PLACE: Dobbs Building
Raleigh, North Carolina
DATE: Friday, September 21, 2018
DOCKET NO.: W-218, Sub 497
TIME IN SESSION: 9:00 A.M. TO 11:32 A.M.
BEFORE: Commissioner ToNola D. Brown-Bland, Presiding
Chairman Edward S. Finley, Jr.
Commissioner Jerry C. Dockham
Commissioner James G. Patterson
Commissioner Lyons Gray
Commissioner Daniel G. Clodfelter
Commissioner Charlotte A. Mitchell

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 in
All Service Areas in North Carolina

Volume 13

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E X H I B I T S

IDENTIFIED/ADMITTED

P R O C E E D I N G S

COMMISSIONER BROWN-BLAND: Good morning. Let's come to order. We're resuming this morning. We're still with the Company's rebuttal. Is the Company ready?

MR. BENNINK: Yes. The Company calls to the witness stand Bernard F. Thompson, please.

BERNARD F. THOMPSON; Having been duly sworn, Testified as follows:

DIRECT EXAMINATION BY MR. BENNINK:

Q Mr. Thompson, would you state your name, business address, and by whom you are employed for the record, please.

A My name is Bernard F. Thompson. I'm employed by Aqua Services. Business address is 700 Sproul Road, Springfield, Pennsylvania.

Q And did you prefile in this docket on September 4th 15 pages of rebuttal testimony, as well as a statement of your professional qualifications and four exhibits?

A I did.

Q Do you have any changes or additions to make to that testimony?

A I do. I have one change.

Q All right. Go ahead with that.

A On page 3, Exhibit -- it should say, "Yes. I have prepared Exhibits 1 through 4," and the rest of it is just typographical, "which consists of."

Q And with that you have no further changes or additions?

A I do not.

COMMISSIONER BROWN-BLAND: So you are deleting "which consists of" to the end?

THE WITNESS: Which consists of Schedules DW-1 through DW-8. Should say Exhibit 1 through 4.

MR. BENNINK: Madam Chair, we would ask that Mr. Thompson's prefiled testimony be copied into the record as if given orally from the stand, and that his four exhibits be marked as identified.

COMMISSIONER BROWN-BLAND: That motion is allowed.

(Whereupon, the prefiled rebuttal testimony of Bernard F. Thompson was copied into the record as if given orally from the stand.)

(Whereupon, Thompson Exhibits 1-4 were identified as premarked.)

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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497

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 IN ALL SERVICE AREAS IN
NORTH CAROLINA

PREFILED REBUTTALTESTIMONY OF
BERNARD F. THOMPSON

DIRECTOR OF PROCUREMENT
AQUA AMERICA
ON BEHALF OF AQUA NORTH CAROLINA, INC.

September 4, 2018

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Bernard Thompson. My business address is 700 W. Sproul Rd., Springfield PA 19064.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Aqua Services as Director of Procurement.

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. I offer expert testimony on behalf of investor-owned utilities on automatic meter reading ("AMR") meters. I am responsible for the procurement of materials and services for Aqua America. I manage and negotiate meter and meter related material for Aqua and work closely with the Manager of Metrology to set meter standards and on meter related issues. I am a graduate of Drexel University with a Bachelor of Science in Accounting and a Master's Degree in Finance from Temple University and am a Certified Public Accountant in the State of Pennsylvania. My full professional qualifications are provided in Appendix A.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to rebut the testimony of Public Staff Witness Charles Junis as it pertains to AMR capable meters.

Q. HAVE YOU PREPARED AN EXHIBIT IN SUPPORT OF YOUR RECOMMENDATION?

A. Yes. I have prepared Exhibit No. 1, which consists of Schedules DWD-1 through DWD-8.

Q. HAVE YOU REVIEWED THE TESTIMONY OF PUBLIC STAFF WITNESS JUNIS WITH REGARD TO AUTOMATIC METER READING CAPABLE METERS AND THE ASSOCIATED METER READING SYSTEM, AND DO YOU AGREE WITH HIS RECOMMENDATIONS?

A. I have reviewed his testimony and I do not agree with his recommendations. Witness Junis makes the following finding, "Aqua has not implemented benefits to the customer while materially increasing the cost to customers." *(Junis Direct Testimony, page 37, lines 21-23)* He also concludes, "The installation of AMR meters was imprudent, unreasonable, and not justified by a realistic and comprehensive cost-benefit analysis." *(Ibid, page 37—page 38, lines 1-2).* I disagree with Mr. Junis's conclusions. It is inappropriate and shortsighted for the Public Staff to conclude that the deployment of a technology is imprudent before that technology is fully deployed and all of its benefits can be realized.

Q. WHAT IS THE BASIS FOR YOUR DISAGREEMENT WITH MR. JUNIS'S RECOMMENDATIONS?

A. The cost-benefit analyses provided in response to Engineering Data Request ("EDR") 22 Q1 demonstrates that the decision to install AMR meters was prudent and reasonable. I do not agree with the recommended adjustments or comparative calculations provided by the witness. Witness Junis overlooked the immediate and tangible benefits of the AMR

Technology that were provided and summarized in the responses to multiple EDRs. AMR Technology has provided Aqua North Carolina, Inc. ("Aqua" or "Company") with a reduction in estimated bills, availability of data to support customer consumption and billing inquiries, meter reading efficiency, and eliminated manual meter reading errors.

AMR technology has been shown to reduce the number of estimated bills for Aqua. The Business Case analysis, provided in discovery, shows that in 2015 Aqua manual read meters had an estimate bill rate of 2.63%, or 22,071 bills per year, which exceeded three times that of Aqua America's average of 0.75%. Aqua meters for the same period were 14% radio read, while the other Aqua America states averaged 99% radio read meters. This benefit was further defined by providing data that Aqua has had an 18% reduction in estimated bills in Brookwood. Similarly, there was a 42% reduction in estimated bills per year for Aqua's Water Rate Division in the areas in which it has installed the AMR technology.

Q. DO YOU AGREE WITH MR. JUNIS'S STATEMENT THAT THE NOTEWORTHY FUNCTIONALTY OF THE 40 DAILY READINGS PROVIDED BY THE AMR METER IS MITIGATED BY THE FACT THAT THE 40 DAY READ HISTORY IS NOT ACCESSIBLE TO CUSTOMERS AND THAT THE CUSTOMERS HAVE NOT BEEN NOTIFIED THAT AQUA PLANNED TO AND IS COLLECTING THE 40 DAY READ HISTORY?

A. No, I disagree with Mr. Junis. He discounts any operational or customer benefits that are realized by the availability of this data internally; however, this view is contrary to facts understood by utility operators and managers. The 40 daily read history is available with the 100W Endpoint Receiver Transmitter ("ERT") through the data logging. The 100W ERT stores 40 days of consumption information, which can be collected by the AMR system and leveraged for timely resolution to customer billing inquiries, bill disputes, and potential leak detection. The 40 daily reads stored and collected by the AMR system are used in investigating customer inquiries and resolving customer metering issues. These benefits were discussed in EDR 22 Q3. The most recent example of this was in August 2018 when Aqua noted a sharp drop in well capacity in one of our critical systems. Aqua searched the system for leaks, utilizing the AMR that had been installed in this system. In a timely manner, a meter reader captured cycle reads for all the AMR capable meters in the area to determine if there were any customers with high consumption or possible leaks. Within an a few hours, Aqua had the information, which included a list of customers that identified abnormal consumption in the several customer accounts. Aqua contacted the customers and notified them of a potential leak. Aqua verified significant leaks on two of the identified accounts and turned their water off until repairs could be made. The customers were appreciative of the efforts. This is typical of the successful utilization of the AMR system.

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. The worst decision is to stop deployment. The best decision is to continue deployment and increase functionality as the buildout progresses. The current level of utilization of the data collected by the AMR system is producing tangible operational and customer benefits. The first step in the process is to implement in an organized and efficient manner AMR while aged meters are being replaced. Aqua will continue to refine the business processes surrounding the utilization of data.

It should also be noted that many of the "more professionally run" utilities, as defined by Mr. Junis, have communicated to their customers that the benefits of the AMR or AMI technology that they have chosen to use will be realized over time and incrementally, not immediately.

Q. DO YOU AGREE WITH MR. JUNIS'S STATEMENT THAT THE NOTEWORTHY FUNCTIONALITY OF THE AMR METERS TO PROVIDE INDICATORS AND TAMPER DETECTION IS MITIGATED BECAUSE THE CUSTOMER IS NOT AWARE OF THE INDICTAOR OR FLAG?

A. No, I disagree. Mr. Junis inappropriately discounts the value of operational or customer benefits, simply because the data is available internally at this point, and not directly transmitted to the customer. The indicators and tamper detection collected by the AMR Meters is being used in conjunction with the data logging of the 40 daily reads to prioritize Service Orders, investigating potential leaks, broken or frozen meters, and theft of service.

The tamper indicators are available immediately to the meter reader and by the next day to customer service representatives and other staff through the automated report. These benefits have been discussed in detail in with the Public Staff.

Q. DOES AMR TECHNOLOGY PROVIDE FOR MORE EFFICIENT METER READING?

A. Yes, it does. The Business Case analysis provided in EDR Q1 shows the projected read rate from AMR meter reads vs. manual reads were projected to increase over 600%, from 37.5 reads an hour to 264 reads an hour. This information was used to judge the reasonableness of the decision to implement an AMR system.

Q. MR. JUNIS ALSO CONTENDS THAT THE FUNCTIONALITIES OF THE AMR SYSTEM ARE MITIGATED BECAUSE ONSITE METER READERS CAN OBSERVE WHETHER A HOME APPEARS TO BE OCCUPIED, WHETHER IT IS FOR SALE OR VACANT, EVIDENCE OF METER TAMPERING, AND SIGNS OF LEAKS. DO YOU AGREE WITH THIS CONTENTION?

A. No, I do not agree with his contention. This type of observation and recording of such observation would significantly impact the meter readers read rate, dropping to less than 37.5 reads an hour. This would require more meter reading hours and would detract from the meter readers' ability to perform work on other service orders, like meter maintenance and customer inquiry.

Q. ARE THERE ADDITIONAL BENEFITS OF AMR TECHNOLOGY THAT MR. JUNIS FAILED TO ACKNOWLEDGE IN HIS TESTIMONY?

A. Yes. Employee Safety and Business Efficiency are additional strategic and intangible benefits of the AMR program. Reducing the hours required for meter reading decreases the opportunities for accidents both onsite and in transit, such as insect/snake/dog bites, slips, trips, and falls. The AMR program also limits Aqua's reasons for having to enter a customer's property, due to the ability to read the meter from a distance. Aqua America is standardizing companywide to an AMR system, which provides economies of scale that are beneficial to North Carolina customers. By implementing a companywide program, the cost of the AMR program is reduced per customer as fixed and semi-variable costs, such as software, process development and troubleshooting, are spread across a broader customer base. Further, an evolving AMR program will continue to provide more timely and accurate data, increased data integrity, and advanced analytics for improved operations and service.

Q. WILL ANY FUTURE BENEFITS BE REALIZED INCREMENTALLY AS AQUA AMERICA AND AQUA BECOME A 100% AMR SYSTEM?

A. Yes. The industry recognizes a 10- to 20-year useful life before degradation of functionality and accuracy necessitates replacement. Aqua has optimized the value of aged replacement within the recognized useful life to upgrade to AMR Metering Technology. Although the full benefits of this program will not be realized immediately, it is prudent to install the new

technology as the manual meters reach the end of useful life in preparation for a full utilization of the AMR technology. Otherwise, a newly installed manual meter would become obsolete before its useful life has been reached resulting in an unnecessary cost to customers.

Q. IS AQUA CONVERTING TO THE AMR TECHNOLOGY IN A MANNER THAT WILL FACILITATE UPGRADES TO ADVANCED METROLOGY INFRASTRUCTURE ("AMI") TECHNOLOGY AS THAT BECOMES MORE COST EFFECTIVE?

A. Yes, it is. Aqua has ensured that the meters and meter reading and data logging technology, ERTs that are being installed as part of this program can also be utilized if later evaluations should justify an upgrade to AMI technology. Aqua does not believe the additional cost of AMI (repeaters, cell towers, security) are cost justified, presently. Furthermore, the meters being currently installed are both AMR and AMI capable, as are the 100W ERTs that are currently being used to implement the AMR program. The 100W ERTs offer an advanced two-way meter data collection using handheld (AMR), mobile (AMR), fixed network (AMI), and combination hybrid solutions. The meter and the 100W ERTs include AMI functionality with no change required on the premise. All programming can be completed remotely should it be justified where a dense customer base supports the added fixed network cost.

The functionality of the AMR program will increase over time and will include significant coordination with customer operations and other Company-wide

initiatives, such as customer account portal and other tools to improve the overall customer experience. Internal work flows are being tested and upgraded to increase the Company's ability to utilize all the daily data collected in a timely manner with systemic business processes.

Q. IN MR. JUNIS'S TESTIMONY, HE MAKES MENTION OF "MORE PROFESSIONALLY RUN" UTILITIES SUCH AS RALEIGH, DURHAM, ORANGE WATER AND SEWER AUTHORITY ("OWASA"), CHARLOTTE/MECKLENBURG UTILITIES ("CMU"), FAYETTEVILLE PUBLIC WORKS COMMISSION ("PWC"), GREENSBORO AND WINSTON-SALEM. ARE YOU AWARE OF WHETHER THOSE ENTITIES HAVE INSTALLED OR ARE USING AMR OR AMI TECHNOLOGY?

A. Yes. Raleigh, Durham, Charlotte Water, and Greensboro are all using AMR Technology. Fayetteville PWC, OWASA, and Winston-Salem are investing in AMI Technology. Additionally, I also am aware that Durham, OWASA, and Fayetteville PWC all used outside contractors to install the new technology.

Q. DO YOU AGREE WITH MR. JUNIS'S ADJUSTMENTS TO THE COST BENEFIT ANALYSIS AS SHOWN IN EXHIBITS 7 AND 8 OF HIS TESTIMONY?

A. No, I do not agree with Mr. Junis's adjustments. The AMR Cost-Benefit Analysis, completed by Aqua and provided in response to EDR 22 Q1 demonstrated the cost benefit of installing AMR Meters in comparison to installing manual meters. Mr. Junis's adjustment, shown in Junis Exhibit

7, replaces the contractor costs for installation of manual meters with an Aqua-calculated cost estimate of internal labor cost for a large-scale meter replacement project. Mr. Junis's adjustment, shown in Junis Exhibit 8, replaces the contractor costs for installation of manual meters with a Public Staff-calculated cost estimate of internal labor costs for a large-scale meter replacement project. The adjustment also adjusts the cost of the manual meter. I disagree strongly with the overall intent and integrity of these adjustments. The Company's Cost-Benefit Analysis was not intended to demonstrate the prudent and reasonable choice to have contractors install the AMR meters; rather, it was showing the benefit of AMR meters over manual meters. Aqua does not even have the internal resources to complete a large-scale meter replacement project. Finally, I also disagree with the magnitude of the Public Staff's adjustments.

