	Services*	30-Sep-16	30-Sep-16	\$ 29,000	\$ 31,936	\$ 164	\$ 31,772	\$ 327	\$ 552	\$ 845	7.49%	\$ 7,129,043	4,104
23	Valves*	30-Sep-16	30-Sep-16	\$ 5,000	\$ 573	\$ 14	\$ 559	\$ 29	\$ 10	\$ 15	7.49%	\$ 7,129,043	95
24				\$ 812,000	\$ 915,025	\$ 5,425	\$ 909,600	\$ 10,850	\$ 15,871	\$ 24,195			119,046
25													
26	<b>TOTALS</b>			<b>\$ 2,635,163</b>	<b>\$ 2,987,186</b>	<b>\$ 68,781</b>	<b>\$ 2,918,405</b>	<b>\$ 36,035</b>	<b>\$ 62,559</b>	<b>\$ 77,630</b>			<b>\$ 394,812</b>

\* Emergency Replacement  
 \*\* Per Docket Filing DW 14-300

**STATE OF NEW HAMPSHIRE**  
**Inter-Department Communication**

**DATE:** November 3, 2016  
**AT (OFFICE):** NHPUC

**FROM:** James Schuler, Examiner

**SUBJECT:** Aquarion Water Company of New Hampshire, Inc.  
DW 16-828 Water Infrastructure and Conservation Adjustment Mechanism  
**FINAL** Audit Report

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

**Introduction**

Aquarion Water Company of New Hampshire, Inc. (Aquarion) has been participating in the Water Infrastructure and Conservation Adjustment since the Commission approved it as a pilot program in Order 25,019 issued September 25, 2009.

In Docket DW 15-476, Aquarion petitioned for approval of its proposed 2016 projects to be eligible for recovery through the WICA surcharge mechanism. Order 25,857, issued January 7, 2016 granted the approval for the 2016 project costs estimated to be \$763,000 to \$1,044,000. The actual costs totaled \$928,513.

On October 13, 2016, Aquarion filed the 2016 costs to be considered for recovery through the WICA surcharge to be implemented January 1, 2017. The filing included costs incurred from October 1, 2015 through September 30, 2016 and was docketed DW 16-828.

**Projects Placed in Service Through September 30, 2016**

On October 29, 2015, Aquarion petitioned for approval of four proposed projects to be completed in 2016. On June 1, 2016 in Docket DW 16-476, Aquarion informed the PUC that the North Shore Road project was removed from the project listing due to budget constraints and is reprioritized. Three remaining projects were completed and deemed used and useful prior to September 30, 2016. The total costs that Aquarion is seeking through the WICA mechanism are \$928,513.

Project Name	Location	Total Capital Costs	Eligible Capital Costs	Status
Lafayette Road	Park Ave to Winnacunnet Rd	\$556,620	\$555,541	Complete
Manchester Street	Off Ashworth Ave	\$187,725	\$187,725	Complete
Sun Surf Ave	Off Cliff Ave	\$149,120	\$149,120	Complete
Hydrants	Hampton	\$5,486	\$2,301	Complete
Hydrants	North Hampton	\$3,140	\$1,317	Complete
Services	Hampton	\$71,364	\$29,935	Complete
Services	North Hampton	\$4,770	\$2,001	Complete
Valves	Hampton	\$1,367	\$573	Complete
		\$979,592	\$928,513	

Audit reviewed all contractor invoices for the three projects completed by September 30, 2016. Material and labor costs were verified and overhead costs were recalculated. No exceptions were noted with regards to material, labor and overhead costs.

### Lafayette Road

The above schedule shows the total capital cost for this project was originally \$556,620. The Company revised the total eligible costs down to \$555,541 after the removal of a duplicate invoice in the amount of \$1,079.

The project involved abandonment of a small section of main on Lafayette Road and the replacement of unlined cast iron main with HDPE main from Winnacunnet Road to Park Ave, Park Avenue and Stickney Road that was put into service in 1965.

