

STATE OF NEW HAMPSHIRE

DW 13-314

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NHPUC 23JAN14PM1:48

January 23, 2014

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

Re: DW 13-314, Aquarion Water Company of New Hampshire, Inc.
Water Infrastructure and Conservation Adjustment (WICA)
2014-16 Capital Projects
Recommendation for Approval

Dear Ms. Howland:

On November 1, 2013, Aquarion Water Company of New Hampshire, Inc. (Aquarion) filed a petition for approval of its 2014-16 capital projects under its WICA tariff provision. Accompanying the petition was the prefiled testimony of Carl McMorran, Operations Manager for Aquarion. As explained in its petition, Aquarion has chosen to defer the filing of its 2014 surcharge request in light of its recent base rate case and the subsequent temporary rate and rate case expense surcharge. As Staff understands it, a supplemental filing in this docket will be made by the end of January, proposing a 2014 WICA surcharge to be effective for service on and after April 1, 2014.

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.

In the instant filing, Aquarion seeks final approval for its proposed 2014 projects totaling \$1,018,568, and preliminary approval for its 2015 projects totaling \$847,000. Aquarion has also submitted its list of proposed 2016 projects for informational purposes.

As in previous years, the majority of the proposed 2014 WICA spending is dedicated to the replacement of water main. The 2014 projects are consistent with those submitted for preliminary approval in DW 12-325 except for two changes, one of which is a reduction in the projected cost of one of the main replacement projects. The other change is the addition of two projects originally scheduled for 2013, but deferred when the company substituted other main replacement in areas where the Town of Hampton was conducting sewer work. The substitution of projects during 2013 was the subject of a motion filed by Aquarion in September of 2013 in Docket No. DW 12-325, seeking approval for that substitution of projects into the list of capital projects already approved by the Commission. The Commission deferred ruling on the merits of the motion to this docket. Aquarion's petition also indicates that the company, prior to submitting its petition, had met with the Town of Hampton Board of Selectmen and the Town of North Hampton Water Commission to explain and discuss the proposed WICA project lists for 2014-2016. On December 9, 2013, the Town of North Hampton Water Commission filed a letter indicating that, among other non-WICA issues, the Water Commission was in support of Aquarion's 2014 WICA projects.

Upon receipt of Aquarion's filing and in accordance with the procedure approved by the Commission in Order No. 25,019, Staff contacted the parties to both DW 08-098 and DW 12-085 including OCA, and the Towns of Hampton, and North Hampton to establish a timeframe to review the filing and submit recommendations to the Commission. On November 6, 2013, the OCA filed a notice of participation. On December 12, 2013, Staff, OCA, the Town of Hampton, and Aquarion met in a technical session to review and discuss the filing. Staff propounded data requests to Aquarion at that time, and Aquarion provided its responses on December 23. On January 7, 2014 Staff received a memorandum from Douglas W. Brogan, the Commission's former water and sewer engineer now engaged as a consultant, providing the details of his review of the proposed WICA projects for 2014-16, and his recommendations. That memo, as well as Aquarion's responses to Staff's discovery, is attached to this letter for the Commission's review.

Based on Staff's review of the filing, the discovery materials generated, and Mr. Brogan's recommendations, Staff recommends that the Commission approve the 2014 WICA project list, and provide its preliminary approval of the 2015 projects. Staff estimates that the proposed 2014 WICA spending in the amount of \$1,018,568 would result in a surcharge of 2.17% to customer bills, for service rendered on and after January 1, 2015¹.

The OCA has asked that Staff represent its position as follows:

The OCA takes no position on the technical aspects of the Company's filing. Although it does not agree with the process followed by the Company in making post-approval modifications to its 2013 WICA projects, the OCA appreciates the economies

¹ This surcharge would be in addition to the anticipated surcharge resulting from Aquarion's 2013 WICA capital investment, expected to be requested by the end of January, as discussed earlier.

achieved. The OCA urges the Company to timely engage with stakeholders regarding changes to pre-approved WICA projects and seek any necessary Commission approval of such project changes in the future. The OCA also respectfully requests that the Company address the shortcomings related to its updated main replacement prioritization analysis and updated infrastructure inventory as well as the issues identified concerning the 2014-2016 projects, which the Staff's expert identified in its January 7, 2014 memorandum. Lastly, the OCA appreciates the Company's efforts to mitigate the impact of the recent rate increases by delaying the recovery of the 2013 WICA project costs.

The Town of Hampton does not oppose the planned 2014 WICA projects nor the substitution of projects, as discussed earlier, during 2013.

As indicated earlier, the Town of North Hampton Water Commission has agreed to support the company's 2014 WICA project list.