Q. DO YOU AGREE WITH MR. JUNIS'S ESTIMATE OF $38.43 FOR A MANUAL METER THAT WAS REFERENCED IN HIS TESTIMONY?

A. No, I do not. For information, I have attached, as *Thompson Exhibit 1,* a sales quote from Mueller Systems dated March 27, 2017. The per unit pricing for a 5/8"x3/4" Manual Water Meter is $44.64 (plus tax). This pricing does include any discounts that would be available using Company buying power. The quote shows a minimum order of 12,000 units. Even despite the low demand for manual meters company-wide, Aqua and Aqua America have a strong relationship with Mueller for discount direct manufacturer pricing. Alternatively, Aqua is paying $53.85 (plus tax) for an RF capable

Badger Pit Meter of the same size. I have attached the Badger Price List as *Thompson Exhibit 2*. Material costs of the meter boxes (pits), pit lids, resetters, and other miscellaneous material that may be required to exchange a meter will not be discussed here because they are required regardless of the choice to upgrade to AMR technology.

Q. DO YOU HAVE ANY REASON TO DISPUTE THE PUBLIC STAFF'S CALCULATION OF AVERAGE DURATION METER EXCHANGE AND THE PUBLIC STAFF'S ADJUSTED CALCULATION OF AVERAGE LABOR COSTS PER AQUA METER EXCHANGE AS SHOWN ON EXHIBIT 8 OF MR. JUNIS'S TESTIMONY?

A. Yes, I do dispute parts of the Public Staff's Calculation of Average Duration Meter Exchange and Public Staff Adjusted Calculation of Average Labor Costs per Aqua Meter Exchange, shown on Junis Exhibit 8. Mr. Junis states that the average time required to change a meter is 0.54 hour. Additionally, he states that additional plumbing work that may be required with a meter exchange, replace or repair meter box, lid, or replace resitter could take up to 1 hour of an experienced professional's time.

I might agree with the Public Staff's analysis, provided that the personnel assigned to such work would always be dedicated and specialized to do meter exchange work 8 hours a day. In EDR 51, Aqua determined an average time to change a meter is 1.5 hours. This estimate was based on current Aqua skill level and was consistent with the labor rate used in the calculation. This analysis also assumed that meter exchanges would be

completed as time allowed throughout the day and while answering other priority service calls and incurring more travel time.

I disagree that the labor associated with such efficiency could be paid at a rate on average of $15.23 per hour. The labor cost used in this calculation ignores the fact that a more qualified and higher paid professional could be required to perform additional work. This partially results because installation of approximately 25% of meters will require additional work associated with the meter pit, etc.

Q. DO YOU DISPUTE THE PUBLIC STAFF'S NOTION THAT THE ADJUSTED CALCULATION OF AVERAGE LABOR COSTS PER AQUA METER EXCHANGE IS COMPREHENSIVE OF ALL COSTS THAT WOULD BE INCURRED IF AQUA WERE TO PERFORM AMR METER INSTALLTION IN-HOUSE?

A. Yes. It is simply not accurate. Mr. Junis calculates an average cost of $14.80 per install. *Junis Exhibit 8*. This is based on an average labor rate of $15.23 per hour. I do not think the average labor rate of $15.23 per hour used in Mr. Junis's testimony is appropriate because it is not representative of the labor rate of a specialized and experienced professional that would be required to achieve the time efficiencies stated in the testimony duration calculation. In my *Thompson Exhibit 3*, I have reflected the salary ranges for Meter Service Technician I, II and III. The Meter Service Technician-I has a median rate of $23.50/hour and a job description that states "...refers more complex issues to higher level staff". The Meter Service Technician

III, with an average rate of $35.80/hour, best represents the skill level of the technicians used in the 2017 AMR Meter Exchange Project and has a job description that states, "...handles complex issues and problems, and refers only the most complex issues to higher-level staff. Possess comprehensive knowledge of subject matter."

Aqua replaced an average of 562 meters per year prior to the 2017 AMR Meter Exchange Project. For Aqua to have completed 15,000 exchanges in 2017 (May–December), additional short-term staff would have been required. There would be added cost to hire, train, and terminate, temporary staff. Additional vehicles, equipment, and staff to provide project management and oversight would also be required. These costs were not included by the Public Staff in their labor cost per hour.

Q. MR. JUNIS CONTENDS THAT THE DECISION TO HIRE A CONTRACTOR FOR AMR METER EXCHANGE AND ERT INSTALLATION WAS UNREASONABLE AND IMPRUDENT. DO YOU AGREE WITH THIS CONTENTION?

A. No, I do not agree with Mr. Junis's contention. The decision to hire a contractor for AMR Meter Exchange and ERT Installation was reasonable and prudent. It is very customary within the utility industry to hire contract labor for specific projects. It is efficient, reduces liability, and avoids the need for later layoffs and perhaps workman's compensation payments. Contractor labor costs for the 2017 AMR Meter Replacement Project were $44.51 per install, excluding tax. The description of work with Itron, using

Field Deployment Manager ("FDM") software required a specific installation Work Flow to be followed to minimize service order errors, ensure accurate reading upon installation, and minimize rework. The contractor's staff specializes in meter exchange programs and achieved the efficiencies stated in previous testimony. Aqua utilized a competitive bid process to award this contract, ensuring that the contractor costs were reasonable and at fair, market value for the work to be performed. Aqua purchasing policy requires 3 bids with qualified supplier vetting. Bid awards are granted on price, experience and qualifications. The average cost of $69.84 per install referenced on page 32 of the Junis testimony and provided by Aqua in EDR 29, included AMR Meter Installations of sizes ranging from 5/8" to 4", additional plumbing work associated with the Meter Pit (Box), Pit Lid, Setter Replacement, and other tasks as outlined on project invoices are shown on the Project Summary attached as *Thompson Exhibit 4.*

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

APPENDIX A
W-218, SUB 497

SUMMARY OF PROFESSIONAL QUALIFICATIONS

BERNARD F. THOMPSON, CPA

Educational Background

Drexel University – B.S. Accounting in 1977
Temple University – M.B.A Finance in 1981
Certified Public Accountant – State of PA (license current)

2013 – Present:

Aqua Services – Director of Procurement
Responsibilities include overseeing spend more than $600 Million for Aqua America in eight states. This includes national purchasing contracts to leverage purchasing power as well as maintain materials standards. Established and maintained company policy and procedures including maintaining bid policy requirements, contract negotiation, cost savings and supplier risk

2008 – 2013:

Independent Consultant – Primarily worked with Aqua America
Q3 2010- Q1 2013 Build out of Aqua Materials catalogue for standard materials ordering and to create purchasing and operational efficiencies. Unified material part numbers and created material pricing agreements in financial system to ensure correct pricing and sourcing. Built out and expanded Aquia's Lawson Purchasing module to underutilize system.

2004 – 2008:

Carrow, Doyle and Associates – Audit Manager
Performed various Financial Audits in multiple industries. Engaged in forensic and specialized Management Advisory services for clients

1999 – 2004:

Independent Consultant – Fidelity Investments
Worked in the winddown of Professional Employer Organization(PEO) that employed more than 200,000 employees in seven states. Included pension plan and 401k plan winddown, payroll tax settlement and Worker's Compensation management and Loss Portfolio Transfer with Liberty Mutual

1989 – 1999:

NovaCare – Controller, Director of Financial Systems, Accounting Manager
Held various financial and accounting positions covering all areas of financial reporting and operations

1978 – 1989:

Procter and Gamble – Accounting Manager, Accountant
Performed various accounting functions including inventory, monthly closing, financial system implementation and audits.

Q Mr. Thompson, do you have a summary of your testimony that you'd like to give?

A I do.

Q Please proceed.

A I am employed by Aqua Services as Director of Procurement, and I am responsible for the procurement of materials and services for Aqua America. I manage and negotiate meter and meter installation contracts for Aqua across the Company and work closely with the Manager of Metrology to set meter standards and on meter related issues. I'm a graduate of Drexel University with a Bachelor of Science in Accounting and a Master's Degree in Finance from Temple University. I'm a certified public accountant.

My testimony rebuts Public Staff Witness Junis' conclusion that Aqua North Carolina, Inc., Aqua or the Company, erred in making a business decision to utilize outside resources to install automated meter reading, AMR, technology and, two, acted unreasonably in its decision to put in AMR meters. These adjustments amounted to $2,834,632 for Aqua North Carolina and $1,389,521 for Brookwood, respectively, in association with AMR technology.

I explain that Aqua has installed AMR capable

meters and AMR technology as manual read meters reach the end of their useful life of 15 to 20 years. I believe that AMR technology is a prudent investment, an investment that many utilities have made. My rebuttal testimony summarizes the benefits of AMR technology for our customers that are occurring now, today as we sit here, and have occurred since their installation. These current benefits are realized by both the Company and our customers. Specifically, I've highlighted that our meter reading raw da--- rate data showing that manual reading has increased from 37.5 reads manually per hour to a conservative 264 reads per hour. Also, our data shows that the estimated read rate has significantly declined from 2.63 percent to .75 percent as an immediate benefit of the deployment of the AMR technology. As I stated above, there are immediate benefits, including, but not limited to, meter reading efficiency and timely availability of data for the Company initiated investigative workflows that directly benefit customers. My testimony includes examples of ways the Company today proactively logs meter reading exceptions and intercedes on the customer's behalf in the event of potential leaks.

Our whole world is constantly changing and more data focused, and the water utility sector is no

different. It is in the customers' best interest for Aqua to work smarter and to provide a higher level of service. AMR technology improves customer service. Installing AMR technology with data logging (incremental data reading) capabilities, is a progressive and critical step in providing that level of service. Investing in highly accurate meter technology ensures, as well as accurate meter -- accurate, reliable, and timely data to improve customer service. The data logging capability is entwined with the control of water loss, environmental compliance, and part of a long-term and continuing process for Aqua in North Carolina.

I rebut the analysis that Witness Junis created to support the Public Staff's preference to replace meters using Aqua internal personnel. I believe that the Public Staff's proposed theoretical model is significantly flawed. I emphasize Aqua is not moving forward with a five-year rollout, and it is an aged meter changeout as meters reach the end of their useful life. These are very -- two very different concepts.

The Public Staff theoretical model ignores important details that are considered in the Company's decision to use outside contractors. It is very customary within the utility industry to hire contract

labor for specific projects like an aged meter changeout.

Aqua does not have the flexibility in its staffing or staff with the right skills to be cost effective for large scale meter exchanges replacement projects. The water contractor employed by -- in Aqua North Carolina was cost effective, as proven with three competitive bids, and is efficient as demonstrated by the approximately 15,000 exchanges which were completed over the seven months in 2017 with few errors and disruptions to customers, which -- disruptions, meter leaks, and estimated bills.

My testimony refutes Public Staff theoretical model specifically regarding Public Staff's disregard and significant lack of consideration to real-world costs that are required to operate a utility business and are required to have an effective meter changeout plan from start to finish.

Finally, I correct Mr. Junis' conclusion in his adjustment calculation of an outdated manual read meter.

MR. BENNINK: The witness is available for cross.

MS. TOWNSEND: No questions.

CROSS EXAMINATION BY MR. GRANTMYRE:

Q Mr. Thompson, I know you'll be happy to get

home, so we'll try to make this as quick and painless as we can.

Now, in Pennsylvania, that's where you have meters, AMR meters. And as Witness Junis testified, up North sometimes meters are in houses, under houses in order to keep them from freezing; is that correct?

A There are meters in houses, yes.

Q And will you accept that in Pennsylvania and the northern states, you're in Ohio, there's more snow in the winter than there is in North Carolina, correct?

A I would think there would be, just based on geography, yes.

Q And one of the reasons companies have to estimate meter readings is because of snow covering the meter. If it's a manually read meter, number 1, you can't even find the meter box, and number 2, you're not going to take the time to uncover all the snow, so it's customary if you have manually read meters to estimate for snow covered or wait till the snow melts; is that correct?

A I wouldn't say that's the predominant reason, no.

Q But that is one of the reasons.

A Yes. I would say the predominant reason is

just, you know, fat fingering numbers with manual keying of meter reads.

Q And talking about that, the manual meter reads, they have handheld computers; is that correct?

A That is correct.

Q And when a meter reader keys in a number for an account and it's a real high reading or an extremely low reading, don't the programs kick out that reading and force the meter reader to reenter to make sure it is a correct reading? Isn't that one of the safeguards?

A They do force them to rekey it; however, that doesn't necessarily -- it's a failsafe. They can still override that capability.

Q Okay. But they do have to reread and push it back in?

A They definitely have to reenter it, but they can do it twice wrong, right.

Q Now, I have a cottage at Bald Head Island, and they have AMR meters there. And about a year after they installed them I had a very high water bill, 8,000 gallons. We're usually 2. So I called up the utility department and asked could I get the reads for the 40 days, and they said they don't keep 40 days. They don't even record 40 days. They only record the one day. Now,

the question is -- so I didn't get any information. Now, it's my understanding that Aqua will read the meter once a month, and you get 40 days -- do you get 40 days of actual readings?

A You get 40 days of daily reads with the 100W, which was put in my rebuttal testimony.

Q Okay. And that's read each day at 12:01 a.m., right after midnight, or it's the same time each day?

A Yes, it is.

Q Okay. Because your testimony says it can be collected, I just wanted to make sure it --

A It is collected. I just wanted to make sure it was clear because the Company does not have where it has AMR meters all 100W. It's only with that technology.

Q Oh, the 100W. Now, down at Brookwood, that was done about five years ago, six years ago, plus or minus. Do you have a 100W or are those some 40 or 60W?

A They were the first to have 100Ws.

Q Okay. So all the Brookwood have 100Ws?

A They do.

Q Okay.

MR. GRANTMYRE: Now -- where's Number 1? Okay. Madam Chairperson, we would request that this exhibit be identified as Public Staff Thompson Rebuttal Exhibit

Number 1.

Q Now, do you --

COMMISSIONER BROWN-BLAND: All right. This one page front and back exhibit will be identified as Public Staff Thompson Rebuttal Cross Exam Exhibit Number 1.

(Whereupon, Public Staff Thompson Rebuttal Cross Exam Exhibit Number 1 was marked for identification.)

Q Now, do you recognize this as a response to Public Staff Data Request No. 59?

A I do.

Q Under Q2, that was question number 2, could you please read into the record the question?

A On page 5, lines 11 through 22, please provide a chronological summary, including dates, of the sharp drop in well capacity, the meter read data captured, including address, start/end read dates, and indicators/flags, a current list of customer addresses which were contacted, a list of service addresses -- a list of the addresses at which the services were shut off for repairs. In addition, were there any other significant contributing factors to the sharp drop besides customer usage?

