

SANFORD LAW OFFICE, PLLC
Jo Anne Sanford, Attorney at Law

August 21, 2019

Ms. Shonta Dunston, Deputy Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4325

Via Electronic Delivery

Re: Docket Nos. W-218, Subs 497 and 497A
Aqua North Carolina, Inc.'s Affidavit of Bernard F. Thompson in
Response to Comments of Public Staff Regarding Benefits
Associated with Automated Meter Reading ("AMR") Technology
Deployment

Dear Ms. Dunston:

Attached for electronic filing please find the Affidavit of Bernard F. Thompson, Director of Purchasing for Aqua America, Inc., filed by Aqua North Carolina, Inc. in response to comments of the Public Staff regarding benefits associated with AMR technology deployment.

As always, thank you and your staff for your assistance; please feel free to contact me if there are any questions or suggestions.

Sincerely,

Electronically Submitted

/s/Jo Anne Sanford
State Bar No. 6831
Attorney for Aqua North Carolina, Inc.

c: Parties of Record

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497
DOCKET NO. W-218, SUB 497A

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of
Application by Aqua North Carolina,)
Inc., 202 MacKenan Court, Cary North)
Carolina 27511 for Authority to Adjust)
And Increase Rates for Water and)
Sewer Utility Service for all Areas)
in North Carolina)

AFFIDAVIT OF
BERNARD F. THOMPSON,
DIRECTOR OF PURCHASING,
AQUA AMERICA, INC. -
RESPONSE TO PUBLIC
STAFF COMMENTS

NOW COMES Bernard F. Thompson, Director of Purchasing, Aqua America, Inc. ("Aqua America"), being duly sworn, who hereby executes this Affidavit on behalf of Aqua North Carolina, Inc. ("Aqua NC" or "Company") in Docket Nos. W-218, Subs 497 and 497A. This filing is in response to Comments filed by the Public Staff in Docket No. W-218, Sub 497 on July 26, 2019, and August 13, 2019, concerning the benefits associated with Automated Metering Reading ("AMR") technology deployment.

A. Procedural Statement

On December 18, 2018, the Commission entered an Order in Docket No. W-218, Sub 497, captioned *Order Approving Partial Settlement Agreement and Stipulation, Granting Partial Rate Increase, and Requiring Customer Notice* ("2018 Rate Case Order").

Ordering Paragraph No. 26 of the Commission's 2018 Rate Case Order, at page 186, provides as follows:

That Aqua NC shall take the appropriate measures to share the 40-day read history collected by the Company's AMR [advanced meter reading] technology with the AMR-metered customers and shall notify the Commission when such information is being shared, including how such information is being provided to customers.

Further, Ordering Paragraph No. 27, at page 186 of the 2018 Rate Case Order, provides as follows:

Within six months following the issuance date of this Order, Aqua NC shall file a report informing the Commission regarding the specific nature of the expected benefits to be achieved on a consolidated basis for the Aqua America subsidiaries, including Aqua NC, once full deployment of AMR technology is completed in all Aqua America operating states. Such report shall also indicate the planned timing of such expected benefits.

On June 18, 2019, Aqua NC filed the Affidavit of Lisa Gresehover, the National Metrology Manager for Aqua America, in compliance with Ordering Paragraph Nos. 26 and 27 of the Commission's 2018 Rate Case Order. In her Affidavit, Ms. Gresehover stated that, as required by Ordering Paragraph No. 26, Aqua NC would notify the Commission at such time as the Company determined that it would be in a position to share the 40-day read history collected by its AMR technology with its AMR-metered customers, including a description of how such information would be provided to its customers. In addition, Ms. Gresehover provided Aqua NC's report on AMR benefits in compliance with Ordering Paragraph No. 27 and requested, on behalf of the Company, that the Commission accept and acknowledge the Company's June 18, 2019 Report on AMR Benefits as being in full compliance with the requirements of Ordering Paragraph No. 27.