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

Sincerely,



Mark A. Naylor
Director, Gas & Water Division

Attachments:

1/7/2014 Memo from D. Brogan
Aquarion Responses to Staff Discovery, Set 1
cc: Docket-Related Service List

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: January 7, 2014
AT (OFFICE): NHPUC

FROM: Douglas W. Brogan

SUBJECT: DW 13-314, Aquarion Water Company or New Hampshire
2014 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 13-314, the 2014 WICA adjustment filing of Aquarion Water Company of New Hampshire (Aquarion or company). As the former Division water/sewer engineer, I am acquainted with Aquarion's water system and its WICA pilot program. The program was introduced in 2009 in Docket No. DW 08-098 (see Order 25,019). WICA project lists were first submitted and approved in DW 09-211, with actual WICA surcharges approved in DW 10-293, DW 11-238, and DW 12-325. The DW 12-325 adjustment was collected in the form of a step increase in the company's rate case, DW 12-085, and WICA rates were reset to zero at that time.

As noted in the final order in DW 12-325, "The purpose of the WICA is to allow Aquarion to recover through a surcharge on customer bills the fixed costs of certain pre-approved non-revenue producing capital improvements completed and placed in service between general rate cases." (Order 25,455, January 17, 2013, p. 1) A WICA surcharge is typically approved for improvements done in the year just completed, and projects for the ensuing three years are submitted for varying levels of approval or information according to pilot program guidelines. The company is currently seeking final approval of proposed 2014 projects and preliminary approval of 2015 projects, with 2016 projects provided for informational purposes.

Unique Factors Regarding Current Filing

Several notable issues were at play in the current WICA filing, as described below:

- 1) The company's 2013 WICA project list received final approval on January 17, 2013, in Nisi Order 25,455 in DW 12-325. However, as a result of sewer work by the Town of Hampton on several streets in one neighborhood in 2013, the company opted to do WICA water main replacements on those same streets for cost-saving and other reasons. This resulted in a substitution of WICA projects and in effect bumped most of the other approved water main projects off the list for 2013. This occurred without the collaborative participation of Staff or other parties.

- 2) The company neglected to inform the Commission or parties of the substitution until September 6, 2013, when it filed a motion in DW 12-325 (Motion) seeking approval of a revised 2013 WICA project list. The Commission denied the request in Order 25,584, essentially postponing its consideration to the instant docket.
- 3) The current WICA case involves a bifurcated filing for the first time. The initial November 1, 2013 filing deals with the requisite approvals and other matters related to the 2014 - 2016 project lists. A separate filing addressing the 2013 projects and seeking approval of the associated 2014 surcharge is anticipated by the end of the month. In this regard the company in effect seeks approval of future year projects before providing testimony and details regarding the 2013 project substitutions.

While these circumstances may appear somewhat alarming on the surface, I do not believe they are as serious as they may seem. This conclusion is based on information provided in the Motion; in a technical session held with the company, Town of Hampton and OCA on December 12, 2013 (and a letter from the North Hampton Water Commission dated December 9, 2013); and information obtained through discovery in the current case.

The information provided to date indicates the company itself learned of Hampton's sewer work relatively late in the process, in early 2013; that the 2013 project substitutions were done for a number of valid reasons, as explained in the Motion and elsewhere; and that communications with municipal personnel involved in planning sewer work and road paving in the three towns served by Aquarion are ongoing and not deficient (see Motion and response to Staff 1-5). While there is always room for improvement, no change to the WICA program appears necessary in this regard at this time. I again note, however, that a final decision on the prudence of the 2013 projects is not yet due, as that filing has not yet been made.

The company acknowledges it could have informed Staff and other parties of the 2013 substitutions in a more timely manner, and has committed to submit a proposal addressing such a situation should it occur in the future (response to Staff 1-6 b). Regarding the bifurcation, the company's filing indicates it was done essentially to put some time between recent rate case and temporary rate recoupment surcharges and a new WICA surcharge; and, in response to Staff 1-7 b, the company has stated it does not anticipate such bifurcations in the future.

General Comments on Filing and 2014 - 2016 Projects

Minor modifications to the WICA program, as approved by Order 25,539 in DW 12-085, are reflected in the current filing. These include exclusion of customer meters and elimination of the first \$50,000 of emergency or reactive replacement of services, valves, and hydrants.

Order 25,539 also required the company to provide an updated main replacement prioritization analysis and updated infrastructure inventory in its annual WICA filing. The company has provided this as Attachment CM-II to Mr. McMorrans' testimony. The description of the various rating categories in the attachment is provided on page 1 of Attachment CM-I. In addition to providing the actual Att. CM-II inventory listing in this case, the following enhancements have been made:

- a) Category descriptions on page 1 of Att. CM-I have been expanded and updated, with more detail provided;
- b) A category for “Bleeders (Non-revenue water)” has been added since the WICA filing in DW 12-325;
- c) Numbers in the Att. CM-II matrix have been updated (response to Staff 1-3).