Q Could you please read the answer that was

provided on the front of this page, beginning with the date?

A The date of the drop in well capacity was first noted on August 21st, 2018. Aqua dispatched a crew to the subdivision to investigate any visible leaks that could be noted by driving by the subdivision. Aqua also checked the well production, as well as the run times had been steadily climbing. August 22nd, 2018, Aqua revisited Stonehenge again to look at -- for a leak. Around 1:00 p.m. on August 22nd a leak was found in Wildwood Green section of Stonehenge. The leak was from an 8-inch water main running into a storm drain, which made it difficult to detect. The repair was made at once, and run times at Stonehenge/Wildwood Green wells run times returned to normal. Below you will find additional -- below you will find information provided on the leaks noted at Stonehenge, along with other information requested.

Q Now, your testimony indicates that, you know, driving through the subdivision with the truck reading the AR meters enabled the Company to find a number of customer leaks. And at least it implies that that was how the leaks were taken care of, and this really says it was an 8-inch water main that really caused the drop in

water availability, doesn't it?

A Well, and it also says on the back the other piece, too.

Q Okay. We're going to get to the back.

A Okay.

Q Now, will you accept, subject to check, that the Stonehenge water system includes Wildwood Green, and it has north of 500 customers, approximately?

A I would not know that.

Q Okay. And if you have 500 customers, assuming that's correct, and they use 150 gallons a day a person, which is only about 4,500 in a month per customer, that would be a lot of water that they were using, correct?

A It would be significant, yes.

Q Okay. Now, moving to the back, you've listed five customers that had leaks or it appears had leaks, and the first one, 8008 New London, that appears to be a 19,000 gallons -- 18, 19,000 gallons, correct?

A That's correct.

Q And that could be a leak or could be irrigation, it's hard to tell, but in any event it's a possible leak.

A A possible leak. That's why the leak indicator.

Q Okay. Now, on 8301 Morgans Way, that person used 45,000 gallons; is that correct?

A That is correct.

Q And that would more likely be a leak because people don't normally irrigate that much in Stonehenge, as the Company would know, based on historical records?

A That is correct.

Q And the next one is 17,000 gallons, and that could be a leak, could not be a leak. You really can't tell based on 17,000 gallons. Would that be --

A That's correct, yeah.

Q And in the next -- fourth one, we're almost to the end of this thing, that person used 61,000 gallons, so that would be very, very strong evidence that there was a leak, would there not?

A I would agree with that, yes.

Q And the next one the numbers are hard to tell what it says because there are no zero at the end. We can't tell. Is that a cubic feet meter or a gallon meter? And assuming there should be a zero there, that's 17,000 gallons, and it may or may not be a leak, correct?

A More than likely to throw off a leak detection, just looking at that last one, a leak detection occurs with seven days of continuous water running.

Q Okay.

A So it's not necessarily the quantification of the leak, isn't the fact of how much water is displaced here in the differential. It's the fact that the water continuously runs for seven days.

Q Okay.

A That's the logging capability of the 100W. So that's why it's thrown off. So it doesn't take a difference in, you know, reads. It looks at the continuous running to make the leak detection.

Q Now, the column Read Time, this was on August 22nd. That's the same day that you found the 8-inch main leaking; isn't that correct?

A That's correct.

Q And the previous read was July 24th, the second column over, correct?

A That's correct.

Q And so there was approximately a 29-day or exactly 29 days since the previous reading, correct?

A That is right.

Q And the August 22nd is really the approximate date that you would normally read meters again for billing purposes, isn't it?

A It would be coming up on the next read cycle,

that's right.

Q Okay. So it would be very close. Now, if you were going through -- if we had a manual reader out there and he were to key in this fourth one down and it shows a high read, couldn't he also, he or she, go up to the customer's house and advise them of an extremely high consumption that could be a leak?

A I think that's one of the new processes that we have in place with this technology.

Q I mean, a manual read.

A No. I understand, but the leak detection is to do a door hang and let the customer know they have a leak.

Q Okay. But he doesn't need AMR meters for the meter reader to walk up to the house, put door hanger and say you possibly have a leak. You know, if the customer -- and he does it right at the same time he's there. He doesn't really have to go back to the office and then process it.

A That's correct, but with the AMR technology, as they're driving by, that leak detection shows up. They get out of the truck and they do the same thing. They hang that you have a possible leak right on the door.

Q Okay. Now, it turns out, you know, it said

there was, in your testimony on page 5, line 12, there was a sharp drop in well capacity. Actually, it was the leak in the 8-inch main that caused the well pumping to go up; is that correct?

A That is correct.

Q And you may or may not know this, and we'll talk to Mr. Becker about it, but on or about August 21st, Aqua finally put online Wells 1 and 6 at Stonehenge. Are you aware of that?

A I would not know that.

Q Now, in response to one of the data requests, it was stated that Aqua has been using AMR technology since the year 2000; is that correct?

A It has used the older AMR technology starting in approximately 2000, yes.

Q And throughout your testimony in a number of places, and I would say on page 6, line 1, it's, "New technology takes time to deploy and full utilization..." As I read your testimony, and then again on page 6, lines 8 and 9, you state, "Aqua will continue to refine the business processes surrounding the utilization of data." And then on page 8 you state, "Although the full benefits of this program will not be realized immediately, it is prudent to install the new technology..." And then again

on page 9, lines 22 and 23, "The functionality of the AMR program will increase over time and will include significant coordination with customer operations..." And then again you make similar statements on the top of page 10, lines 2 through 4.

Would it not be prudent, if the Commission does not disallow your cost completely, that the Commission order that these costs that the Public Staff ordered to -- recommended be deleted be deferred until the Company has fully utilized these functions and the customer -- and can show to the Commission that the customers are benefiting by the increased cost and do get benefits which are beneficial to customers? And that would be deferred without a return, with the reason no return is, number 1, that incentivizes the Company to --

MR. BENNINK: Is there a question coming?

Q -- speed up the full utilization --

COMMISSIONER BROWN-BLAND: Mr. Grantmyre --

MR. GRANTMYRE: I'm getting to it.

COMMISSIONER BROWN-BLAND: Mr. Grantmyre, I was going object myself.

MR. GRANTMYRE: I know. I know.

COMMISSIONER BROWN-BLAND: Those are long questions. Can you break --

MR. GRANTMYRE: Okay.

COMMISSIONER BROWN-BLAND: -- that out? You started with a question, then --

THE WITNESS: Thank you.

COMMISSIONER BROWN-BLAND: -- you were going on to something else.

MR. GRANTMYRE: Okay. You're right. I'm sorry.

Q Should the Commission defer this cost until you achieve full utilization so that you can show the customers actually benefit? And if you say no, why not?

A No.

Q Okay. Why not?

A Because of the immediate benefits that are talked about in my rebuttal testimony.

Q Okay. But you kept saying -- you agree, throughout the testimony you keep saying it would be fully utilized at some time?

A That is correct, but the immediate benefits already justify it.

Q Now, you agree that the customers do not have access to these meter readings, correct?

A That is correct.

Q And the Company, at least to date, has not

advised the customers that they can get access if they call the Company and the Company is willing to provide the numbers, correct?

A That is correct. The Company is proactively using that information.

Q Now, on page 7 of your testimony, at the bottom we talk about when the meter reader is out there with a handheld computer and he observes an event and he says it would significantly impact his read rate, now, meter readers could have built into their program various alert keys, can they not, on a manual meter -- manual computer to read the meters?

A Could you clarify what you're saying?

Q Okay. The meter reader has a handheld computer or some entry device that's basically a computer, correct?

A That is correct. It's the FCS tool that they use for doing meter reading today.

Q And there's different brands and different purposes?

A The one that's used is the FCS Itron collection tool.

Q And they can have built into that keys to key in if they see something different, and I'll give you

some examples, house for sale, house empty, leak, tamper, negative usage, heavy irrigation. These are all --

A Yeah. There are a series of keys that you can create to manually store like records that associate attributes associated with the read, the property.

Q But if he is standing in front of the house at the meter and he sees this stuff, it only takes a couple of seconds to hit that button, whatever the button is --

A I don't know how you would know whether the property is vacant to enter those codes.

Q Well, you know, if the grass is a foot and a half high and there's a mattress laying in the driveway and there are no shades or curtains in the window, and there's no usage on the water meter, those would all be indications --

A Potential. My parents had to go to assisted living when they were sick. They weren't in the house for a while. They curtains weren't on the windows, you know. People have Airbnbs today. There's reasons why that happens.

Q Okay.

MR. GRANTMYRE: Number 2. We would ask that this be identified as Thompson Cross -- Public Staff Thompson Rebuttal Cross Examination Exhibit Number 2.

COMMISSIONER BROWN-BLAND: All right. This one-page exhibit will be identified as Public Staff Thompson Rebuttal Cross --

Q Have you --

COMMISSIONER BROWN-BLAND: -- Exhibit Number 2.

MR. GRANTMYRE: Sorry.

(Whereupon, Public Staff Thompson Rebuttal Cross Exhibit 2 was marked for identification.)

Q Have you seen this response before?

A Yes, I have.

Q And could you please read the question?

A "On page 8, lines 1 through 16, Mr. Thompson discusses additional benefits of AMR technology. For the period of October 15th through August 2018, please provide the following for Aqua North Carolina meter reading accidents both onsite and in transit: a. The date of accident; b. The type of accident such as vehicular in transit or onsite bite, slip, trip, or fall; c. If a bite, whether it was by a snake, a dog, or a spider" -- the water system where the accident occurred; the name and the position of the person involved in the accident.

Q And could you please read your answer?

A "Aqua does not track accidents at meter reader level."

Q And basically, you would agree that on page 8 of your testimony, lines 5 and 6, you talk about this helps reduce accidents, both onsite and in transit, such as insect/snake/dog bites, slip, trips, and falls; is that correct?

A Yes. That's correct.

Q Now, Aqua does -- Aqua North Carolina, will you accept that they currently have seven meter readers?

A I would agree with that, yes, probably, subject to whatever we have, right?

Q And your HR Department would, of course, have access to the names of those persons, wouldn't they?

A I don't think they track it. That's why I answered --

Q Okay.

A -- the question the way it is. They --

Q But they -- yeah, I know. But they do have access to the names of the meter readers?

A Yes.

Q And they do have access to accidents, don't they?

A Yes.

Q And with very little work they could look up the names of those persons and see whether or not they had an accident during that period, couldn't they?

A I'm thinking they can, but I don't know. It's a reasonable assumption to make, but I would not know the answer to that.

Q Okay. And since -- if there had been an accident, it would have supported your testimony, so would you disagree that the Public Staff may conclude that there was no such accidents during that period?

A No. I don't think that's a valid conclusion.

Q Okay. Now, you came down about two years ago and met with the Public Staff, and we spent several hours in the Wells Conference Room, correct?

A That is correct.

Q Did you go with us to Fayetteville when Mr. Junis and I went to Fayetteville?

A I did not.

Q Okay. And during that meeting we were talking about the benefits and cost of AMI/AMR meters, mostly AMR, correct?

A In that meeting, yes, we were.

Q And do you remember the Public Staff proposing to you or suggesting that maybe Aqua should look at AMI

technology on a trial basis at the Bayleaf water system? Do you remember that?

A We discussed that there was a possibility of using it in some dense area. That's in my testimony.

Q And, also, are you aware that the Bayleaf water system has six elevated storage tanks?

A I am not aware of that.

Q So that -- if so, and if the radio frequencies, whatever it is, worked, you would not have to be renting cell towers which you discuss on page 13, that would be correct, if those six elevated tanks --

A There's a little bit more than just cell towers involved in AMI technology.

Q Yeah, I know. There's security and repeaters, et cetera.

A Yeah. Right.

Q Okay. And you would agree, on page 9, line 16, how is an AMR meter a two-way? The meter sends signals to the truck or whatever is receiving, but you cannot direct that meter from the truck. It's really a one-way communication.

A That's merely pointing out that these 100Ws are migratable to AMI.

Q Okay.

A There's an encryption key that you program as you drive by to put that security for the private network. It just states that those meters are two-way capable.

Q Now, when Ms. Sanford and I attended a meeting at Sensus, there was one sentence spoken about AMR meters being a flip phone, similar to a flip phone, and then AMR meters were never mentioned again in the two-and-a-half hour meeting. I'm assuming you disagree that AMR meters are essentially a flip phone?

A I strongly disagree with that.

Q Now, you talk about you do not have the resources to complete a large-scale meter replacement program, correct?

A That is correct.

Q And you were here the other day when we talked about Aqua America having a market cap of about $6.8 billion, roughly?

A I'll take that for...

Q And you were also here where we talked about it was -- market cap was larger than SCANA, which owns SCE&G and Public Service Company of North Carolina, correct?

A I'll take your word for it.

Q Now, we're getting close to the end, so that's

the good news. Close, not there.

A That's fine.

MR. GRANTMYRE: Madam Chair, we would request this be identified as Public Staff Thompson Rebuttal Cross Exam Exhibit 3.

COMMISSIONER BROWN-BLAND: This two-page exhibit will be so identified.

(Whereupon, Public Staff Thompson Rebuttal Cross Exam Exhibit 3 was marked for identification.)

Q Could you please read question 13 which is highlighted?

A "For each Aqua North Carolina newly approved position from July 1st, 2016 through June 30th, 2018, please provide the following: The date of" position -- I don't know what that is -- "apposition" --

Q It's a lawyer typo.

A -- okay, sorry -- apposition was approved -- "of apposition approval." I'll just read it as I see it, kind of. "b. Position/job title; c. Aqua region."

Q And could you please read the answer?

A Aqua does not have the data readily available and would like to -- further clarification on the relevance of AMR installation and Mr. Thompson's rebuttal

testimony.

Q And if you went to page 2, do you agree that that is a copy of an email from William Grantmyre dated September 7, 2018, to two of your lawyers in this case?

A That's what it is.

Q And could you please read what the email stated?

A "The Public Staff Engineering DR 59 Item 13 for Mr. Thompson's rebuttal requested the Aqua newly approved positions from July 1, 2016 through June 30, 2018. The response was 'Aqua does not have this data readily available and would like further clarification on the relevance to AMR meter install and Mr. Thompson's rebuttal testimony.' The relevance is Mr. Thompson's rebuttal page 14 line 7 through" -- 13 (sic) where he describes Aqua's need to have additional persons if performed the meter replacement projects in house. "We request that Aqua provide this response for which the information should be readily accessed" -- through Aqua's HR department.

Q And will you accept, subject to check, that Aqua never supplied any further information based on this email?

A Well, I would suggest that it still didn't make

it clear to me when I read it what the purpose of it was when I read this request --

Q In any event --

A -- so I can't say.

Q -- you heard Mr. Becker, I believe, the other day saying they had hired -- had a number of new positions approved?

A I did.

Q And wouldn't Mr. Becker or your HR Department have the ability to provide these newly approved -- this is not replacements. This is a new position that was created and then filled.