On June 27, 2019, the Commission entered an Order allowing interested parties to file comments by July 26, 2019, regarding the following: Aqua NC's

response to Ordering Paragraph Nos. 26 and 27; Aqua NC's comment concerning the status of sharing the 40-day read history collected by the Company's AMR technology with AMR-metered customers; and Aqua NC's report on AMR benefits, respectively. The Order further provided that Aqua NC could file reply comments by August 9, 2019.

On July 26, 2019, the Public Staff filed 22 pages of comments in Docket No. W-218, Sub 497; no other party filed. In its comments, the Public Staff noted that, as of the time of its filing, Aqua had not provided responses to Items 8, 10, 11, and 12 of the Public Staff's July 9, 2019 Legal Data Request No. 1. For that reason, the Public Staff stated that it reserved the right to file supplemental comments after evaluating Aqua's responses to Items 8, 10, 11, and 12. The Company's responses to those four data request items were provided to the Public Staff on July 26, 2019.

On August 6, 2019, Aqua NC filed a motion requesting an extension of time to file reply comments regarding the Public Staff's July 26, 2019 comments. In its motion, Aqua NC stated that upon its review of the Public Staff's comments and in consideration of the Public Staff's reservation for an opportunity to file supplemental comments regarding the Company's responses to Items 8, 10, 11, and 12 of the Public Staff's July 9, 2019 Legal Data Request No. 1, the Company required additional time to prepare its reply comments. In its motion, Aqua NC also requested that, in the interest of judicial economy, the Commission require the Public Staff to file any supplemental comments regarding the Company's responses to the aforementioned four data request items no later than Tuesday,

August 13, 2019, and grant Aqua NC an extension of time until Wednesday, August 21, 2019, to make its responsive filing.

On August 8, 2019, the Commission entered an Order granting Aqua NC's motion for an extension of time to file reply comments.

On August 13, 2019, the Public Staff filed supplemental comments in response to the Company's responses to Items 8, 10, 11, and 12 of the Public Staff's July 9, 2019 Legal Data Request No. 1.

B. Summary of Aqua NC's Position in Response to Comments of the Public Staff

In an effort to address directly the crux of the differences herein, Aqua NC in this section summarizes its position on the primary points of disagreement between the Company and the Public Staff.

On July 18, 2019, Aqua NC filed the Affidavit of Lisa Gresehover, the National Metrology Manager for Aqua America, which comprehensively addressed the requirements of Ordering Paragraphs 26 and 27 of the NCUC's 2018 Rate Case Order. In her Affidavit, Ms. Gresehover addressed in great detail: (1) the specific nature of the expected benefits to be achieved on a consolidated basis for the Aqua America subsidiaries, including Aqua NC, once full deployment of AMR technology is completed in all Aqua America operating states, including the planned timing of such expected benefits and (2) the appropriate measures being taken by Aqua NC towards ultimately sharing the 40-day read history collected by the Company's AMR technology with AMR-metered customers. Ms. Gresehover identified and discussed the priorities Aqua is following to ensure prudence, which include a focus on:

1. operational efficiency, supported by use of data internally;
2. efficiency of meter reading and volume; and
3. improvement of data accuracy.

The Public Staff focuses essentially on two issues, related to its criticisms and concerns regarding Aqua NC's failure (in the Staff's opinion) to: (1) adequately and timely share with customers the AMR 40-day read history; and (2) give adequate consideration to conversion from AMR to Advanced Metrology Infrastructure ("AMI") metering technology.

As these reports and comments make clear, fundamental differences of policy, judgment and expertise persist between Aqua NC and the Public Staff regarding the scope, pace, and evaluation of the benefits that flow from the Company's deployment of AMR technology. Perhaps some of the gulf is in a lack of mutual understanding of the process required, and Aqua NC attempts by these filings and other conversations to bridge that gap. The Public Staff has never favored the Company's deployment of this technology. Despite Aqua NC's demonstrated operational and engineering expertise in development and support of the project; despite the Company's persistent efforts to explain the basis of that support and the derivation of the management, operational decision;¹ despite the Commission's decision about cost recovery in the Sub 497 docket; and despite the Company's continuing development of proof in the form of a steady, incremental expansion of benefits flowing from the meter and informational capability, the

¹ Shared with the Public Staff in a well-attended meeting as far back as 2016---when the Company brought several experts to Raleigh to discuss and explain its operational decision, and the process that led to it.