Although very detailed in some respects, I also note the following shortcomings in Att. CM-II:

- a) Four of the fifteen pipe segments identified for the 2014 - 2016 projects in the response to Staff 1-10 (those for Gentian Road and Green Street) are located 9 pages into Att. CM-II with a relatively low ranking.
- b) I was unable to locate the pipe segment for the Well 9 Transmission Main project anywhere on the list.
- c) A number of projects rely to varying degrees on ‘Staff Priority’ points to garner a sufficient point ranking. For example, two of three Meadow Pond Road segments have a base score of 7 and are assigned 6 additional Staff Priority points to qualify.
- d) Nearly all the “Rt 101 Cross Country” pipe segments in Att. CM-II indicate an installation date of 1955, while a report attached to the response to Staff 1-16 indicates what is presumably the same main as dating from “the early 1900s” (but see para. ‘d’ below).

However, I believe these issues are relatively minor. Att. CM-II is a useful tool that serves more as a general guide for replacement decisions, with final decisions requiring significant input from operations personnel. Projects are added or dropped off the list from year to year based in part on factors not readily quantifiable in such a matrix (see, for example, response to Staff 1-2). However, the company should continue its efforts to keep the matrix up to date to allow it to serve its intended purpose.

Regarding specific 2014-2016 projects, I note the following:

- a) The Well 9 Transmission Main, completed last month (in the 2014 project cycle), includes certain costs that will not be WICA-eligible (response to Staff 1-11 and 1-12). The extent of those costs had not yet been determined.
- b) The length of the Ross Avenue project is 950 feet, not 200 feet as indicated in Att. CM-I (response to Staff 1-12).
- c) The cost of the “Ocean Boulevard - Dumas Ave to Winnacunnet Road)” project dropped by nearly 25% from a previous estimate, due largely to a decision to pursue trenchless technology (pipe bursting) instead of open cut construction (response to Staff 1-13). The willingness to consider such technologies and cost savings reflects well on the company’s planning.
- d) Another large project, “Rt 101 – Glade Path to Tide Mill Road”, has consistently appeared on WICA project lists but was removed in the current filing after the company was able to ascertain it had no significant leaks (response to Staff 1-16). It remains a key transmission link, however, in that it runs beneath a salt marsh and is one of only two normal distribution system supply routes to Hampton Beach. The company’s efforts to assess the status of the main, and its use of outside engineering expertise to evaluate replacement alternatives (report attached to Staff 1-16), again speak well of company

planning efforts. The actual age of the main is not of great consequence at this time since the replacement is not included in the current project listing.

Although I did not attempt to calculate what the actual resulting surcharges would be from the proposed projects each year, the annual totals are generally comparable to past WICA budgets and should fall well within the surcharge caps established in DW 08-098 (5 percent revenue increase per year and 7.5 percent total between rate cases). Water main projects continue to comprise the bulk of the proposed projects. I have no significant concerns with the remaining portions of the WICA proposal (valves, production meters, hydrants, and service lines) as submitted.

My impression is that the company is efficient in its use of resources and oversight of infrastructure needs. In reality those needs may be larger than the WICA program can accommodate, so the company must invest its resources carefully. Generally the program appears to be working and the proposed 2014 - 2016 projects appear reasonable. While some limited questions on the 2013 project substitutions may remain, I see no reason to withhold approval of the 2014 and 2015 proposed projects as requested.

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

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-1

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Regarding the Pipe Age/Useful Life Ratings identified on page 1 of McMorran Attachment CM-I:

- a) Please comment on the high rating given mains installed in 1914 or earlier given that pre-1920 cast iron mains were generally pit-cast with substantially thicker walls and longer (up to 130 year) estimated average service lives.
- b) Please comment on the extent to which the age intervals listed are NH-specific, v., for example, Connecticut-based or more general in nature.

RESPONSE:

- a) . Though there is variability in pipe material quality and service life based upon age and origin of production, at this time it is not practical for the Company to apply different age-based scoring for pipes manufactured prior to 1920. While certain old mains appear to be in good shape, others have experienced frequent breaks, discoloration events and other problems attributable to age. Implementing pipe segment by pipe segment field condition measurements is impractical and cost prohibitive; therefore the Company currently applies the Pipe Age / Useful Life score uniformly to all pipes in its system.
- b) These intervals are New Hampshire specific and determined by the Operations Manager.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-2

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: 'Staff Priority' points in McMorran Attachment CM-11 can to some extent override other criteria (a rating of '6' exceeds the highest rating possible in any other category), and do not appear entirely consistent with the remarks in the 'Comments' column alone (for example, mains having the same comment of 'Too shallow, must be bled in winter, contributes to high NRW' have varying Staff Priority ratings of 2, 3, 5 or 6)

In light of this, please elaborate on the reasoning behind each Staff Priority rating of 5 or 6.

RESPONSE: Staff Priority is a number needed for management's subjective judgment for prioritizing main replacement projects. The 0 to 3 scale is useful in making comparisons between main segments, but doesn't account for the relative weight between categories. There are other subjective factors (e.g., magnitude of estimated cost versus available funding, design timelines, lost water impacts, seasonal timing constraints, neighborhood concerns and constraints) that are not considered in these objective factors, but which Company management must consider in proposing these projects. Also, the fact that many pipe segments score high is an indication that many warrant replacement in the near future; far more than the Company has resources for, so prudent judgment must be applied in establishing the immediate priorities.