A I --

Q Could they easily have done that?

A I understand, but the purpose, what's the relevance to the AMR --

Q Okay.

A -- and that still wasn't clarified. That was in the --

Q Wait.

A -- rebuttal request.

Q Okay. In any event, we wanted to know if you had additional employees in the Company and how many and when, and the Company would not provide that information.

A The Company never intended to use people for this AMR program in house.

Q We're getting to the end.

MR. GRANTMYRE: We would request that this be identified as Public Staff Thompson Rebuttal Cross Examination Exhibit Number 4.

COMMISSIONER BROWN-BLAND: All right. This one-page document captioned Aqua Internal Labor Meter Replacement Program will be so identified, and it's Number 4.

(Whereupon, Public Staff Thompson Rebuttal Cross Exhibit 4 was marked for identification.)

Q And I would represent to you, and you could check later on, that this is identical to one of the redirect exhibits for Public Staff with Mr. Junis, but you've had access and reviewed this earlier when it was Mr. Junis' exhibit, did you not?

A I did.

Q And where do you disagree that if you hired four additional employees or if you designated four additional employees or four employees that you have, that these numbers could not be achieved with your own people?

A For one, I don't know where this five-year number came from. I would never do something like this as an accountant. I would never kind of make this assumption that this could be done.

Q Okay. But it's going to take you several years at the rate you're going to get to 60,000 meters, correct?

A I think this was identified in my testimony. This is done -- to be effective, it's done at the time of the aged meter changeout. So when you change the meter out, you're changing the meter out and making it RF at that time, so you don't do two trips. You're not doing a wholesale change over a period of time or something like that. Over a period of time it's kind of like made.

Q Well, Aqua has 60,000 meters, correct, plus or minus?

A No. They have 81,000 meters.

Q Okay. That counts Brookwood.

A It counts all Aqua.

Q Okay.

A It's all Aqua customers.

Q And up till this year you were replacing about 500 a year. Isn't that in one of your data --

A It's a little bit more than that, but yeah.

Q I'll ask it --
A I'll -- you should probably go up a little bit, but --
Q Okay. So that's less than 1 percent a year, correct?
A It was doing less than 1 percent a year.
Q So Aqua was way behind in its meter replacement program?
A I would say that Aqua had no planned aged meter replacement program.
Q Okay. Very good.
A And that -- that is one of the things that we put in.
Q Now, you agree, or would you agree that the $15.23 per hour, $15.23 per hour rate that Mr. Junis used is the weighted average of the Aqua utility technicians -- Aqua Utility Technician Laborer, Utility Technician I, Meter Reader, and Senior Meter? Would you agree with that?
A I reiterate what I said before, Aqua never intended to use internal labor to do this.
Q Okay. And at the bottom -- towards the bottom of page 13 you talk about that you need a specialist, a Meter Service Technician -- this is on line 21 -- I, II,

and III, and you talk about 23.50 per hour and then 35.80 per hour on the top of page 14; is that correct?

A That came directly from a Payfactors survey, an employee compensation survey service for the market.

Q And what that is, that is gas meters, natural gas meters. It's not water meters, is it?

A It is -- it is any type of meter, and there's three different levels.

Q But how often -- but your exhibit is natural gas, isn't it?

A No. It's a meter change. It only refers to gas. It's exemplary of what it would be.

Q But on your Exhibit 3, page 1 of 2, Meter Service Technician (Gas), where does it say water on this?

A It does not.

Q Now, you will admit that gas, natural gas, is dangerous and can explode?

A Yes.

Q And has Aqua ever had its water meters explode?

A I'm not understanding --

Q Are they dangerous?

A I'm not understanding --

Q Are they dangerous?

A I don't understand your -- it's not about the danger of it. It's the skill set required to do the job.

Q Well, you saw Mr. Junis change the meter yesterday?

A Yes.

Q And --

A I saw him do this nice, you know, show and tell classroom exercise, if that's what you mean.

Q Okay. But it was not very complicated, assuming you could get the other meter out.

A We also saw the meter box, right?

Q Yeah. Your Ford meter box.

A That was one of, you know, 1,300 Ford meter boxes and 3,000 -- over 3,000 meter boxes that had to be changed in this process.

Q Okay. But you removed 17,000 meters, and only 1,200 were Ford boxes.

A 1,200 were Ford, and over 3,000 meter boxes in total, along with other things like resetters.

Q Well, let's talk about replacing a meter box. A meter box is above ground, correct? It goes below ground, part of it; isn't that correct?

A Excavation of it, yeah.

Q Yeah.

A There's cost associated with it.

Q And someone would maybe dig a little deeper with a shovel; is that correct?

A I've never seen the meter box exchanged --

Q Okay.

A -- taken out, so I couldn't comment on that.

Q But -- okay.

MR. GRANTMYRE: We would request that this be identified as Public Staff Thompson Rebuttal Exhibit Number 5. Did you get a copy?

THE WITNESS: Not yet.

MR. GRANTMYRE: I'm sorry.

THE WITNESS: That's all right. Thank you.

COMMISSIONER BROWN-BLAND: All right. This exhibit which starts out with a line on the table ERT and install 5/8 of an inch will be identified as Public Staff Thompson Rebuttal Cross Examination Exhibit 5.

(Whereupon, Public Staff Thompson Rebuttal Cross Exhibit 5 was marked for identification.)

Q Now, backing up just a little bit, none of the employees of Aqua in that grouping that we saw earned $35 an hour, that is, the Utility Technician, the Utility Technician Laborer, Utility Technician I, Meter Reader,

or Senior Meter Reader; is that correct?

A As I said before, Aqua never intended to use internal labor for this -- for this meter installation project.

Q But if, in fact, they did, they have no employees that are in those groups that earn $35 an hour -- 35.80 an hour; isn't that correct?

A I would not know that.

Q Now, will you accept that this is another response to a table that was given as part of an Aqua response to a Public Staff data request?

A Are you talking about the one that has 18,711 meters at the bottom, the one I'm looking at now? I just want to make sure I'm looking at the right thing.

Q Yes, yes.

A Okay. Yes.

Q And you would accept that these are accurate numbers? You probably compiled them or someone under your direction.

A Yeah, I think -- yes, I would.

Q And as you can see now, 5/8 by 3/4, Mr. Junis' exhibit or demonstration and the demonstration in the video, that was either a 5/8 or 3/4 meter, probably, residential meter?

A They were. I don't know the age of any of those meters.

Q Okay.

A The one that Mr. Junis -- looked like it was kind of new --

Q Yeah.

A -- not 20-some years old, right?

Q Okay. We agree. And 17,429 of the meters that Aqua has changed within the last year or year and a half -- whenever the period is --

A Under this project it was an aged meter replacement of meters that had reached the end of their useful life, so those meters were at least 18 years old.

Q And you would agree that the -- and you all did these percentages, so that would be 99.93 percent, correct?

A That is correct.

Q And in your testimony you had to talk about exchanging up to 4 inches, but -- 4-inch meters, and 4-inch meters are normally in a meter pit, a pretty big pit; it's not a meter box, correct?

A That's right.

Q But really you had none of those.

A No, we did not.

Q And installing 3-inch you only had two?
A Right.
Q And that would also be in a pit?
A That is correct.
Q And a 2-inch meter is in a pit, also?
A Two-inch is probably where you start putting them in pits, yes.
Q And the average age and -- okay. But those three combined, the 3-inch, 2-inch, or those -- and the 4-inch only comprised .03 percent. Would you agree with that?
A Yes, I would.
Q And in your testimony, I believe, or one of the data requests you said that the average age of the meters replaced was 17.63 years?
A Correct.
Q Now, isn't it true that meters slow down over time positive displacement?
A It depends. They slow down at low flow, and sometimes at a higher flow they go faster. There's variations.
Q But isn't it pretty well accepted in the industry that meters will slow down about .25 percent a year to .33 percent per year?

A They do not slow down, and they vary based upon water quality and what's going through the meter, but they don't slow down instantly. It's usually --

Q I know.

A -- a certain period of time, like after like 10 years. But, yes, there is a -- there is a degradation in meter performance.

Q And if, in fact, there's iron and manganese in the water, that would increase the slow-down rate, would it not?

A It's one of the reasons why we chose to go to a larger chamber meter when we went to the Badger meter with this program versus the Hersey 420 meter, which is a smaller chamber. That was one of the specific reasons, the content that may be in that displacement chamber.

Q Okay. But you would agree that Aqua was really behind on its meter replacement program prior to this?

A I would say -- as I said before, I think Aqua did not have an aged meter replacement program.

Q Okay. Thank you.

MR. GRANTMYRE: I have no further questions.

COMMISSIONER BROWN-BLAND: All right. I take it the Attorney General has no cross.

MS. TOWNSEND: No questions.

COMMISSIONER BROWN-BLAND: All right. Redirect?

REDIRECT EXAMINATION BY MR. BENNINK:

Q Mr. Thompson, you discussed with the Public Staff the situation of the leak that you discovered at Stonehenge.

A That's correct.

Q Have there been other instances that you could cite where AMR meters have allowed you to detect leaks or facilitated detection of leaks?

A Well, I think I put that in the discussion with Mr. Grantmyre, that now when we go out and read meters, there's a leak detection that is at the time the meter is read. When you read that meter, they get out of the truck and they put a door hanger informing the customer at that time that they have a meter leak. There's a sensor right on the AMR meter. And that accelerates. That's one of the benefits. It accelerates finding that leak because it's right there at the time that they go by to read. It doesn't come back to the office. So in that respect it's a time benefit to the customer, finding the leak sooner.

Q All right.

A And the other thing that you do with that is

because of some of those tamper codes and other things inside the meter, when that meter -- when they're out there, they see those, meaning the meter reader, and they can do detective, you know, investigations at that point like if they see there's a tamper code. But also those things get returned to the backend office from a customer service perspective. And it was in one of the workflows. It was identified in one of the EDRs. And they look at that and they use it to prioritize work orders now to go out and dispense the attack, to go out and investigate the cause of that error. It's a benefit of the 100W having all those additional capabilities of detective codes that can then be put into the system, and from a work order perspective prioritized to address customer needs on a more, I'll call it, accelerated basis and prioritized.

Q And in your discussions with the Public Staff about the issue of installation of AMR meters, you did present the Public Staff with what I'll call the business case, the North Carolina business case for those meters, correct?

A Yeah. And as we did this -- I shouldn't say yeah, but as we did this, one of the benefits, those benefits I described were discussed, but also that there

was no incremental cost associated with the installation of the AMR meter. And we saw that with witness Junis. It's a quick connection of a few wires and the AMR meter is ready to go, so to install an AMR meter really isn't any different than a manual meter.

Q And that business case is part of the record, isn't it, through --

A It is.

Q -- an exhibit that was introduced by Public Staff Witness Junis?

A It is.

Q And as part of that business case, can you just go through, based on the questions you were asked by the Public Staff, the immediate benefits that you --

MR. GRANTMYRE: Objection. I don't remember cross examining him on his business case.

MR. BENNINK: You asked him about -- I'm going to the benefits of AMR technology.

MR. GRANTMYRE: Okay.

MR. BENNINK: You asked questions about that.

Q Can you --

COMMISSIONER BROWN-BLAND: Overruled.

MR. GRANTMYRE: Okay.

Q Can you go through what the Company maintains

are the immediate benefits of installation of AMR technology that benefit both the Company and the customers?

A Sure. Hold on for a second. I want to go back because I want to accurately reflect what was in the business case. Benefits, besides what we described, which was the decline in estimated billing as a result of not -- the errors in the keying, is a result of the increased read that we discussed earlier. These are additional benefits. Those are the immediate benefits.

Consumption visibility, leak detection, water loss nonrevenue water, compliance monitoring with drought restrictions, variable consumption measurement, significant reduction in bill estimates, we talked through that, field operation resources you can put in together a meter replacement plan, fewer onsite visits, route optimization and validity. It's a timestamped record with an AMR meter.

Q And you have stated specifically that Aqua has what you consider an aged meter replacement program, and the way you have decided to implement that is through the implementation of AMR meter technology, correct?

A There are really two separate -- two separate things. I mean, really, it needs to be clarified. The

aged meter replacement program is regardless of the meter. The meter was at 80 percent -- in North Carolina the meters with this 18-year life were at 80 percent compliance level, which meant 20 percent of 80,000 meters or 16,000 meters were out of compliance as of 2016, and then they continued to age. That's why we installed 17,000 meters, to get accurate bills to the clients for the reasons we talked about, the sediment, the fact there was no oversight to that, so it was a Company initiative as a good utility practice to have a high accurate meter associated with AWA standards and just a good utility practice to have a high meter compliance. That's a project to do that, to get to that level that you would run a business, run a good water utility business, have high meter compliance with an age changeout program.

Separate from that is when you're doing that, you strategically go in and do the age changeout. An independent is chosen by -- you know, presented to the Public Staff and chosen by Mr. Becker. Rather than roll a truck a second time, the decision was made to go in and put AMR technology, and for the benefit of the ratepayer that doesn't have to now pay for two rolls if you decide to deploy AMR or AMI technology and do it in conjunction with an aged meter changeout. I mean, to me, it's --

well, that's my professional opinion or what I -- it makes logic -- logical sense.

MR. BENNINK: Madam Chair, we have two exhibits that we'd like to pass out, please.

COMMISSIONER BROWN-BLAND: All right. You may do so. Mr. Bennink, do you have a preference as to which one of these is --

MR. BENNINK: Yes. Madam Chair, the one-page exhibit would be -- let's see -- we'll call that Thompson Rebuttal Exhibit 1.

COMMISSIONER BROWN-BLAND: All right. It's been marked Aqua Thompson Rebuttal Redirect --

MR. BENNINK: That's fine.

COMMISSIONER BROWN-BLAND: -- and it's Exhibit Number 1.

(Whereupon, Aqua Thompson Rebuttal Redirect Exhibit 1 was marked for identification.)

MR. BENNINK: And the other would be the same except Exhibit 2.

COMMISSIONER BROWN-BLAND: All right. Aqua Thompson Rebuttal Redirect Exhibit Number 2, and that's a little booklet, if you will, that the cover page says Itron.

(Whereupon, Aqua Thompson Rebuttal Redirect Exhibit 2 was marked for identification.)

Q Mr. Thompson --

MR. GRANTMYRE: I would -- first of all, I'd object to both of these. We didn't ask what was included in the 15.23 per hour, and we certainly didn't ask about the statement of work in the mobile AMI project.

MR. BENNINK: The Public Staff, and I believe Mr. Grantmyre, or at least in terms of Mr. Thompson's responses today, he discussed the Public Staff's proposed five-year deployment program. He made the distinction that that is completely different and not what the Company is doing in this case. It's using an aged meter replacement program. And this goes to the Public Staff's position on that issue.

MR. GRANTMYRE: We didn't ask for a breakdown of everything that is or is not in the 15.23.