The E-22 provided a start date of May, 2016 and a “project finish” date of August, 2016. The estimated cost of the project shown on the E-22 was listed at \$453,000. The 2016 project costs in DW 15-476, schedule CM-1 page 5 of 8, estimated the costs to be \$384,000 to \$522,000. The actual costs totaled \$555,541.

Audit reviewed all invoices in detail for professional services, permit and police detail, and construction work.

### Manchester Street

The Manchester Street project totaled \$187,725. The Company stated that the main was too shallow requiring a winter bleeder and that the pipe has reached the end of its useful life because of frequent breaks. Approximately 427 feet of cement lined HDPE was used to replace unlined AC main from 1959.

The E-22 provided a start date of April, 2016 and a “project finish” date of June, 2016. The estimated cost of the project was listed at \$75,000. The 2016 project costs in DW 15-476 schedule CM-1 page 5 of 8, estimated the costs to be \$100,000 to \$136,000. The actual costs totaled \$187,725.

Audit reviewed all invoices in detail for professional services and materials.

Sun Surf Avenue

The Sun Surf Avenue main replacement project off of Cliff Avenue totaled \$149,120. The project was for the installation of approximately 352 feet of cement lined HDPE, replacing unlined cast iron from 1910.

The E-22 provided a start date of April, 2016 and a “project finish” date of June, 2016. The 2016 project costs in DW 15-476 CM-1 page 5 of 8, estimated the costs to be \$80,000 to \$108,000. The actual costs totaled \$149,120.

Audit reviewed all vendor invoices in detail. Invoices were for professional services, construction work, plumbing, paving and materials.

The Sun Surf Avenue project, #ER230-2016-003, included a Tighe & Bond invoice, #031692049 in the amount of \$13,489 that appears to be for the Towle Farm Road project. The Company stated that the invoice will be reclassified to the Towle Farm Road project. See the summary adjustments at the end of the report.

Hydrants, Services and Valve Replacements

Per Commission Order 25,539, dated June 28, 2013 “The first \$50,000 in costs related to the emergency/reactive replacement of services, valves, and hydrants in a given year’s WICA filing shall not be eligible for recovery through the WICA surcharge”. During the period of October 1, 2015 through September 30, 2016, the Company incurred \$36,127 in hydrants, service and valve replacement costs in excess of the \$50,000 threshold.

4 Hydrant Replacements, Account #335	\$ 8,626
21 Service line Replacements, Account #333	76,134
1 Valve Replacement, Account #339	1,367
Less: Threshold Amount	<u>(50,000)</u>
Total Eligible Retirements	\$36,127

Audit reviewed all vendor invoices in detail. Invoices were for professional services, construction work, plumbing, paving and materials.

Bid Summary

The Company’s consulting firm, Tighe & Bond provided a design budget for each WICA project which specified the scope of the work to be performed along with bidding support. Their support included the preparation of a construction budget, bid assistance, answering requests for information (RFI’s) and attending pre-bid conferences.

Bid packages were received from four separate contractors. The Company explains that the water main projects were bid out as a package in order to receive a lower cost per foot. JAMCO Construction, the lowest bidder, was awarded the projects.

**Continuing Property Records (CPRs)**

Audit requested CPRs for the three projects completed in 2016. Aquarion provided several schedules with the filing and the Detailed Asset Listing which fulfills the five requirements for CPRs.

1. The date on which the job was complete – The schedule notes a “Completion Date” which is the date the asset was deemed used and useful and placed into service. **Schedule CM-1 and Attachment TD-1**
2. The number of units added to this account and the cost – The spreadsheet notes the plant in service account to which the asset was booked; a brief description, including how many feet of main; and the acquisition costs. **Schedule CM-1**
3. The number of units retired and cost – The Company states the number of feet replaced is the number of feet retired. **Schedule CM-1 and Attachment TD-1**
4. The net amount of units and the cost. **Schedule CM-1 and Attachment TD-1**
5. The Remarks or Location column to be used for clarification or to list the location of the property – The Asset description provides a location along with a location number code and the town. **Schedule CM-1 and Attachment TD-1**

Audit verified the “Eligible Projects Placed in Service” schedules to the project costs with no exceptions noted.