- (1) Ocean Boulevard scores high enough to be ranked as the top priority without consideration of a Staff Priority score. It is ranked first because of the very high expense associated with two main breaks, the sensitivity of these breaks relative to the neighborhood, and the fact that it is one of only two transmission mains to the beach.
- (2) Boar's Head Terrace has a Staff Priority score of 6 because of the extremedifficulty that will arise if a break occurs in the alley where this main is located. The alley is too narrow for mechanized equipment. A break would have to be excavated by hand, a lengthy and dangerous project. This risk warrants raising its priority above other similarly scored pipe segments.
- (3) Ross Ave has a Staff Priority score of 5 because this main was installed at too shallow a depth and must be bled in most winters to prevent it from

freezing. This results in an undesirable loss of water and eliminating bleeders is a high management priority.

- (4) Meadow Pond Road / Green Street / Gentian Road have a Staff Priority score of 6 because these mains were installed at too shallow a depth and must be bled in most winters to prevent them from freezing. This is an undesirable loss of water and eliminating bleeders is a high management priority.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-3

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Please indicate the ways in which Attachments CM-I and CM-II to Mr. McMorran's testimony provide "an updated main replacement prioritization analysis and updated infrastructure inventory listing" to that provided previously. (McMorran testimony p. 5, lines 8-10)

RESPONSE: These columns are revised periodically when GIS records are updated after completion of main replacement projects or after other field data becomes available. All main segments are reviewed and updated with current information in the annual capital budget process.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013 Date of Response: December 23, 2013
Request No.: Staff 1-4 Witness: Carl McMorran

REQUEST: Regarding the Auburn Avenue, Perkins Avenue, and Auburn Avenue Extension main replacements identified in the Company's September 2013 "Verified Motion for Approval of Modifications to Aquarion's 2013 WICA Project List" in DW 12-325:

- a) Please identify the pipe segment number(s) from McMorran Attachment CM-11 for each of three mains replaced;
- b) To the extent the numerical ratings of the relevant pipe segments now reflect the updated mains, please explain what the numerical ratings were prior to replacement; and
- c) What was the approximate dollar value of savings from sharing paving costs with the Town of Hampton?

RESPONSE:

- a) Main segment IDs
 - a. Perkins Ave 657 1521
 - b. Auburn Ave 658 1520
 - c. Auburn Ave Ext 659

b) All main segment scores are currently zero as shown in CM-II. Prior to their replacements, scores were:

Factor	Auburn Ave	Auburn Ave Ext	Perkins Ave
Break History	3	3	3
Bleeder	0	0	3
Useful Life	1	1	1
Material Integrity	2	1	2
Critical Component	0	0	0
Water Quality	0	0	0
Hydraulic Improvement	0	0	0
Scheduled Road Work	3	3	3

c) \$12,200

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-5

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: The Company indicated in its September 2013 Verified Motion in DW 12-325 that it didn't become aware of the associated sewer replacement work by the Town of Hampton until February (Auburn Avenue and Perkins Avenue) and April (Auburn Avenue Extension) of this year. However, in testimony in DW 12-085 the Company indicated it meets "regularly with the local officials including the North Hampton Water Commission, town managers and public safety officials. The Company also meets with its Customer Advisory Council and with the chiefs of local fire departments." (Hibbard testimony page 8, lines 11- 14)

In its June 7, 2013 Closing Statement in the same case, the Company summarized comments of the Hampton Town Manager and the Chairman of the Board of Selectmen during Day One of the final hearing in the case as indicating, "The Company works with the Town to coordinate the replacement of water lines with the Town's Road Maintenance and Sewer Replacement programs and is very aggressive in completing such work". (Closing Statement, page 3) In this regard:

- a) What entity or entities make decisions regarding sewer main work and/or street repaving in each town;
- b) What level of contact does the Company maintain with each of these entities?
- c) When did the Town of Hampton itself make the decisions regarding the sewer work on the three streets above?
- d) Does the Company believe any breakdown in communication occurred in this particular instance?
- e) Does the Company have any recommendations on how to improve the flow of information between the towns and Company regarding potential sewer work or street paving?