MR. BENNINK: You mentioned the 15.23 in your question.

MR. GRANTMYRE: I know we mentioned it.

COMMISSIONER BROWN-BLAND: I'm going to overrule it and allow it.

MR. GRANTMYRE: Well, we would, again, reaffirm

our objection to this Statement of Work Itron. We never got into any of that stuff as to --

COMMISSIONER BROWN-BLAND: My ruling was to both exhibits, so it's overruled.

MR. GRANTMYRE: Okay. I'm sorry.

Q Mr. Thompson, let's talk about your Rebuttal Redirect Exhibit 1 first. First of all, I think the Public Staff number that Mr. Grantmyre used today was $15.23. Can you tell why you had $15.80 on this exhibit?

A Well, the 15.23 is an internal labor rate per hour, which I don't agree with from a personal perspective, that it would take that labor rate to change these meters out with some of the problems that we saw with those Ford meter pits and just other things that you run into. I just don't see it happening.

But that rate said it was .54 hours times a $15.20 rate, which is what gets you to the $8.18. It's actually 8.17 per the 15.23. Then to that number there's an applied overhead rate that was used by Mr. Junis in his internal Public Staff model that he made up that added 93 percent of that $7 or $8.18, to the come up with an overhead -- applied overhead that you put in 7.61. That's how you get to the 15.80 or the 15.78 of the meter cost that was used in the Public Staff's theoretical

model that they built.

Q And the column on the left is entitled Examples of Costs Included in Aqua Overhead Allocation.

A Yeah. This is in answer to Commissioner Mitchell's question the other day, where it was like what are the components of overhead that internal labor consists of. So it's really just demonstrating what elements are inside of there, and the primary ones, as you can read through there, are payroll taxes, health insurance, the fuel associated with it, any kind of property insurance, some indirect cost associated with, you know, some people that may be involved in meter changes, right, nonproductive time, sick time, and a corporate service allocation and meter labor spread. But it's not a comprehensive list of all overhead that would need to be taken into account if you were doing an aged meter changeout.

Q And would the sum of the costs that you detail there have been consistent with the number that the Public Staff is using?

A The sum of the element on the left?

Q Yes.

A That would be consistent with what would be making up that $7.61.

Q All right.

A But all these other things on the right-hand side are the things that are associated with what I would call an overall aged change meter program and the components that you would need to incorporate to successfully do the start to finish process that would result in a meter getting changed out, it getting done timely, it getting done accurately, it getting done billed, it getting done reflecting the right consumption.

Q And that would be consistent with doing the changeout program in-house, as suggested by the Public Staff?

A No.

Q All right. Is that in addition?

A It's in addition.

Q All right. And state why that's the case.

A Well, I mean, the elements or design are shown here. I mean, if you look at the statement of work, which is a contract that was signed by Shannon Becker, I think it's on my page 11, if you want to really look through it, there are deliverables. I -- it's actually on page 10, 3.2. It's the deliverables required for Itron that was the subcontractor, the tasks that they had to do, and the work that they were required to do. So

it's a pretty descriptive list. I mean, I don't need to go through it unless you all feel that there's a need to go through it.

Q But let me clarify. You're looking at the statement of work from Itron, Exhibit 2?

A That is correct.

Q That's what you're discussing?

A That's correct. That's the first point of things that aren't included in there. And it's a pretty comprehensive list because it's a lot more complex than just, you know, the changing out the meter. You have to close the work order. You know, there's an inventory control process around the meter, so when you take the old meter out, because you use this software and you use this process, there's something that says what the old meter number is in the system and then the workflow. But these are the kinds of things that are in there. You have to take out the right meter number. You have to put in the right meter number. You have to get the correct read when you take the meter out. You have to get the read when you register the meter in. And if you don't do all that, the meter doesn't go in and it doesn't bill and it doesn't close.

And the contract associated with that, which is

why you eliminate a lot of the error rate on the installation, these are just like the facts of the real world, they don't get paid. There's a contract that has a stipulation that they have to achieve a certain implementation standard. They have to meet a certain level. And they don't get paid unless it's billed. There's nothing in any kind of inside theoretical model that encompasses all that. And if you don't have a complete program of meter exchange and you can't do it start to finish, you can't bill for it, and it's not -- it's not in the customer's best interest.

So I don't want to go into too much detail there, so I'll shut up.

Q All right. On the last point, the contract with Itron has the provision that you talked about that puts restrictions as to when they're paid, and is that found on page 24 of Exhibit 2 in the middle of the page?

A It is. I don't want to flip through it, but I believe you.

Q All right. And do you see any need to discuss any of these specifics that you list in the right-hand column of this?

A No, other than, you know, they kind of speak for themselves, doing background checks on people, making

sure they're qualified to do it, they have the right skills when you bring somebody in, they have the competency to do some of these things like work on those Ford meter boxes, you know, the fact that you're bringing in laptops. I mean, there's -- it's -- the point of this is it's a much more comprehensive, I'll call it, workflow and responsibility that's more than encumbered in this -- in the presentation of showing a meter and just changing out a meter. Simple things about not getting paid. And I'll just -- if I -- am I okay to elaborate for one second, or no?

So the example of flushing and turning on the water, the real life is people go out, they change a meter and they forget to turn the water back on. Customer is out of water. Customer calls. You have to send that contractor back. They don't get paid unless they do it right. There's a leak. They have to fix the leak. They break it, it's their responsibility. They don't get paid. That comes inside of Aqua. These are real-life events. Somebody has to go back out and fix that leak. These are practical, everyday reality things when you're using an outside contractor, that they absorb that in that statement of work that would be additional cost that aren't included in this hypothetical,

theoretical Public Staff model.

Q And you saw the display that Public Staff Witness Junis put on when he installed the meter --

A I did.

Q -- AMR meter? Do you think that was an accurate portrayal of real-life circumstances when you're replacing a 20-year old meter?

A No. I said that earlier. I believe -- I don't think they're as common as -- you know, to be obvious, they're not as common as the Ford meter pits, but I think if something is in the ground for an average of 17 years or 18 years and a valve hasn't been exercised and it's been full of water or full of clay or full of dirt, it hasn't -- and you go to move it and it shifts as the ground shifts, reality of the fact is you need somebody skilled to go in there and do that because they may not -- the two pipes may not align, you may not be able to, you know, close that valve, and then you break it. You have to have the skills to do that right on the spot for the customer.

Q All right.

A So the answer is no. What you saw in that box demonstration isn't the real world. And these are practical because this happened through this process.

Q Before we leave the Rebuttal Exhibits 1 and 2, do you have anything else you want to add about those exhibits?

A There is one thing, but I can't --

Q Well, we can come back to that if it comes to you.

A Okay. Well, maybe. You know, Sometimers is starting to set in with me.

Q Talking about your Thompson Exhibit 3, Mr. Grantmyre asked you some questions about the fact that you've got cost in there for installation of gas meters or representative.

A Yeah. That was just a reaction -- or not reaction -- in response to, you know, what the cost is and the oversimplification of the skills to do it that, you know, conversation with others, meaning, you know, the contractors did it, and just in trying to, in fairness, answer the interrogatories in the EDR. The qualifications are journeymen type of experience and securing those people, and the -- you know, again, it's subject to judgment as a professional that looks at these contracts. But they weren't finding people at these kinds of -- like they had to go find a certain labor rate of somebody that was qualified to do that. It wasn't at

these small labor rates.

And I would suggest, you know, in conclusion with that, is that if you looked at the bid process that was in there, which was in my testimony, in my rebuttal, that if you look at the installation costs, there were three independent installation costs that were within $2 of each other. So, you know, I don't understand that. And when you further look at the -- what Durham did in 2012, and independently it was done with Muir and in Brookwood in 2012 and '13, those costs were like $209. The Durham was $235. When we looked at the fully loaded cost with the Itron $44 in it, it was $209, so the other two were $2 different, they would have been like $207. So you have five sources that kind of tell you what the cost is that Aqua paid.

To me, that's evidence enough that you've done it independently five different times and come up with basically the same number, if not a lower number, from 2012. And I would argue that some of the things that were done in the contract negotiations by me and some of our purchasing power and economies of scale, that that helped to leverage that reduced cost.

Q And going back to what you said about Brookwood, I believe you said those began to be installed

as early as 2012, did you say?

A That is correct. It was a partial 2012/2013 implementation.

Q And so if that's the case, it's true that those AMR meters have been for more than five years and some more than six years, correct?

A That is correct.

Q And they're just now subject to being challenged?

A That is correct.

Q I want to go back to Thompson Exhibit 3. Do you have it in front of you?

A No, but I can get there.

Q Again, to the question you answered about gas meters.

A Okay.

Q And I believe on page 1 of that exhibit -- I believe you covered this in your testimony, but I want to make sure. Would you read the second full sentence that is in the first full paragraph of that exhibit?

A You're going to have -- you're going to have to hold on for a second, please. Sorry. I thought I was there, but I pulled up the wrong thing. Could you tell me Mr. --

Q Thompson Exhibit 3, second sentence.
A Yeah. I'm there now, so --
Q Second sentence of the first paragraph.
A "These jobs effective August 1st, 2018" --
Q No, no.
A Second paragraph. Okay. Job duty -- "Job Duties."
Q No. First paragraph. Second sentence, first paragraph.
A Second sentence. "You will note that this specifically mentions gas meters, but the skill set and market rates would be very similar and we would use this information as the basis for determining our internal rates" -- as we were to -- "we were to create internal jobs for these positions."
Q All right. I just wanted to make sure that it was clear that in this exhibit you pointed out the distinction of why you used the meters that had the gas connotation.
A And, again, this was just done for as exemplary, you know, to the Public Staff request, data request. Aqua never intended to do this with internal staff.
MR. BENNINK: Madam Chair, I have a question

about one of the Public Staff's exhibits. And I apologize, I did not write down the exhibit number. Maybe Mr. Grantmyre can help me. It is the response to Engineering Data Request No. 59.

MR. GRANTMYRE: I believe that was Number 1.

COMMISSIONER BROWN-BLAND: No. I -- it looks like to me it's Rebuttal Cross Exam Exhibit 3.

MR. GRANTMYRE: There are two of them. Which question are you on? We have Number 1 and Number 3.

MR. BENNINK: Yes. And I'm sorry. It's -- this is question 13.

MR. GRANTMYRE: That's Number 3.

MR. BENNINK: Okay.

Q Now, Mr. Thompson, in the initial response, the Aqua objective -- objection was that the Company did not have this data readily available, requested further clarification on the relevance to your testimony, correct?

A That is correct.

Q Mr. Grantmyre notes that he sent out an email to Ms. Sanford and me on Friday, September 7th. In your testimony in response to questions, I believe you still noted that there was no stating of relevance -- the need of relevance for this information; is that correct?

A That's correct.
Q What's the date on this email?
A September 7th.
Q And do you remember or would you accept, subject to check, that Aqua filed its rebuttal testimony in this case on September 4th?
A Yes, I would.
Q That's when you filed your rebuttal testimony?
A Yes, it is.
Q So this was three days after that?
A Yes, it is.
Q In your opinion, was there any attempt to establish the relevance of the inquiry in this email?
A No, there was not.
Q I believe Mr. Grantmyre made the statement that the Company would not provide this information. Would you -- would it be accurate to say that the Company's position is that it was not a matter of would not, but under the circumstances that you could not provide this information?
A I would say that's fair, yes.
Q And, again, take a look at Cross Examination Exhibit Number 2.
A Okay.

Q This was a data request that was filed on September 5th, correct?

A That is correct.

Q And that -- there again, that was the day after the Company's rebuttal testimony was filed?

A Correct.

Q And your response stands as you described it in your testimony, correct?

A That is correct.

Q Mr. Grantmyre, in his questioning, only mentioned AMR meters that have been installed in Pennsylvania, I believe. Is that your recollection?

A That is correct.

Q First of all, how many states have Aqua America affiliates installed AMR meters?

A Does that include that we're able to do this in North Carolina?

Q North Carolina should be counted.

A Eight.

Q Eight out of how many?

A This will be the eighth state.

Q I mean, there are eight states in --

A Right. Correct.

Q -- which Aqua America has subsidiaries?

A It has had in other states like Florida that it has sold, Missouri. There's been other states, but eight current states that Aqua America has that has AMR.

Q All right. And you probably said in your testimony, but how many years have you worked with Aqua America?

A I was doing some consulting to convert the property records, so you mean as an employee?

Q Yes.

A Since 2013, so I've been here over five years. They're dog years.

Q You did consulting before that?

A I was a consultant, yes.

Q How many years?

A On and off for Aqua probably about three or four, from like 2004 after I completed my Fidelity Investment wind down and worked for a friend that had a CPA firm.

Q And since you have been employed by Aqua America, have you been integrally involved in the deployment of AMR meters throughout the Aqua system?

A I've been fairly involved in all the AMR deployments, yes.

Q And so have you learned a lot over the course

of those years?

A I most certainly have.

Q And tell the Commission what -- maybe the lessons that you've learned.

A Well --

MR. GRANTMYRE: Objection. I don't remember getting into this --

MR. BENNINK: Well, it goes to your --

MR. GRANTMYRE: -- in my cross.

MR. BENNINK: It goes to your question, and I'll go -- I'll stop that. We'll go --

Q Again, started out asking -- Mr. Grantmyre asked about meters in Pennsylvania, and you've said that over the years Aqua has deployed meters, AMR meters, throughout the eight states, correct?

A That is correct.

Q Can you tell us, Mr. Grantmyre asked questions about meter locations, and questions about accessibility, and meter readers having to go out there and what they can observe, correct?

A That is correct.

Q Can you tell us where the meters are located in Aqua Virginia and Aqua Texas?

A The same place they are in North Carolina, near

the property line.

Q All right. To the best of your knowledge, has any of the other consumer advocates in Pennsylvania or any other states --

MR. GRANTMYRE: Objection. We didn't ask about other consumer advocates.

COMMISSIONER BROWN-BLAND: I'm going to sustain that.

MR. BENNINK: All right. That's all I have. Thank you.

THE WITNESS: You're welcome.

COMMISSIONER BROWN-BLAND: All right. Questions by the Commission?

(No response.)

EXAMINATION BY COMMISSIONER BROWN-BLAND:

Q Mr. Thompson, I had just maybe one or two here. In your testimony on page 10, you discuss the municipal systems that have also used the AMR technology. Are you aware when or for how long they have had AMR deployed?

A The one that was passed around earlier, Commissioner, was the City of Durham. It was approximate size. They've had it since 2012.

Q Okay. And are the others in your testimony, Raleigh, Charlotte, Greensboro, have they had it for as

long or longer?

A I do not know the answer to that question. I can certainly find that out.

Q And do you know if any of them were doing a similar thing as you described Aqua was doing, that is, an aged meter changeout versus what in your summary you call the rollout?