Public Staff's critical view of the AMR deployment decision and experience has wavered little, if at all.

First, Aqua NC respectfully submits that the Public Staff's position largely suffers from the fact that the Staff significantly over-weights the presence---or absence---of *current* data-sharing with customers in its evaluation of the merits of the Company's AMR technology deployment program.

Second, Aqua NC contends that the Public Staff continues to view too narrowly the range of benefits that justified the provision of the AMR metering project and are currently present in the Company's operations from the AMR technology, plus the clear testimony, from subject matter experts, about the expansion of those benefits over time. We are only nine months out of the 2018 rate case and working company-wide on the installation and integration of a massive technological and operational improvement that will affect eight states and several related internal support functions (e.g., IT, metrology, billing, customer service).

Third, Aqua NC notes the Public Staff understates the length of time and magnitude of effort required to accumulate, access, and utilize the massive amount of data being collected (tasks that would be required whether the platform was AMR or AMI, incidentally). To put in a cost-effective program, Aqua NC needs a uniform data base. In the interim, the use of the data in the way the Public Staff recommends is an exercise in exception management.

Finally, the Company observes that the Public Staff has expressed favorable views towards both the manual read meters of the past and advanced

AMI technology. The primary commonality between these two technologies is that neither was Aqua NC's choice for deployment of its next phase meter platform. Aqua America is a large, capable, professionally-staffed water and wastewater company which made a studied engineering analysis of the most efficient, serviceable, cost-effective meter technology to be used to serve all its customers across an eight-state footprint. This operational and management decision was Aqua NC's to make and the prudence of the decision has been well supported in prior conversation and on the record.

Aqua NC draws the attention of the Commission and Public Staff to the many positive aspects of the Company's comprehensive AMR implementation plan and will address the Public Staff's interest in the timing of the data-sharing capability in due course. For instance, Ms. Gresehover listed the following specific current and future benefits that should materialize across the Aqua America network of companies, including Aqua NC, upon "full" deployment of AMR technology - expected by 2027, when all Aqua NC manual meters are expected to be converted to AMR technology:

Current use of the benefits of AMR include:

- o Significantly increased meter reading efficiency;
- o Reduction in estimated bills;
- o Reduction in customer complaints from inaccurate bills caused from truing-up estimated bills;
- o Decreased meter reading errors for AMR capable meters by elimination of human error while reading the meter, resulting in fewer

work orders (truck rolls) issued to the field to verify manual meter read errors;

- Reduction in bad debt expense resulting from fewer uncollectible back-billed balances as a result of reduced bill estimates;
- Internal availability of usage details for identification of problems such as leaks, meter malfunctions, and theft of service; and
- Internal availability of usage details to address customer consumption and billing inquiries.

Additional benefits, over time, include:

- Availability of 40-day meter read usage data for specific customer viewing;
- Advanced internal analytics and assessment of water usage and meter read metrics to facilitate accurate demand trending and projections that can be useful to engineering for water management, improved capital planning, and identification of operational efficiencies;
- Development of a platform for use of AMR technology that will also support a future deployment of AMI technology, should that conversion meet the cost/benefit test necessary to support its use in service to customers; and
- Assistance in reducing the incidence of non-revenue water and improved customer service response.

Aqua NC agrees that providing the 40-day read history is an added benefit of the AMR technology, and one the Company is actively working to facilitate. In her Affidavit, Ms. Gresehover stated that future benefits, to be realized with full deployment of AMR technology, will primarily flow from improvements and advancements in the management and analysis of the data provided by the data-logging function of the AMR technology; namely, the collection of the 40-day read history during each meter reading cycle and the tamper reporting. Aqua America currently receives this data for 49% of customers and utilizes it internally to help identify system leaks and resolve specific customer billing/usage disputes, including in North Carolina. This read history is not currently available in a format that is readily available to be shared with customers at this time; its production currently requires significant *ad hoc* handling to obtain and analyze specific premise details necessary to utilize it in a productive manner. Currently, a limited number of people in Aqua NC can perform that *ad hoc* management; however, as the data accumulation and organization proceeds, the ability to access it more readily internally and---ultimately---to make it available on a proactive basis to customers, increases.²