RESPONSE:

- a) The Public Works and Finance departments and Select Boards of each Town and the New Hampshire Department of Transportation all provide input relative to sewer main work and street repaving.
- b) Aquarion's Operations Manager and Distribution Foreman both have direct contact with the various Public Works directors, their operating foremen and administrative staffs.

c) Representatives of the Town of Hampton initially indicated to Aquarion in August 2012 that the Town did not intend to pursue the beach sewer main projects in the following year or in the near term. It is the Company's understanding that the Town of Hampton made the decision to replace the sewers on these streets in September 2012. The Company learned of the Town's decision in January 2013.

d) The Company does not believe that a "breakdown in communication" occurred. The Company made a good faith effort to coordinate its upcoming project slate with the Town in August 2012. However, the Town subsequently made changes to its sewer main replacement schedule in the course of its own planning efforts. It is the Company's understanding that the individuals involved in this decision were not aware that the change would have a significant impact on the Company's plans and therefore the change was not communicate to the Company until January 2013, after the 2013 WICA project list had been submitted and approved. The Company regrets not having notified Staff and the parties at that time. As discussed at the technical session, the Company is prepared to work with Staff and the parties to propose a process to minimize the potential for such situations in the future

e) The Company intends to continue to collaborate with and regularly seek input from key representatives of the Towns to best coordinate WICA projects and municipal projects.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-6

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: The Company notified the Commission of the proposed 2013 WICA substitutions in September of this year. On page 2, however, of the Company's response to Staff 3-12 in DW 12-085 (under "Oversight of projects"), the Company stated:

"Prior to the WICA program, the Company first completed capital projects and later sought recovery of costs through the rate case process. In Dockets DW 09-211 and DW 10-293, the Commission, Staff, OCA and Towns have all had the opportunity to express an opinion or preference with respect to which projects the Company is anticipating to complete in the forward three years, and the Company cannot undertake such projects under the WICA program without first obtaining Commission approval. Projects included in the Company's most recent filing, DW 12-325, will be subject to the same review. As noted above, this ... consultative process was cited by the Commission as a benefit to all stakeholders."

- a) Does the Company agree the late substitution of new projects for previously approved ones at some level interrupts and circumvents the WICA process, even if the substitutions had merit and were prudent?
- b) Would the Company be amenable to notifying Staff, the OCA and towns as soon as practicable after it becomes aware of a proposed change in WICA projects in a given year?

RESPONSE:

- a) By substituting certain projects in the 2013 WICA project year to realize opportunities for efficiency and cost savings, the Company did not intend to circumvent the WICA process. The Company agrees that consultation with Staff and all parties would have been better in this case, rather than just consultation between the Company and the town where the project was located.
- b) Yes. As discussed during the technical session held on December 12, 2013, the Company plans to submit a proposal to Staff and the parties that provides for prior notice relating to changes to the list of approved WICA projects.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-7

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: The Company has indicated in the current filing that it will provide additional details and testimony relating to the main replacement substitutions after the first of the year. (Petition footnote, bottom of page 4; McMorran testimony p. 8, lines 13-14 and p. 9, lines 4-7) In this regard:

- a) Does the Company agree that the filing of detailed information and testimony about the substitutions in this instance two or more months after the initial WICA filing further complicates both the required analysis and the ability of the affected parties to collaboratively participate regarding the 2013 work and the proposed 2014, 2015 and 2016 projects?
- b) Does the Company anticipate similarly bifurcated WICA filings in future years?

RESPONSE:

- a) The Company's decision to submit supplemental testimony and information supporting the surcharge for 2013 projects is consistent with the language of the settlement agreement and order establishing the WICA program. As indicated in the Company's petition and the supporting testimony of Carl McMorran, Aquarion decided to postpone its submission of 2013 project costs to mitigate the impact of the WICA surcharge following the implementation of rate case and temporary rate recoupment surcharges. The Company believes that that the Staff, OCA, and Towns should be able to work collaboratively with respect to the proposed 2014 – 2016 projects prior to submission of the portion of the Company's filing supporting the 2013 WICA surcharge.
- b) The Company does not anticipate submitting similarly bifurcated WICA filings in future proceedings.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-8

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Please list actual main replacements by year from establishment of the WICA pilot through 2013, including location, length and cost, in the following categories:

- a) Replaced under the WICA program;
- b) Replaced outside the WICA program.

RESPONSE:

- a) Replaced under the WICA program;

Project	In service date	Location	Length	Cost
Atlantic Ave	4 Aug 2010	Mill Rd to House 106, North Hampton	2,145	\$570,697
Atlantic Ave	11 Aug 2011	House 106 to Woodland Road, North Hampton	2,460	\$698,937
Atlantic Ave	18 Jun 2012	H 539 to Maple Rd, North Hampton	1,750	\$553,908
Church St	1 May 2013	Highland Ave to Williams St, Hampton	700	\$133,335
Auburn Ave	11 Jul 2013	Ashworth Ave to end, Hampton	430	\$213,233
Auburn Ave Ext	11 Jul 2013	Auburn Ave to Perkins Ave, Hampton	260	\$86,195
Perkins Ave	22 Aug 2013	Ashworth Ave to end, Hampton	515	\$259,918

- b) Replaced outside the WICA program:

Project	In service date	Location	Length	Cost
Cross country main	11 Dec 2009	Fairway Dr, Rye to Pond Path, North Hampton	1,100	\$204,500

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-9

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Have any engineering studies or reports been done in regard to the Company's transmission/distribution system since the 2007 Integrated Water Resource Plan by Tata & Howard? If so, please identify or provide.