A I do not know their process, but probably -- this is just a guess on my part, right? A municipality probably has wholesale changes within the municipality of aged changeouts. Having, you know, been around meters for a while in large municipal systems like -- and, again, I know it's up north, the City of Philadelphia, but Raleigh -- not Raleigh -- Suffolk County in Virginia, Baltimore, those are wholesale changes of a large scale that are done comprehensively at once, so you don't have the dynamic that Aqua has with the developer systems that have these different buckets of aging in these 730 systems. That's an added complexity.

Q So Aqua does have a bucket, and it can be a fairly large number, I think you said 16,000 or 17,000, maybe, that was being replaced in a particular system here in North Carolina?

A That's what was done as part of that aged, I'll

call it, compliance that we discussed, and it was targeted within the specific water systems based upon the age of those systems. There was a lot of planning that goes in and says that developer system was from, you know, 1999, so therefore 2018 or 2017 it would have reached its end-of-life service, so you target that system and change all those meters out.

Q So what's the main point of significance that you want the Commission to get out of the aged meter changeout that Aqua is doing versus a wholesale rollout?

A That you're not taking the asset out of service and charging the ratepayer for early relief of that retirement of that asset. If you probably were to use this five-year program that was in the theoretical made up, you know, I'll call it, Public Staff version, that this program targets them at their end of their useful life, and it goes in and specifically looks at the systems that it's relevant to and put in the meter at the end of the life with no incremental cost for an RF and start utilizing your RF capability.

Q And does the Company keep any data on percentages of failures or issues with the installation? Like you mentioned, sometimes they go out and they leave it in a leak condition, you mentioned that the installer

doesn't get paid for that. Do you keep data on the percentages of how many -- how much of like going back you have to do because of improper installation?

A It is tracked within the Itron field deployment manager, which is one of the -- which is the tool that they use here, and then those results are tracked and reported on weekly. In this project they were reported on weekly with internal Aqua staff, whatever types of issues you had, service issues with respect to customer breaks. So, yes, there's a review process that occurs. It's contained within the system, and then it's reviewed with Aqua internal staff to make sure it's progressing accordingly.

Q All right. Thank you.

A You're welcome.

COMMISSIONER BROWN-BLAND: Questions on Commission questions?

MR. BENNINK: No.

COMMISSIONER BROWN-BLAND: All right.

MR. GRANTMYRE: I have a question.

COMMISSIONER BROWN-BLAND: Mr. Grantmyre.

EXAMINATION BY MR. GRANTMYRE:

Q You were talking about replacing aged meters. Like when you -- you've replaced, I believe, all the

meters in Bayleaf, haven't you?

A I would not know the specific system, but I'll take your word for it.

Q And Bayleaf has some sections that are two or three years old. Would you accept that? It's continually growing. Would you accept --

A I would not say -- I would not say that we do not replace -- when we created these targets, just for clarification, the minimum we went to, because when you do I'll call it a saturation of a specific system, was 15 years. That's why the average life was like 17.63 or 17.8 years. It was in that 15, 20-year period where you may do some groupings of that just to get economies of scale so you could do exactly what you said, that you could go in -- or not you -- but was in the testimony that you go in and change out wholesale developments and not have to revisit them every year or every other year to do this. It makes sense to get them really at the end of their useful life, as close to it as you can. So some may be a year or two older, some may be a year or two younger, but we would not go in and change a system where -- or a meter if it was only a couple years old.

Q But you're going in and replacing the entire subdivision, and if, in fact, there was a broken meter in

that subdivision two years ago and it was replaced, your people would -- in order to have AMR capability, you go in and replace that meter.

A That is correct. In order to adopt AMR, you would have to go in and change that meter on a break fix on that low occurrence. And you may not -- you change it two years from now, and you may not reach that point where we're going to go to that developer system until 2022. But you wouldn't put in a manual meter, only to take it out four or five years later. It's just common sense in how you would do it. You have to prepare for this thing. It would be different -- that's the difference between here and a municipal system where you go in and do wholesale changes.

Q But also we have these contiguous extensions in North Carolina where you have a subdivision and they may add another 20 lots, and the original subdivision may have gone in in 2005, and now in 2016 another 20 lots are added.

A Yeah. That exists in all states.

Q Now, again, if you were changing out that subdivision, you would change out all the meters and not just the ones that were put in in 2005, correct?

A Well, I think the point that I would make with

that is that what you would do is you'd make the preparedness to adopt the AMR technology with the meter exchange on a prudent basis to try to see that you could get it synchronized at some point in time. And I can't answer your question specifically because it has too much hypothetical to it, but you would have to look at that, and that's how you would prioritize your work and schedule your work as part of that aged meter replacement.

MR. GRANTMYRE: I have no further questions.

COMMISSIONER BROWN-BLAND: All right. Mr. Thompson's testimony has been admitted.

MR. BENNINK: We would move his exhibits into evidence, too, including --

COMMISSIONER BROWN-BLAND: All right. Without objection, that's allowed.

MR. GRANTMYRE: We would move the cross --

MR. BENNINK: And that's the first -- excuse me -- I'm sorry.

MR. GRANTMYRE: I'm sorry.

MR. BENNINK: Yeah. That would include the four that he prefiled, plus the two that we introduced on redirect.

COMMISSIONER BROWN-BLAND: Right. All the

Company's Thompson exhibits are received into evidence.

(Whereupon, Thompson Exhibits 1-4 and Aqua Thompson Rebuttal Redirect Exhibits 1-2 were admitted into evidence.)

MR. GRANTMYRE: We would move that our Cross Examination Exhibits, I believe it's 1 through 5, be --

COMMISSIONER BROWN-BLAND: That's correct.

MR. GRANTMYRE: -- be admitted into evidence.

COMMISSIONER BROWN-BLAND: They are so admitted.

(Whereupon, Public Staff Thompson Rebuttal Exhibits 1-5 were admitted into evidence.)

COMMISSIONER BROWN-BLAND: And Mr. Thompson, you're excused.

THE WITNESS: Thank you.

(Witness excused.)

COMMISSIONER BROWN-BLAND: Could I see counsel up here just briefly?

(Off-the-record discussion.)

COMMISSIONER BROWN-BLAND: All right. Before the next witness, the Commission is going to take a break and come back on the record at 10:45.

(Recess taken from 10:32 a.m. to 10:45 a.m.)

COMMISSIONER BROWN-BLAND: Let's come back on the record. Mr. Allen, you can call your next witness.

MR. DWIGHT ALLEN: Yes. Mr. Gearhart, would you come around, please?

COMMISSIONER BROWN-BLAND: Mr. Gearhart, you're still under oath.

MR. GEARHART: Yes, ma'am.

MR. DWIGHT ALLEN: We'll pass the summary around, and I'll go ahead and...

DEAN R. GEARHART; Having been previously sworn,

Testified as follows:

DIRECT EXAMINATION BY MR. DWIGHT ALLEN:

Q Mr. Gearhart, you've previously testified in this proceeding, have you not?

A Correct.

Q And did you prepare and cause to be filed with this Commission certain rebuttal testimony which was filed on September 4th of 2018, consisting of seven pages?

A I did.

Q Are there any additions or corrections you wish to make to that testimony?

A I do have some minor updates to some numbers on

two of the pages.

Q Could you give us those, please?

A I can. On page 3 of 7, the very first line references a number that we hadn't received yet. That number has actually been received as -$150,196.

Q And which line is that on?

A That's on line 1. I didn't have a number at the time when I prepared it, but now we do. The second --

COMMISSIONER BROWN-BLAND: Would you repeat the number?

A It's -150,196.

COMMISSIONER GRAY: What page? Rebuttal page 3?

Q Are you on your rebuttal testimony?

A Rebuttal page 3, yes, 3 of 7. There wasn't a number at the time that we prepared it.

COMMISSIONER GRAY: Give it to me again.

THE WITNESS: -150,196.

COMMISSIONER GRAY: Thank you.

A And the next on line 7, instead of 313,035, it should be 313,031. On line 9, that amount has changed to -- from -1,393,751 to -1,457,007. And then the last change is on line 12 where that actually should be

stricken from my testimony. That item in the settlement process has been moved back to the unresolved list, so that actually no longer is applicable.

Q With the exception of the last change, what are the reasons for these changes?

A These are basically numbers that I've developed or finalized as the settlement process has gone along.

Q So they're just updated to current?

A Yeah, correct. They're updated from the Cooper Exhibit 2, Schedule 1.

And then I also have three changes -- sorry -- on page 7 of 7. And these are on lines 7, 9, and 10. The numbers, instead of 73,732, that number should read 75,298; instead of 114,342, that number should now read 120,927; instead of 188,074, it should now read 196,225. Apologies if I went too fast.

Q And were those changes made for essentially the same reasons as your others?

A Same reason, updates to the schedules as we've gone back and forth in the settlement process.

Q Are there any further additions or changes you wish to make?

A Not at this time.

Q If you were asked the same questions that

appear in your prefiled testimony, would those answers be the same as they appear in your prefiled testimony?

A They would.

Q And are they true and correct, to the best of your knowledge and belief?

A They are.

Q Have you prepared a summary of your testimony?

A I have.

Q Could you give that now, please?

A Certainly. Thank you for the opportunity to appear before you again today. The purpose of my rebuttal testimony is to address the Public Staff's annualization and consumption adjustment calculation, as well as its adjustments to rate case expense.

For the annualization and consumption adjustment, Aqua's concerns are, 1, a consumption factor (based on customer gallons billed for a small percentage of Aqua's wastewater customers) has been applied for the first time to the Company's two sewer rate divisions. The vast majority of the customers in these two sewer rate divisions are flat rate and have no gallons billed. Number 2, the removal of sludge hauling expense from the annualization calculation. And 3, the removal of materials and supplies expense from the annualization and

consumption calculation.

Q Does that complete your summary?

A It does.

MR. DWIGHT ALLEN: We would ask that Mr. Gearhart's prefiled testimony -- rebuttal testimony be copied into the record as if given orally from the witness stand.

COMMISSIONER BROWN-BLAND: That motion will be allowed.

(Whereupon, the prefiled rebuttal testimony of Dean R. Gearhart was copied into the record as if given orally from the stand.)

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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497

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 IN ALL SERVICE AREAS IN
NORTH CAROLINA

PREFILED REBUTTAL TESTIMONY OF **DEAN R. GEARHART** ON BEHALF OF AQUA NORTH CAROLINA, INC.

September 4, 2018

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dean R. Gearhart. My business address is 202 Mackenan Court, Cary, NC 27511.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Aqua North Carolina, Inc. ("Aqua" or "Company") as the Manager of Rates and Planning; as such, I provide financial supervision and guidance to the president of the state organization.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. My rebuttal testimony will address certain revenue and expense related adjustments made by Public Staff Witnesses Henry and Junis.

Q. WITH WHICH OF PUBLIC STAFF'S CURRENT, UPDATED ADJUSTMENTS DO YOU AGREE, AND WHAT ARE THE AGREED UPON AMOUNTS OF THOSE ADJUSTMENTS?

A. Aqua and the Public Staff agree to a number of updated adjustments, and they will be reflected in Public Staff Schedule Cooper Exhibit II. These adjustments apply to the following items:

--Salary and wages through 6/30/18 (-$40,385);

--Remove open positions (-$174,680);

--Adjustment to reflect actual Overtime ("OT") pay (-$18,593);

--Pensions and Benefits expense through 6/30/18 (-$36,639);

--Removal of benefits related to open positions (the adjustment

amount still needs to be updated to the vacancy rate of 5.8 in Cooper Exhibit II, Schedule 1);

--Aqua Customer Operations ("ACO") and Service Company expenses (+$6,372);

--Removal of the duplicate health-advocate line item expense (-$9,458);

--Adjustment to insurance expense (-$313,035);

--Service revenues, based on the agreed upon customer count used to formulate the tariff for this filing; (-$1,393,751 pending final Cooper Exhibit II, Schedule 1 amount);

--Miscellaneous Revenues (-$72,240);

--Post Test-Year additions to plant (+$446,353);

--Advances for construction (-$13,486);

--Costs related to future customers (+$672);

--Various legal fees (-$67,140);

--Reallocation of costs of vehicle assets; (-$1 adjust);

--Acquisition Incentive Adjustments ("AIA") ($0 adjust);

--The Mid-South Growth (PAA) (+$6,085);

--Chemical expense (+$118,333) and Purchased Power expense (-$90,092);

--Removal of the Transportation Expense Adjustment ($0 adjust);

--811 Contract Services (-$57,449 - this is for the annual expense to be paid under the contract and distinguished from the Public

Staff adjustment to remove a portion of 4 operator's salaries)

Q. DO YOU AGREE WITH PUBLIC STAFF'S ANNUALIZATION AND CONSUMPTION ADJUSTMENTS?

A. No. The purpose of this adjustment is to update variable expenses to match Aqua's period-end (June 30, 2018) customer count using a calculated "Annualization Factor" along with a "Consumption Factor" that is calculated using current consumption levels compared to Aqua's three-year average consumption. The methodology to apply these factors has been consistently applied over the last two rate cases; however, the Public Staff has changed from its prior methodology in three areas, as follows:

1. The "Consumption Factor" has been erroneously applied to Aqua NC's two sewer rate entities; the consumption factor should only apply to Aqua NC's three water entities. In Aqua's two previous rate orders (W-218, Sub 319 and W-218, Sub 363), the consumption factor was not applied to either the Aqua Sewer or Fairways Sewer rate entities. The variable expenses for these sewer entities is primarily customer driven while the consumption factor is designed to apply to only water rate entities.

   As a result, on Cooper Exhibit I, Schedule 3-5(a)(1), the Consumption Factor on line 2 for Aqua Sewer, should be changed from -1.85% to 0.00%. Line 4 for Fairways Sewer should be changed from -0.91% to 0.00%.

2. Adjustments for Sludge Hauling expense that have been part of the

annualization calculation in each of Aqua's last two rate case orders (W-218, Sub 319 and W-218, Sub 363) have been excluded from the annualization calculation in this rate proceeding.

Public Staff witness Junis recommends that an annualization and consumption adjustment be applied to items identified as short-term variable expenses by the Environmental Finance Center ("EFC") study, filed on March 31, 2016 with the Commission in Docket No. W-218, Sub 363A. (Click here for link to EFC study on www.ncuc.net), pages 6 and 11. Mr. Junis, however, specifically excludes sludge expense, which is (a) recommended by the EFC study on page 6 and (b) included in the prior Public Staff rate case calculations mentioned above.

Despite Aqua's disagreement with the Public Staff's position on the sludge adjustment in Witness Darden's testimony and as described in Aqua witness Pearce's testimony, the annualization factor is a separate calculation to take the historic balances (or averages), and annualize them for current end-of-period customer counts.