**Retirements**

All the additions completed in 2016 have retirements associated with them. The CPR Excel spreadsheet and the filing schedule Attachment TD-1, page 3 of 3, note the following eligible asset retirements:

Lafayette Road, Account #343	\$ 7,561
Manchester Street, Account #343	1,810
Sunsurf Avenue, Account #343	739
Hydrants, Hampton, Account #348	297
Hydrants, North Hampton, Account #348	435
Services, Hampton, Account 345	13,422
Services, North Hampton, Account 345	<u>838</u>
Total Eligible Retirements	\$25,102

## General Ledger

Audit requested a copy of the general ledger for the three projects. The GL shows costs being charged to, 408 - Payroll Taxes, 920 – Administrative & General Salaries, and 926 – Employee Pensions & Benefits as appropriate. All contractor charges were held in a 500 account.

Audit questioned the 500 account and was told it was a sub-account of the 107 - Work in Process account. Because Aquarion’s largest service territory is Connecticut, they maintain their SAP system using the Connecticut chart of accounts. When providing annual reports for NH, they convert the account numbers to follow the NH PUC Chart of Accounts. Aquarion provided a conversion chart to Audit.

When a project is initially set up in the system, the Utility Plant in Service account is identified. All contractor charges for that particular project are placed in the 500 account until the project is complete. Once Aquarion personnel note in the system that the project is complete, the system automatically moves the total of all of the costs to the 101 account specified during set up.

The general ledger provided to Audit shows the monthly costs for each project. Audit was able to tie those costs, along with the 408, 920 and 926 accounts, back to the CPR spreadsheet, which identifies the plant in service account the project costs were charged.

## Summary

Audit reviewed the used and useful WICA projects through September 30, 2016. Support for all the costs were provided in the form of the general ledger accounts, work orders, contracts and invoices. Although all three projects were completed over budget, the Company was within their total budget because of the postponement on the North Shore Road and Ocean Boulevard projects. The table below summarizes the adjustments Audit recommends for the project year ending September 30, 2016.

Major Projects per the Filing	\$892,386
Less: Towle Farm Road Invoice	(13,489)
Costs in Excess of \$50,000	<u>36,127</u>
Total 2016 WICA Eligible Costs	\$915,024

# STATE OF NEW HAMPSHIRE

## Inter-Department Communication

**DATE:** December 13, 2016

**AT (OFFICE):** NHPUC

**FROM:** Douglas W. Brogan

**SUBJECT:** DW 16-828, Aquarion Water Company of New Hampshire  
2017 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 docket DW 16-828, the 2017 WICA adjustment filing of Aquarion Water Company of New Hampshire (Aquarion or company). I have filed recommendations as a consultant to the Commission in the company's three most recent WICA cases, DW 13-314, DW 14-300, and DW 15-476. In the current docket the company is seeking approval of a WICA surcharge for projects completed in 2016, approval of projects proposed for 2017, and preliminary approval of 2018 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 and case discovery. While my review included the smaller WICA replacements such as valves, services, hydrants and meters, the focus of my comments is on the water main replacement projects that comprise the core of the filing.

### Projects Completed in 2016 (for 2017 WICA Adjustment)

Four projects (or project areas, in the case of Lafayette Road) were proposed and approved in DW 15-476 for construction in 2016. The company filed a letter with the Commission June 1, 2016 stating that one of the projects, North Shore Road, had been eliminated due to higher than anticipated costs for the other projects (see also response to Staff 1-7)<sup>1</sup>. The notice was also sent to the other parties to DW 15-476 in accordance with the company's tariff.

The three remaining projects were completed in 2016, but all at higher than estimated cost - see table below. However, as a result of elimination of North Shore Road, total WICA expenditures in 2016 were within DW 15-476 budget estimates.