RESPONSE: No new studies or reports have been performed since 2007.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-10

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Please identify the following for each project:

- a) The specific pipe segment numbers involved, from McMorran Attachment CM-II;
- b) The existing and proposed main size; and
- c) The type of main proposed (DI, PVC, etc.).

RESPONSE:

Project	Segment IDs	Diameter		Proposed Material
		Existing	Proposed	
Well 9 Transmission Main	1425	8-in	4-in	DI
Ocean Blvd – Dumas Ave to Winnacunnet Rd	524	12-in	12-in	HPDE
Great Boars Head – Cliff Ave to Ocean Blvd	531 533	8-in	4-in*	DI*
Ross Ave	547 556 1397	6-in	6-in*	DI*
Gentian Rd	725 726	6-in	6-in*	DI*
Green St	720 724	6-in	6-in*	DI*
Meadow Pond Rd	721 722 723	6-in	6-in*	DI*
Ocean Blvd – Boars Head Terr to Highland Ave	1125	8-in	12-in*	To be determined*

* subject to change pending final project design.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-11

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Please explain the variation in the diameter, length and cost of the well 9 transmission main, shown in separate filings as follows:

- a) 12-inch, 300 foot, \$67,000, in November 2012 McMorran supplemental testimony in DW 12-325;
- b) 12-inch, 300 foot, \$36,000, in September 2013 Verified Motion for Approval of Modifications to Aquarion's 2013 WICA Project List in DW 12-325; and
- c) 6-inch, 40 foot, \$67,000, in the current filing (November 2013).

RESPONSE: Changes in diameter and length from 12-inch / 300 feet to 6-inch / 40 feet are due to interim changes in project scope. The Company originally proposed to replace the full length of transmission main, but subsequently reduced the scope of the project to the length of pipe from the pump discharge to the first yard valve.

The estimated cost shown in paragraph (a) reflects estimated design costs for the well 9 transmission main project as of November 2012; the Company subsequently revised its design estimates for that project based upon actual design costs of similar projects, and that change is reflected in the estimated cost shown in paragraph (b). Prior to submitting its project list in the current filing, the Company determined that it could complete the discrete portion of the project described above at an estimated construction cost of \$67,000, the originally budgeted amount. That revision is reflected in paragraph (c).

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-12

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Please explain the reason for the very high cost per foot of the following main replacement projects:

- a) Well 9 Transmission Main (\$1675/foot); and
- b) Ross Avenue (\$1335/foot).

RESPONSE:

a) Well 9 Transmission Main. This estimate is for the total project cost, which includes other appurtenances (e.g., check valve, air relief) between the pump discharge and the first yard valve which will not be included in WICA. The actual costs to be included in WICA will be determined after Jan 1, as the project was completed in December and actual costs will be booked as of December 31. The Company expects that the cost per foot to be included in WICA will be in line with other WICA projects.

b) Ross Avenue. There is a typographical error in the table for the length of main to be replaced. It should be 950 feet, not 200. The estimated cost per foot for this project is \$281/foot (\$267,000 / 950 ft).

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-13

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: The construction cost estimate of the "Ocean Boulevard - Dumas Ave. to Winnacunnet Road" project dropped from \$865,000 in the September 2013 Verified Motion in DW 12-325, to \$663,968 in the current filing.

Please identify some of the other cost savings in addition to more favorable pricing on materials, as referenced in McMorran testimony page 6, lines 7-12.

RESPONSE: The difference results from revisions to project plans. It is largely attributed to switching from conventional trenching to using trenchless technology. The old pipe will be burst and the new main pulled through in its place. This will require a handful of excavations, as opposed to trenching the entire length of the project. The reduced amount of expected trenching, paving and other restoration results in lower expected costs.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-14

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: Regarding the "Great Boars Head- Cliff Circle to Ocean Blvd" replacement:

- a) Is this the same as the "Great Boars Head (back alley main)" in the DW 12-325 WICA filings?
- b) Will the new main be laid in the same alley?
- c) Please provide a map or schematic showing the location of the referenced main in relation to the other streets on the Boars Head promontory.

RESPONSE:

- a) Yes b) No c) map below



AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-15

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: For any instances in which main replacements are proposed contrary to the overall point rankings in McMorran Attachment CM-II, please explain.

RESPONSE: There are no instances in the Company's filing in which main replacement projects proposed in an order that is not consistent with the overall point rankings in Attachment CM-II.

AQUARION WATER COMPANY OF NEW HAMPSHIRE, INC.
DW 13-314

Aquarion Water Company's Responses to
Staff's Data Requests – Set #1

Date Request Received: December 12, 2013
Request No.: Staff 1-16

Date of Response: December 23, 2013
Witness: Carl McMorran

REQUEST: The Route 101 water main across the tidal swamp from Tide Mill Road to Glade Path was included in WICA listings in DW 11-238 and DW 12-325 but is not listed in the current filing. In regard to this main:

- a) Please identify the pipe segment number(s) involved, from McMorran Attachment CM-II.
- b) Has this main ever been tested for leaks? If so, when, in what manner, and what were the results?
- c) A July 17, 2012 letter from the Company to Mary-Louise Woolsey in response to an Advisory Council request provided a listing of 2012 capital projects that included a "Rt 101 Alternatives Analysis". If this analysis was completed, please provide any results.