Sludge hauling is the removal of wastewater solids from a treatment plant. The increase in wastewater based on the Company's current customer count (as of June 30, 2018) will result in the requirement to remove more sludge material. Public Staff witness Junis has excluded sludge hauling from his calculation, citing the fact that sludge removal expense was calculated by the Public Staff to be the annual average of the two-year period ending June 2018. The mid-point of these two years

is June 2017. Since Aqua NC's total sewer customer count has increased by 4.2% since June 2017, this does ***not*** represent the expense levels that will be incurred using the current customer count of June 30, 2018. An average understates the actuality of an end-of-period number and undermines the Company's opportunity to recover the costs associated with these customers.

Mr. Junis's reasoning, to selectively exclude an expense line that is directly related to customer counts from the annualization adjustment because it was separately updated using an average, is flawed.

The Company requests that Sludge Hauling Expense be added to the Annualization Adjustment calculation for this case.

3. Materials and Supplies Expense has been erroneously excluded from the Annualization and Consumption Adjustment despite being included in the previous two rate orders cited above. Materials and Supplies expense is a variable expense where a large portion of the annual amounts increases with both the number of customers served and the level of annual consumption supported. Neither the Company nor the Public Staff has disputed this position in previous rate proceedings; however, witness Junis excludes these expenses from his annualization calculation.

The Company requests that Materials and Supplies expense be added to the Annualization and Consumption Adjustment calculation.

Q. WHAT IMPACT DOES WITNESS JUNIS'S NEW POSITIONS HAVE ON

THE ANNUALIZATION AND CONSUMPTION ADJUSTMENT?

A. Mr. Junis's exclusion of certain variable expenses effectively reduces revenues to which Aqua is entitled, and excludes legitimate costs associated with the number of customers Aqua NC serves as of June 30, 2018 at its current level of consumption. Per the Company's calculations, the impact of failing to apply the Annualization and Consumption Adjustment factors to the three items enumerated above is $73,732. This amount should be added to the Public Staff's current calculation of $114,342, for a total Annualization and Consumption Adjustment of $188,074.

Q. DO YOU AGREE WITH THE PUBLIC STAFF'S ADJUSTMENT TO REGULATORY COMMISSION EXPENSE?

A. No. Aqua will soon be providing an update of actual and projected rate case expense though the close of the hearing in this case and requests that the Commission approve the requested amount for inclusion in rates in this proceeding.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

MR. DWIGHT ALLEN: And with that, he's available for cross examination.

CROSS EXAMINATION BY MS. CULPEPPER:

Q I may have missed it, but did you read the part in your summary about rate case expense?

A I did.

Q Okay.

A In the first paragraph, yes.

Q Was that addressed in your rebuttal?

A Yeah. I basically just summarized that we were still -- that it was still being developed and it was going -- you know, invoices were going to be supplied as they were received. It was sort of a generic statement just indicating that the number wasn't final, but we just wanted to make that clear in my rebuttal.

Q Did you talk about the amortization period issue in your rebuttal?

A In my rebuttal testimony it was -- it had not been made aware to me that the amortization had changed, so in my rebuttal testimony I had not.

Q And did you file supplemental rebuttal on this issue?

A I did not.

Q Okay. Mr. Gearhart, beginning on page 17 of

the supplemental testimony of Public Staff Witness Junis, he discusses his billing analysis, and I'm just going to read to you what he said and so you don't have to turn there.

A Sure.

Q And page 18, lines 11 through 17, Mr. Junis says, question, "Has Aqua had an opportunity to review your billing analysis" --

COMMISSIONER BROWN-BLAND: Ms. Culpepper, could you just get a little closer?

MS. CULPEPPER: Okay.

Q Mr. Junis states, question, "Has Aqua had an opportunity to review your billing analysis?" And his answer was, "Yes." Then the next question, "Has Aqua agreed to your billing analysis?" Answer, "Yes. Aqua has agreed to the customer counts, consumption quantities, and the pro forma revenues existing in Aqua's proposed rates." Do you agree with his testimony?

A I do, yes.

Q Okay. Is the consumption factor calculated using Aqua's updated three-year average consumption compared to the test year average consumption?

A That is correct. The consumption portion adjustment is based on exactly that.

Q Please turn to page 4 of your testimony.
A Sure.
Q Your rebuttal testimony.
A Right.
COMMISSIONER GRAY: Direct or rebuttal?
MS. CULPEPPER: Rebuttal.
Q Are you there?
A I am, yes.
Q You explain why you disagree with the methodology by which the Public Staff applied its annualization and consumption factors; is that correct?
A That is correct.
MS. CULPEPPER: We're going to pass out an exhibit. This exhibit has been premarked as Public Staff Gearhart Rebuttal Cross Exhibit 1, and it's Aqua's response to Public Staff Engineering Data Request No. 60.
COMMISSIONER BROWN-BLAND: All right. This will be identified as it's been premarked, Public Staff Gearhart Rebuttal Cross Examination Exhibit Number 1.
(Whereupon, Public Staff Gearhart Rebuttal Cross Exhibit 1 was identified as premarked.)
Q Mr. Gearhart, are you familiar with this data request and your response?

A I am, yes.

Q And it relates to your rebuttal testimony; is that correct?

A Correct, correct. It's a direct response to my rebuttal testimony, yes.

Q Okay. And so in the response there's the question and then the R for the response?

A Correct.

Q The second sentence of that response states that the vast majority of customers are flat rate and have no billed consumption for sewer.

A Correct.

Q And you were referring to sewer customers; is that correct?

A Right. It's the two sewer rate divisions. It's the application of the consumption factor to the two sewer rate divisions. That's my point of contention there.

Q Would you agree that a majority of Aqua's flat rate sewer customers are also metered water customers of Aqua?

A I believe that might be the case. I'd have to double check that. I mean --

Q But subject to check, you agree?

A Subject to check, I mean, a portion of -- probably a significant portion of the sewer customers are water, also.

Q Okay. Did the consumption of Aqua NC water customers, as well as Aqua NC sewer customers, decrease since Aqua's last rate case?

A Since the last rate case it has decreased.

Q Would you agree, subject to check, that Aqua NC water -- water's consumption factor is -0.47 percent and Aqua NC sewer's consumption factor is -1.85 percent?

A I do. Those are the -- those are the factors based on the actual gallons billed for those two entities.

Q Please turn to page 5 of your rebuttal, and we're talking about lines 18 to 20.

A Okay.

Q You explain that more customers will result in more wastewater and the requirement to remove more sludge material; is that correct?

A That is correct.

Q Would common sense dictate that if you use more water for bathing, washing clothes, et cetera, that you would be creating more wastewater?

A Oh, certainly. That concept is correct, yes.

Q If you create more wastewater, would there then be more sludge?

A Theoretically, yes.

Q So if customers use less water, then as a result would there be less wastewater and less sludge?

A For the small population that are metered sewer, the answer is yes, with the emphasis on it's a small portion of the sewer population.

Q To summarize, changes in water consumption impact the quantities of wastewater and sludge; is that correct?

A That is correct.

Q Then is it reasonable to conclude that short-term variable expenses from both water and sewer are driven not only by customer count, but also by consumption?

A I agree with the statement. Again, my concern is that it's -- it applies to such a small portion of the sewer entities' customers that it isn't appropriate to apply the adjustment to the entire population of the sewer rate entities --

Q But it applies --

A -- both historically and logically, to the Company's way of thinking.

Q And when you say historically, do you mean the prior rate cases?

A I do. I mean the three rate cases that I provided as part of this response.

Q Let's go back to page 4 of your testimony, lines 11 and 12. You state that the Public Staff erroneously applied the consumption factor to Aqua NC's two rate -- pardon me -- Aqua NC's two sewer rate entities?

A I did state that, yes.

Q Okay.

MS. CULPEPPER: Those are all of my questions, and I move that the exhibit be entered into evidence.

COMMISSIONER BROWN-BLAND: Before that, let me see if there's redirect.

MR. DWIGHT ALLEN: Yeah. I have a few questions.

REDIRECT EXAMINATION BY MR. DWIGHT ALLEN:

Q You were asked about the change in the amortization period for rate case expenses, were you not?

A Just now, yes, I was.

Q And you said the reason you did not respond to that is you were not aware that the amortization period was going to be changed; is that true?

A It had not been made clear to me at the time, and --

Q And do you --

A -- in the initial schedules, the amortization was still listed as three years, except for the depreciation study which was five.

Q Now, what is the amortization period that has been used in previous cases for Aqua?

A For the cases where I've been here, I have the page from the Order from 2009, 2010, 2011/2012, and 2014. The overall amortization period has been three years, with the only exception being depreciation studies, and that's the process that we followed when we filed this case.

Q Now, do you agree with the Public Staff's change in the amortization period?

A I do not. It doesn't really reflect historically the amount of time between rate cases. This is the first time where we've gone beyond three years, and I'd argue that this would be more of an outlier and the others would be more appropriate.

Q So your experience, other than this rate case, is that your rate case filings have been a shorter period than the amortization period that the Public Staff is

proposing in this case?

A That's correct, historically speaking.

Q And do you know the reason that the Public Staff changed the amortization period?

A Well, I didn't until we got into this room and it was cited -- the additional legal expenses were cited several times as a primary driver in this.

Q And they basically did it after an additional law firm made a Notice of Appearance. It was in a matter of a day or so that they decided to make that change, isn't it?

A Right. I only became aware of it from testimony in this room.

Q And was the workload you experienced in that time in response to late-filed data requests from the Public Staff have anything to do with the Company's decision to add additional legal help?

A I believe that it did, yes.

Q You talk about the consumption factor. Now, is it your position that in determining what the adjustment for the consumption factor is, the Public Staff just simply used too small a sample to do their analysis?

A Basically, yes. And if I'm -- when I looked at, you know, the latest version of Junis Exhibit 25,

which is the rate design, if you look at the Aqua sewer portion, it lists the bill counts. It's done based on annual bill counts. Based on the total metered bills for Aqua sewer, it's 13,783, and the total bills for Aqua sewer, it's 180,217. That's 7.6 percent of the Aqua sewer population.

And actually, in that same analysis, to be fair, he also has an REU calculation, and if you use REUs, the metered portion is 11.9 percent. Either number you're talking about a small percentage of the rate division. You're doing a calculation on a small percentage of a rate division and you're applying it to 100 percent of the population. It's sort of like polling one district in North Carolina and then deciding that's the results for the entire state. That's sort of my view on it.

Q So in that situation it is possible that you could use selectively an unrepresentative sample and apply it to the whole?

A Theoretically, if you use the entire Aqua water calculation, that's a possibility, but, again, because these accounts don't have gallons billed, there really is no basis for applying this calculation to the entire population. And that number is even smaller with

Fairways. That number is 1.1 percent and 2.7 percent in the Fairway Sewer Rate Division.

Q Now, you stated, I believe, that you think it's inappropriate to make a consumption adjustment for flat rated sewer customers; is that correct?

A Correct. And, again, I did cite historical precedent, but it's also, to me, the logic in the ratemaking philosophy, it just doesn't hold water, you know. No pun intended.

Q Would you explain why you think it is illogical to do that, briefly?

A Again, it's the -- it's a calculation on a small piece and applying it to the bigger puzzle, and it's -- it just -- it doesn't seem sound as far as making a ratemaking adjustment based on that calculation.

Q In regard to the rate case expense, at the time the Company decided to seek additional counsel, had it been made aware that the Public Staff felt like this case was going to be litigated rather than settled?

A To be honest, I don't recall exactly where along the lines it happened. I'm not sure if I'm in a position to fully answer that. I mean, it was all around the same time that, you know, we started the settlement process, and it was clear that certain items weren't

going to be settled.

Q Did you attend those settlement meetings?

A Yes. I've been to pretty much all of them, yes.

Q Were they going pretty well or not so well?

A I guess "well" is a relative term. You know, we were able to -- we were able to identify the areas where we had -- where we couldn't come to an agreement, and we were -- I think we were able to somewhat efficiently segregate between what we could settle and what we couldn't, and that's really the bulk of my -- the bulk of my rebuttal testimony is pointing out all the areas where the accounting group, anyway, had agreed on adjustment amounts.

Q Is it fair to say the issues on which you were not reaching agreement were the major issues in this case?

A Yes. That's fair to say.

MR. DWIGHT ALLEN: That's all the redirect we have. Thank you.

COMMISSIONER BROWN-BLAND: All right. Does the Commission have questions for this witness?

(No response.)

COMMISSIONER BROWN-BLAND: All right. There's

no questions, so we've already received your evidence, and there's a motion to receive the Public Staff's Gearhart Rebuttal Cross Examination Exhibit 1, and it is received into evidence.

MS. CULPEPPER: Thank you.

(Whereupon, Public Staff Gearhart Rebuttal Cross Exhibit 1 was admitted into evidence.)

COMMISSIONER BROWN-BLAND: Mr. Gearhart, I think this is your last time, so you're excused.

THE WITNESS: Thank you, Madam Chair.

(Witness excused.)

MR. DWIGHT ALLEN: Mr. Pearce, would you come around, please?

JOSEPH PEARCE; Having been duly sworn, Testified as follows:

THE WITNESS: Commissioners, thank you for the opportunity --

MR. DWIGHT ALLEN: Hold on just a minute.

THE WITNESS: Sorry.

COMMISSIONER BROWN-BLAND: He's essentially the last, so he's in a rush.

MR. DWIGHT ALLEN: Madam Chair, I'm sorry. Did you tell him that he was still sworn? I didn't hear

that.

COMMISSIONER BROWN-BLAND: Yeah.

MR. DWIGHT ALLEN: Okay. Thank you.

COMMISSIONER BROWN-BLAND: He's been sworn.

DIRECT EXAMINATION BY MR. DWIGHT ALLEN:

Q Mr. Pearce, did you prepare and cause to be filed on September 4th, 2018 certain testimony -- rebuttal testimony in this docket consisting of seven pages?

A Yes.

Q Are there any additions or corrections you wish to make to that testimony?

A No.

Q If you were asked those same questions today, would your answers be the same as they appear in your prefiled testimony?

A Yes.

Q And are they true and correct, to the best of your knowledge and belief?

A Yes.

MR. DWIGHT ALLEN: We would ask that Mr. Pearce's prefiled testimony be copied into the record as if given orally from the witness stand.

COMMISSIONER BROWN-BLAND: That motion will be

allowed, and his testimony will be treated as if given orally from the witness stand.

(Whereupon, the prefiled rebuttal testimony of Joseph Pearce was copied into the record as if given orally from the stand.)

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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497

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 IN ALL SERVICE AREAS IN
NORTH CAROLINA

PREFILED REBUTTAL TESTIMONY OF **JOSEPH PEARCE** ON BEHALF OF AQUA NORTH CAROLINA, INC.

September 4, 2018

Q. PLEASE STATE FOR THE RECORD YOUR NAME, ADDRESS, AND PRESENT POSITION.

A. My name is Joseph Pearce and my business address is 202 MacKenan Court, Cary, North Carolina. I currently serve as the Director of Operations for Aqua North Carolina, Inc. ("Aqua" or "Company").