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<sup>1</sup> As a matter of record, the letter also included notice that the company became aware of a previously unpaid invoice relating to the WICA projects completed in 2015. While the company is not seeking recovery of that amount under the WICA program, the overall impact is that the three 2015 projects went from under budget/under budget/within budget (based on DW 14-300 estimates) to under budget/within budget/over budget.

Project	Cost Estimate	Actual
	Low - High	Cost
Lafayette Rd area	384,000 - 522,000	555,541
Manchester St	100,000 - 136,000	187,725
Sunsurf Ave	80,000 - 108,000	135,632

In addition to higher than expected unit bid prices on all three projects, the Lafayette Road project involved work in a congested area along Route 1; and the Manchester Street and Sunsurf Avenue projects both included narrow streets, poor soil conditions and unanticipated additional paving requirements. Manchester Street additionally entailed working in a high water table area and a requirement to run temporary water service. (See responses to Staff 1-3, 1-4, and 1-5.) Initial estimates in DW 15-476, however, were based on historic average pricing.

The company's engineering efforts and design flexibility are notable in that, for example, the Lafayette Road replacement was initially envisioned as installation of an 8-inch main by pipe bursting; but evolved during design into direct bury of a 12-inch main under a sidewalk to minimize interference with traffic and several other utilities. The result was increased hydraulic capacity and elimination of the need for, and cost of, nighttime construction. The smaller mains on Manchester Street and Sunsurf Avenue (4-inch and 2-inch, respectively) were installed in challenging environments through the minimally invasive technique of directional drilling. (Responses to Staff 2-1 and 2-2.) The company continues to use a variety of tools from its toolbox (including use of HDPE pipe for the various benefits it offers), and in such respects is probably ahead of the curve compared to many other water companies in New Hampshire.

### Future Projects

The company continues to use a nuanced replacement prioritization rating system, engineering studies, a system hydraulic model and staff expertise for final decisions on project rankings.

The 2017-2019 projects<sup>2</sup> may ultimately require more than the usual scheduling flexibility, since the highest priority project (another section of Lafayette Road, currently proposed for 2017) is intended to take advantage of a major Town of Hampton sewer replacement in the same area. A delay by the Town would likely impact Aquarion's WICA scheduling in all three years.

The 2018-2019 projects, as currently proposed, have each appeared on previous WICA lists at various times and continue to be priorities.

One other issue worthy of mention is that proposed WICA spending over the next couple years is significantly reduced from recent years, as can be seen in the table below (see bolded numbers). The table shows cost estimates for the three forward-year projections in each of the four most

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<sup>2</sup> Future year projects include replacement of older unlined cast iron main, oversized main responsible for water quality problems, shallow mains requiring winter bleeders, and asbestos-cement mains.

recent WICA dockets. (All figures are total investment including mains, production meters, hydrants, services, and valves. Figures from DW 14-300 onward, when Aquarion began providing low and high estimates, are the average of the two.)

	DW 13-314	DW 14-300	DW 15-476	DW 16-828
2014	1,018,568			
2015	847,000	989,500		
2016	811,000	707,500	903,500	
2017		929,000	886,000	<b>441,750</b>
2018			803,500	<b>421,750</b>
2019				906,750

The company has indicated the reduced spending is due in part to the potential impact of the higher than expected 2016 bid pricing on future year estimates (response to Staff 1-7), as well as a significant increase in non-WICA capital expenditures during this period (response to Staff 2-3). Even with reduced WICA spending in the short term, the program is likely to continue to produce associated benefits such as accelerated infrastructure replacement and spreading of rate impacts, albeit at a lesser rate. The reduced spending should also help the company remain below its tariffed WICA rate cap of 7.5% between rate cases further into the future.

Conclusion

In light of the above comments and the information provided in the case, I believe the 2016 investments are used and useful and were prudently incurred, and recommend approval. I also recommend approval of the 2017 and 2018 projects as currently proposed by Aquarion.

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