RESPONSE:

- a) 598, 599, 1159, 1160, 1226, 1227 and 1228
- b) It was tested in 2013 by closing a distribution valve at the east end of the marsh, then observing the flow meter at the Tide Mill pressure reducing valve at the west end of the marsh. Minimal flow was observed (only a few gpm), therefore the Company concluded that no large leaks are currently present.
- c) The letter report of the alternatives analysis performed by Tata & Howard is Staff 1-16 Attachment A. This report is limited to evaluating different alternatives for replacing one segment of main that crosses a long stretch of salt marsh. It is not concerned with how the main segment should be prioritized.

August 15, 2012

Carl McMorran, Operations Manager
Aquarion Water Company of New Hampshire
7 Scott Road
Hampton, NH 03842

Subject: Route 101 Water Main Alternatives Analysis
Hampton, NH

Dear Carl:

We have prepared this letter report summarizing the results of the analysis comparing open cut versus trenchless technology methodologies for the replacement for the existing 12-inch diameter water main on New Hampshire Route 101 between Landings Road and Church Street. Through discussions with Aquarion, results from the exploratory borings, and using data from similar past projects, it is recommended to construct a new 12-inch diameter high density polyethylene (HDPE) water main within the east bound shoulder of Route 101 using horizontal directional drilling (HDD), a trenchless technology method of construction. A discussion of our analysis is provided herein.

The existing water main along Route 101 is a 12-inch diameter cast iron water main, installed in the early 1900s. The portion of the main in consideration for replacement is from the intersection of Route 101 with Church Street, to approximately 2,200 feet east of the intersection with Landing Road. As shown on Figure No. 1, the existing main is located in the westbound shoulder of the road from the Glade Path Tank to approximately 420 feet west of the intersection of Church Street. At this point, the main enters into the salt marsh wetland, and runs parallel to Route 101 approximately 30 feet from the road, and crosses under the Hampton River. After crossing the Hampton River, the main enters a cross country easement towards Tide Mill Road. Numerous breaks have occurred along the existing water main, with the breaks occurring underneath the Hampton River and within the adjacent wetland resource area. Due to the location of the main, the repair of breaks is costly, difficult, and disturbs the wetland habitat. The existing water main is also likely to have experienced heavy degradation in strength and wall thickness, as the main is located in corrosive soils and groundwater with a high saline content.

Open trench and two trenchless technology methods of construction were considered as potential replacement options. The two trenchless technologies methods considered were pipe bursting and HDD. These methods were considered since the existing main is a transmission main without water service connections. Numerous factors were evaluated to determine the preferred method of construction for the replacement of the existing water main. Factors taken into consideration were constructability, soil contamination issues, estimated cost, environmental and regulatory permitting, ease of future maintenance, and client preferences for water main material and location.

Through discussions with Aquarion, it was revealed that contaminated landfill material was possibly used for construction of the roadbed for Route 101. Subsurface boring explorations were conducted by Tata & Howard approximately every 330 feet along the proposed water main route to evaluate if soil contamination was a consideration for the method of construction. Two of the soil samples exhibited a petroleum hydrocarbon odor and were analyzed by a qualified laboratory. The samples were analyzed for heavy metals, total petroleum hydrocarbons, and PCBs. The results of the analysis indicated that none of the tested parameters were above federal or state maximum contaminant limits. Soil contamination was not a factor in selecting a method of construction. The laboratory results and soil borings are attached.

Environmental permitting requirements were evaluated. Due to the location of the existing main under the Hampton River and the adjacent wetlands area, extensive wetlands permitting would be required to use an open trench method of construction. Work within a wetlands resource area would require permitting with the NH Department of Environmental Services, local permitting and permitting with the US Army Corps of Engineers due to the disturbance to the wetlands and temporary impeding of flow of a river. Installation of a water main in a wetland or waterbody would make it difficult to identify leaks, and limit accessibility.

The initial alternative considered for replacement was to replace the main using open trench methods. The existing main could be installed adjacent to the existing main, or installed within Route 101 as shown in the attached Figure No. 1. The first option would require work in the wetlands resource area and river, making construction more costly due to wetlands permitting costs, dewatering costs, and make future repairs difficult. Installing the main using traditional methods in Route 101 would remove the main from the wetland; however, it would significantly disturb the pavement and the flow of traffic along Route 101 during construction. Based on discussions with the NH Department of Transportation (DOT), there would be limitations on the time of year and potential time of day that construction would be allowed if the main is located within the travel lanes of Route 101. Permitting with DOT would also be an extensive process, as large portions of the existing roadbed and pavement would be disturbed. Results from the exploratory borings revealed that groundwater along Route 101 is at a depth 3 feet, which would lead

to costly dewatering and silt prevention measures. Ductile Iron (DI) is typically the pipe material installed using traditional installation methods. The replacement main for this project would be wrapped in a polyethylene sleeve to help prevent corrosion. Open trench installation was eliminated as a viable option due to the costs associated with wetlands and DOT permitting and paving requirements, as well as the potential for night construction, which would increase the construction costs.