Ms. Gresehover further noted that Aqua America is working to expand the Company's meter data management system ("Automated Meter Reading Application" or "AMRA") to store and present daily customer consumption data, where available, for a 12-month period to improve internal use and analytics of this

² It is important to note that this incremental path to full benefits of deployment would characterize a conversion to AMI technology as well. The technology can provide the data, but it must be analyzed, configured and made available to relevant users for the range of different capabilities it can support or enhance.

data. This information, once available in AMRA, will also be available to, and used by, Customer Service Representatives and Field Service Representatives to improve customer service. This project is managed by Aqua America Information Technology ("IT") resources with participation from several departments and requires a company-wide effort to develop the platform---it is not North Carolina-specific.

The usage data will ultimately be readily available for an Aqua America representative to share with customers upon their specific request by the first quarter of 2020. However, the Company must be clear that the Public Staff's expectation about speed to provision of data sharing---internally and externally---is simply not grounded in the reality of the incremental and significant deployment effort and data accumulation/manipulation process that is required. At the appropriate time, Aqua NC will communicate to its applicable customer base that the usage data is available upon their request in a manner yet to be determined. Additionally, and as required under Ordering Paragraph 26 of the 2018 Rate Case Order, Aqua NC will notify the Commission when such information is being shared.

Furthermore, Ms. Gresehover stated that Aqua America will initiate a project to develop a long-term Strategic Plan for Meter Data Management and Advanced Analytics in 2020. Costs for this plan are included in the five-year capital budget and will include defined and specific use cases for the 40-daily read history and other advanced AMR data-logging, business process development, evaluation of software and applications, and an implementation schedule. A deliverable of this plan will be to define the criteria for data storage (duration, location, and

format), and will identify the most appropriate method and vehicle in which to share this data proactively with customers. Options for sharing this data include, but are not limited to, a self-service customer portal or an expanded daily use section on the monthly customer bill. The ability to provide this functionality to all Aqua NC customers is dependent upon the deployment of this advanced AMR technology.

According to Ms. Gresehover, this project will provide the framework for meter reading data to be easily viewed and utilized throughout Aqua America and will facilitate accurate demand trending and projections that can be useful to engineering for water management and capital planning. Other efforts that will benefit from this project include reduction of non-revenue water, accurate meter sizing, and future replacement programs for the meter asset itself. The Strategic Plan is a multi-disciplined project that will include effort from several functional departments; Aqua America anticipates that this second project plan could take up to two years to complete (currently estimated to be in 2022).

The Company asserts that its AMR implementation plan as described above is reasonable and prudent, particularly in consideration of the complex issues which must be reliably addressed. Aqua NC shares the Public Staff's enthusiasm for the robust data sharing functionality; however, the Company submits that it is important to recognize and adequately consider the myriad of issues to be addressed and resolved before full recognition of this ultimate benefit of AMR technology can be achieved.

In support of these reply comments, Aqua NC finds significant the following language from the Commission's 2018 Rate Case Order at page 67 which described the current benefits of AMR technology as follows:

The Commission is persuaded by the testimony of witness Thompson that the AMR technology has provided the Company with a reduction in estimated bills, availability of data to support customer consumption and billing inquiries, meter reading efficiency, and a reduction in manual meter reading errors. Further, the Commission finds the testimony of witness Thompson credible that the indicators and tamper detection collected by the AMR meters is being used by the Company in conjunction with the data logging of the 40 daily reads to prioritize service orders and to investigate potential leaks, broken or frozen meters, and theft of service.