Two trenchless technology methods of construction were considered. The first method was pipe bursting the existing water main. Pipe bursting consists of pulling a bursting head attached to a new HDPE main through the existing water main, with start and termination pits approximately every 500 feet. The end result is a new HDPE water main with fused joints to create a seamless stretch of water main. HDPE is the preferred material for pipe bursting as it is installed using fused joints, which creates a jointless main along the entire length of the installation, except at hydrant and fitting locations. In addition, HDPE is not vulnerable to corrosion, and the smooth wall of the pipe allows bursting to occur in greater lengths than using DI. Although pipe bursting is more viable than open cut methods, the new main would still be located in the wetland, which limits the accessibility of the main. Therefore, this alternative was removed from consideration.

The second method of trenchless construction methods considered was HDD. HDD consists of excavating start and termination pits and pushing steel rods between the pits to create a pilot hole. The pilot hole is reamed out to a diameter of the replacement main, and then a new HDPE water main is pulled through the bore hole. As with pipe bursting, HDPE is the preferred material for HDD as it can be fused to create a jointless pipe, minimizing friction during pullback of the main. Installation of DI via HDD also requires the use of a carrier pipe, greatly increasing costs. Constructing the new main within the unpaved shoulder of Route 101 would minimize traffic and pavement disruption and reduce design costs associated with permitting with NH DOT. Based on discussions with NH DOT, relocating the main in the shoulder of Route 101 is preferred by DOT, and would also allow access for future maintenance. It is recommended that the replacement main be installed within the eastbound shoulder of Route 101 to avoid communication cables along the westbound side of the road.

The Hampton River crosses Route 101 at the western end of the proposed water main replacement. Through meetings with Aquarion, it was determined that suspending the replacement main from the bridge would be favored versus installing the main under the river via HDD. Hanging the main from the bridge deck using insulated pipe also allows easier access for future maintenance.

Estimates of probable construction costs for installation of the proposed water main were compiled using previous Tata & Howard HDD and bridge crossing projects, as well budgetary estimates from qualified contractors. The budgetary cost for the 3,750 linear

foot (LF) portion of the project, installed by HDD is \$275/LF, or approximately \$1,031,300. The estimated cost for the bridge crossing across the Hampton River is \$100,000. The total estimated project cost, including engineering, is approximately \$1,415,000. In order to assist in your review, we have attached a locus map depicting the existing and proposed water mains, the exploratory boring logs, and the results from the soil testing analysis.

We appreciate assisting Aquarion on this important main replacement project. If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,
TATA & HOWARD, INC.


Jenna W. Rzasa, P.E.
Associate

Attachments



Bridge crossing

Approximate location of
existing 12" water main

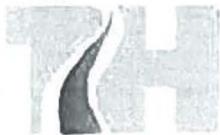
Proposed location of
new 12" HDPE water main

Route 101

Legend

- Proposed Water Main Route
- Existing Water Main Route

Map Reference: USGS 7.5 Minute Quadrangle
Hampton, 1973
New Hampshire State Plane NAD 1927



TATA & HOWARD
Water and Wastewater Consultants

Date: November 2012 Scale: 1=375'

Locus Map

Route 101 Water Main
Aqurion Water Company of NH
Hampton, NH

Figure No.

1

Table 1
Summary of Soil Analytical Results
Route 101 Water Main
Hampton, New Hampshire

<i>Sample Location</i>	B-4A S-3	B-4A S-4	NH
<i>Sample Date</i>	07/09/12	07/09/12	Soil
<i>Sample Depth (feet)</i>	4-6	6-8	Remediation
PARAMETER - Method (units)			Standards
Total Metals - EPA 6010C/7471B (mg/kg)			
Arsenic	3.3	10	11
Barium	48	63	1,000
Cadmium	0.37	<0.28	33
Chromium	34	52	130
Lead	51	6.9	400
Mercury	0.033	<0.027	6
Selenium	<5.6	<5.6	180
Silver	<0.56	<0.56	89
PHCs - 8100M (mg/kg)	610	52	10,000
PCBs - EPA 8082A (mg/kg)	All ND	All ND	

Notes:

1. mg/kg = Milligrams per kilogram.
2. ND = Not detected above Method Reporting Limit.
3. PHCs = Petroleum hydrocarbons and PCBs = Polychlorinated biphenyls.
4. Values preceded by "<" indicate that the result was non detect and the method reporting limit is shown.