Moreover, Company witness Berger, in her testimony regarding nonrevenue water loss, stated that the AWWA Manual 36 lists AMR/AMI technology as a primary method for addressing apparent losses for small water utilities because it limits "systematic data handling errors in customer billing systems, customer metering inaccuracies, and unauthorized consumption...." The Commission finds and concludes that this is another benefit of AMR technology for both the Company and its customers, especially given the fact that the Commission discusses elsewhere in this Order its decision that the Company should maintain a certain standard regarding its unaccounted for water.

In addition, the following excerpt from the 2018 Rate Case Order at page 67 clearly indicates that the Commission recognized that AMR technology takes time to deploy and to be made available for full utilization by customers.

The Commission gives substantial weight to the testimony of witness Thompson that the new technology takes time to deploy and full utilization and visibility to the customer often does not occur until the Company is able to reach some level of critical mass and that the functionality of the technology will increase as the buildout progresses. Further, the Commission agrees with witness Thompson that the current level of utilization of the data collected by the AMR system is producing tangible operational and customer benefits."

C. Specific Recommendations of the Public Staff and Company Response

In its supplemental comments filed in Docket No. W-218, Sub 497 on August 13, 2019, the Public Staff made the following two recommendations at page 3:

1. That the Commission order Aqua NC to continue to file updated reports every six months on Aqua NC's progress on Ordering paragraphs 26 and 27, with the opportunity for the Public Staff and other intervenors to file comments
2. That the Commission order Aqua NC when a customer with an AMR water meter has a usage disagreement with Aqua NC, that Aqua NC provide that customer the AMR daily readings for the period of the disagreement.

Response to Public Staff's First Recommendation

Aqua NC opposes, as unnecessary, the recommendation that the Commission require the Company to file semi-annual reports. In both the Affidavit filed by Lisa Gresehover and this Affidavit, the Company has fully responded with the information required by Ordering Paragraphs 26 and 27 of the 2018 Rate Case Order. The Public Staff is free to inquire of the Company about the ongoing status of this long-term deployment process, and Aqua NC is fully responsive to such discussions and eager to explain the good progress being made.

Aqua NC commits that it will promptly notify the Commission in writing if any of the information contained in the two Affidavits filed by the Company regarding the timing of implementation of either Ordering Paragraphs 26 or 27 changes in any material manner, as the Company continues with its orderly implementation plans, which have been fully set forth in as much detail as possible.

Regarding Ordering Paragraph 26, Aqua NC will file written update

notifications with the Commission regarding the status of its ability to share the 40-day read history collected by the Company's AMR technology with its AMR-metered customers "when such information is being shared" as specifically directed under this Ordering Paragraph.

Response to Public Staff's Second Recommendation

It must be emphasized that Aqua NC is currently utilizing the 40-day read detail when it is deemed useful to assist with the resolution of an escalated customer usage related dispute. At this time, the sharing of 40-day read history data is significantly limited because of the additional effort necessary to prepare this data and present it in a useful and readable format. Aqua NC can share this data with customers on an *ad hoc* basis; however, until the project to allow for this data to be presented by CSR's in a readily available, consistent, understandable, and useful format is complete, the Company requests that the Commission allow Aqua NC's dispute management personnel to continue to use its discretion when preparing and providing or sharing a reporting of a customer's 40-day read history to resolve a customer usage complaint.

To reiterate:

- Aqua America is currently expanding the Automated Meter Reading Application ("AMRA") to more easily provide this information to customers when requested. This expansion is scheduled to be complete by the first quarter of 2020 and includes training for the Customer Service Representatives to understand and provide this information to customers on an as-requested basis.

- The long-term strategy and method for proactively sharing this data will be studied and planned in a separate comprehensive project expected to start in 2020.
- Aqua America will take time to ensure that, when made available, this data will be clear and useful to customers and fully understood by Customer Service Representatives so that any customer questions can be answered accurately and the format of presentation to the customer of their usage data is consistent.

D. Other Issues Raised by the Public Staff

Aqua NC has no comment on the various metrology opinions that may be discussed or shared, formally or informally, at conferences and vendor presentations. However, such opinions by no means approach or substitute for the analysis and application of business, engineering, operations, and financial judgment applied by Aqua America and its subsidiaries in their comprehensive and studied evaluation of a path forward on a core metering system for the entire Aqua company. Aqua America employs and retains top-flight experts in metrology, who work closely with representatives of the entire organization to develop, support, explain, install, and manage a sophisticated, thoughtful and prudent migration to a new metering system.

The utilization of AMR technology is a stepping stone to utilize fixed AMI technology (different than cellular AMI technology). Aqua America is focused on its goals of implementing and optimizing an efficient AMR program and is installing equipment that can be converted if, and when, it is in the best interest of its

customers. Aqua's use of AMR technology provides the opportunity to see and use the same, or similar, data that would be available via a fixed network AMI program (albeit, on a less frequent basis), develop the business processes and analytics required to effectively use the data for action, and properly evaluate the added-value of a fixed AMI program through a business case. Aqua NC re-emphasizes its commitment to eventually evaluate the cost benefit to transition to a fixed AMI technology for certain communities or areas where it may make practical sense; however, at this time, and until the AMR processes and benefits are first built out, implemented and realized, it is premature to consider where fixed AMI deployment is practical.

Conclusions


Aqua NC supported its decision to implement AMR technology through a business case analysis that focused professionally and thoroughly on operational and financial benefits. The Company maximized the cost benefits to customers for the AMR program in two ways: (1) by installing AMR technology in coordination with the aged life of the conventional meter and (2) by installing equipment that would optimize the AMR capabilities---immediately and over time---and allow for upgrade to fixed AMI technology with the same endpoint equipment. This is a prudent and widely-accepted incremental approach to implementing AMR/AMI programs. Additionally, Aqua America's decision to implement a systemic and consistent AMR program across the organization allows Aqua NC to realize benefits of the business efficiencies related to customer service and other support functions, and of economies of scale available to a large organization.

Sharing the data-logging and 40-day read history with all customers was not a stated immediate benefit or evaluated cost benefit in the business case analysis that supports the implementation and costs of the AMR program. Aqua America also has concerns that sharing this data with customers prematurely and without consistent proper display and analytics could be misleading or confusing to customers.

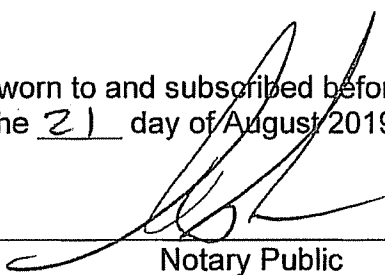
That said, Aqua America acknowledges that defining a solid use case for this collected data is important and Ms. Gresehover, in her Affidavit, identified two ongoing efforts to expand the availability of use of this data: expansion of the Company's AMRA meter data management system; and launch of the long-term Strategic Plan for Meter Data Management and Advanced Analytics in 2020. A deliverable of this plan will be to define the criteria for data storage (duration, location, and format), and will identify the most appropriate method and vehicle in which to share this data with customers.

In conclusion, Aqua NC is pleased at any time to respond to the Commission's interest in the progress and results of deployment of this vital AMR technology, over the time that implementation and full development of the resource will require. In the meantime, the Company respectfully requests that the Commission (1) accept and acknowledge the Company's Reports as being in full compliance with the requirements of Ordering Paragraphs 26 and 27 of the 2018 Rate Case Order and (2) deny the recommendations of the Public Staff as set forth in the Staff's initial and supplemental comments.

Respectfully Submitted on Behalf of Aqua North Carolina, Inc.


Bernard F. Thompson
Director of Purchasing
Aqua America, Inc.

Sworn to and subscribed before me this
The 21 day of August 2019.


Notary Public

My Commission Expires: 08/18/2020

Commonwealth of Pennsylvania
NOTARIAL SEAL
Scott W Keehn, Notary Public
Springfield Township, Delaware County
My Commission Expires August 18, 2020

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing **Affidavit of Bernard F. Thompson**, filed in Docket Nos. W-218, Subs 497 and 497A, on all parties of record either by first class mail, postage prepaid or by electronic delivery to those parties indicating assent to same.

This the 21st day of August 2019.

By: **/s/Jo Anne Sanford**

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