Q. BRIEFLY STATE YOUR QUALIFICATIONS AND EXPERIENCE RELATING TO WATER AND WASTEWATER OPERATIONS.

A. I am a Professional Engineer and have more than 25 years' experience in domestic and industrial wastewater treatment and collection and water treatment and distribution. I hold several environmental and operator certifications. My experience includes work with the North Carolina Department of Environment and Natural Resources and its predecessor agencies (in a wide-range of engineering and regulatory sections), work as the Utility Division Manager and Deputy Director of Engineering and Environmental Services for Durham County, and as the Public Utilities Director for Elizabeth City, North Carolina. My experience includes work with both small decentralized facilities and larger centralized facilities (up to 12,000,000 gallons per day). With respect to wastewater sludge, I have significant experience as a regulator, a design engineer/product manager and a utility manager. As a regulator, I served as the State's sludge program main contact for biosolids in the 1998 to 1999-time period and am an acknowledged reviewer of the EPA's "White House Manual" on the Control of Pathogens and Vector Attraction in Sewage Sludge.

Q. WHAT ISSUES DO YOU ADDRESS IN YOUR REBUTTAL TESTIMONY?

A. I rebut the testimony of Public Staff Witness Darden regarding the appropriate level of expense for sludge removal.

Q. WHEN DID YOU BECOME AWARE THAT THE PUBLIC STAFF HAD CONCERNS ABOUT AQUA'S SLUDGE EXPENSE?

A. I became aware of the Staff's concern when reviewing the testimony of Witness Darden.

Q. HAVE YOU REVIEWED THE TESTIMONY OF WITNESS DARDEN WITH REGARD TO THE APPRPRIATE LEVEL OF SLUDGE EXPENSE FOR THIS CASE AND DO YOU AGREE WITH HER RECOMMENDATIONS?

A. Yes, I have reviewed the testimony and do not agree with her recommendations.

Q. WHAT IS THE BASIS FOR YOUR DISAGREEMENT?

In making her reductions in sludge expense, Witness Darden relies solely on speculative information rather than real operational data. Her analysis simply ignores the recent operational improvements made at the Company's wastewater treatment plants, which were done for the purpose and with the result of improving their environmental compliance.

Q. HOW DOES SHE JUSTIFY HER POSITION?

A. She speculates that Aqua's post–test year level of cost for sludge management may represent a one-time peak. Specifically, she states "...it is unclear whether Aqua's post-test year increase in hauling represents a peak due to the Company's efforts to catch up on sludge inventory at plants

or trend". *Darden Direct Testimony, page 11, line 22 through page 12, line 2.* This is in conflict with Aqua's actual operational experience.

Q. CAN YOU PLEASE DESCRIBE THE COMPANY'S ACTUAL OPERATIONAL EXPERIENCE WITH SLUDGE COSTS?

A. Yes. In 2016, 2017, and even until early 2018, Aqua wastewater treatment operators had been maintaining relatively high sludge inventories to ensure winter nitrification and maximize endogenous decay of sludge. This resulted in relatively high sludge blankets in the clarifiers. During dry periods, the wastewater treatment plants would work well; however, during storm events the clarifiers could not manage the high flows with these sludge concentrations and would burp sludge from the clarifiers. This burping sludge would either be discharged from the wastewater treatment plants or overload the tertiary filters and then be discharged from the wastewater treatment plants.

Q. DID THE COMPANY MAKE ANY CHANGES TO CORRECT THIS BURPING?

A. Yes. To improve environmental compliance, the Company reduced concentrations of wastewater treatment plant mixed liquor suspended solids. At lower mixed liquor suspended solids concentrations the amount of endogenous decay will be reduced and have a higher sludge yield. Aqua will produce greater quantities of sludge solids for disposal with a lower mixed liquor suspended solids concentration.

Q. DOES THIS HAVE ANY EFFECT ON SLUDGE PRODUCTION RATES?

A. Yes, lower mixed liquor suspended solids concentrations result in reduced solids retention time ("SRT"). As an example, SRTs for a wastewater treatment plant operating at 80% capacity with a 24-hour hydraulic retention time and a 5,000 mg/l mixed liquor suspended solids concentration would have an SRT of over 30 days. When the same plant is operated with a 3,000 mg/l mixed liquor suspended solids concentration, the SRT would be approximately 19 days. The sludge production rate would be increased when operating with a 19-day SRT as compared to the 30-day SRT. Below is Figure 15.54 from Water Environment Federation Manuals of Practice 8, which provides the Net Sludge Production as compared to Solids Retention Time Graph. (Design of Municipal Wastewater Treatment Plants Volume II: Chapters 13-20, WEF Manual of Practice No. 8, ASCE Manual, and Report on Engineering Practice No. 76, Second Edition, 1992, p. 985)

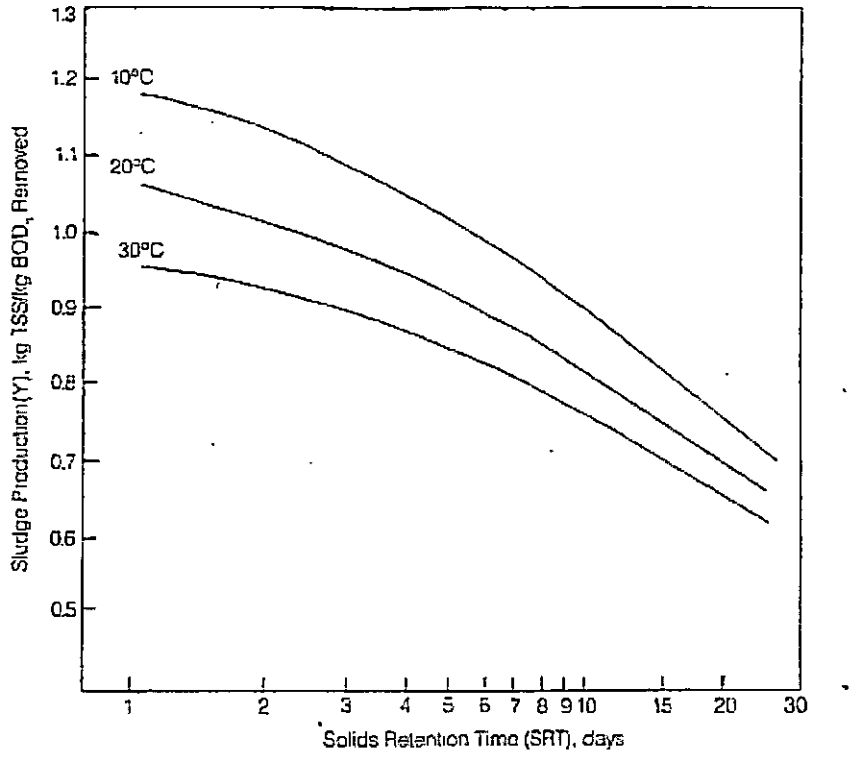

Figure 15.54 Net sludge production versus SRT and temperature without primary treatment (TSS/total BOD_5 = 1.0; inert TSS = 50% for domestic wastewater).

Q. CAN YOU EXPLAIN THE GRAPH?

A. Yes. Extrapolating the graph curve reveals that at a 30-day SRT, the sludge production would be approximately 0.65 pounds of sludge per pound of Biochemical Oxygen Demand – 5 day (BOD5) and, at a 19-day SRT, the sludge production would be approximately 0.72 pounds of sludge per pound of BOD5. This equates to a greater than ten percent increase in sludge production due to improving the pollutant removal efficiency of the wastewater treatment plant.

Q. DID WITNESS DARDEN INCLUDE A GRAPH AS PART OF HER TESTIMONY?

A. Yes. She provides a graph of "Cary Region Only" data for the period between July 2016 to June 2018. A review of the data reflected in that graph plainly shows that the period of July 2016 to December 2016 was exceptionally low for sludge disposal and not representative of the current level of ongoing activity. For this reason, her recommendation that a two-year average of sludge disposal be used, which includes a period prior to the operational improvements that have been made, is faulty and should be rejected by this Commission.

Q. WHAT IS YOUR RECOMMENDATION FOR SLUDGE EXPENSE?

A. Using the most recent 12 months data for sludge disposal between July 2017 and June 2018 is more representative of the expected sludge expense due to necessary operational improvements to maintain compliance. As such, the sludge expense should be:

	Total Expense
Aqua NC Sewer	$ 507,699.28
Fairways Sewer	$ 99,057.50

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

Q Mr. Pearce, have you prepared a summary of your testimony?

A I have.

Q Could you please give that now?

A Commissioners, thank you for the opportunity to appear before you to explain Aqua's evaluation of sludge expense. I am a Professional Engineer with the highest level in North Carolina wastewater treatment operator license and have more than 25 years of experience in wastewater treatment at both large and small facilities. This experience includes NCDENR regulatory experience and local government utility management experience, includes substantial experience in sludge production and management.

I reviewed Ms. Darden's testimony regarding the sludge expense and do not agree with her recommendation or her reasoning. Ms. Darden was unclear whether Aqua's post-test year increase in hauling was a peak or a trend and recommended that an extended two-year period be used for setting the sludge expense. In my testimony I provide the technical basis and example to support my position that change, such as the ones made at several of Aqua's wastewater treatment plants in 2018, would have increased sludge production and the sludge expense.

Thus, it is more reasonable to conclude that a post-test year increase is a trend, not an anomaly.

It must also be noted these operational changes were made to improve wastewater effluent quality, and thus they not only produce persistent changes in the production of sludge and, thus, sludge expense, they offer a beneficial purpose.

Finally, to use the most representative data available, I recommended the 12-month period between July 2017 and June 2018 be used for determining the sludge expense.

Q Does that conclude your summary?

A It does.

MR. DWIGHT ALLEN: For a technical matter, Madam Chair, and I apologize for this, I -- Mr. Pearce did not file direct testimony, so he may need to be sworn just --

COMMISSIONER GRAY: He was sworn. She swore him in.

MR. DWIGHT ALLEN: Oh, she did swear him? Okay. I'm sorry. I was being distracted. Mr. Pearce is available for cross.

CROSS EXAMINATION BY MS. JOST:

Q Good morning, Mr. Pearce. On page 4 of your

testimony at lines 8 through 14, you state that wastewater treatment plants were operating well during dry periods, but during storm events the clarifiers could not manage the high flows and would burp sludge; is that correct?

A Yes.

Q And you indicate that Aqua made some operational changes to reduce the sludge and improve the resulting environmental compliance issues, correct?

A Correct.

Q If the problem was only present during storm events, doesn't that suggest that it was related to inflow and infiltration issues?

A No.

Q Why is that?

A The inflow and infiltration occur at all plants.

COMMISSIONER BROWN-BLAND: Mr. Pearce, stay in your microphone.

THE WITNESS: Excuse me.

COMMISSIONER BROWN-BLAND: You can move the microphone and face Ms. Jost if you'd like.

A The inflow and infiltration happen at all wastewater plants. The majority of Aqua's plants have

relatively new sewers and don't have a great deal of inflow and infiltration. Plants themselves that are carrying a high sludge volume will tend to burp and carry more sludge out with them. So I would not say that it was caused by inflow and infiltration. Our facilities are not particularly high with inflow and infiltration, especially compared to municipal facilities.

Q All right. But would you agree that inflow and infiltration could cause high flow during storm events?

A Yes.

Q Do you agree that pursuant to NC General Statute 62-133.12(d)(2), improvements necessary to reduce inflow and infiltration to the collection system to comply with applicable state and federal law and regulations are eligible under the SSIC mechanism?

MR. DWIGHT ALLEN: Objection to that. It's a legal question.

COMMISSIONER BROWN-BLAND: If he knows the answer.

Q Would you agree, subject to check, that that's what the statute says?

A I apologize. I have not reviewed the SSIC regulations.

Q Okay. Again, subject to check, would you agree

that that is what the statute states?

MR. DWIGHT ALLEN: Objection. He -- I don't know how --

COMMISSIONER BROWN-BLAND: Sustained.

MR. DWIGHT ALLEN: -- you check a statute.

COMMISSIONER BROWN-BLAND: Sustained.

Q All right. Let's move on, in that case. So you describe in your summary the operational changes that were made to some of the plants, and I'd like to get into that into some more detail now. Now, these changes involved reducing the concentrations of wastewater treatment plant mixed liquor suspended solids; is that right?

A Correct.

Q And on page 5 of your testimony, beginning at line 2, you provide an example of the effect this type of change would have on solids retention time; is that right?

A Correct.

Q So the example you give assumes mixed liquor suspended solids concentrations of 5,000 milligrams per liter and 3,000 milligrams per liter respectively; is that right?

A Correct.

Q And there are some other values that go into that.

A Right. That's an example calculation.

Q Right.

COMMISSIONER GRAY: Sir, please use that microphone.

THE WITNESS: I'm sorry.

A Yes. It's an example calculation.

Q All right. And then on page 6 of your testimony you use the 19-day and 30-day solids retention times that were produced by your example and a graph from a publication on design of wastewater treatment plants to extrapolate the difference in sludge production that would result from a 19-day solids retention time as compared to a 30-day solids retention time; is that right?

A Correct.

Q And based on your extrapolation, you state that reducing the mixed liquor suspended solids from 5,000 milligrams per liter to 3,000 milligrams per liter would result in a greater than 10 percent increase in sludge production; is that right?

A Yes.

Q All right. On page 3, lines 14 through 15 of

your testimony, you state that you disagree with Public Staff Witness Darden's testimony about the appropriate level of sludge expense because she relies on speculative information rather than real operational data; is that right?

A I don't know that I use the term speculative, but perhaps, subject to check.

Q Okay. Could you take a look at line 14 on page 3?

A Yes, I'm sorry. It is speculative information.

Q Okay. Thank you. The example calculation in your testimony that we just talked about is not based on real operational data from Aqua wastewater treatment plants, is it?

A Actually, it is based on real operational data. The plant -- one of the ones that I've watched, have some interest in, is now operating at 3,000 milligrams per liter, and it was in excess of 5,000 on my first visit.

Q And so this is one of the plants?

A At least one and definitely more. There were other plants. I don't have the current data for those, I didn't ask for that, but I did get current data on one of the plants that we've had the greatest impact on.

Q All right. And there were -- is it --

COMMISSIONER BROWN-BLAND: Mr. Pearce --

MR. DWIGHT ALLEN: Please slow down and talk in your microphone.

THE WITNESS: Yes.

Q Okay. There were approximately seven plants that these changes were made at; is that right?

A It was actually more than seven --

Q Okay.

A -- but it was most apparent in seven in the sludge production.

Q And so you're saying that your data comes from one of those plants?

A The data that I went back to check to ensure the mixed liquors were being taken down.

Q All right. So then, you know, as I had said, you used those solids retention times and extrapolated from your graph that you took from that publication. That graph assumes certain variables, correct, about temperature, for example?

A Correct.

Q Which temperature? There are three temperatures indicated on that graph. Which one did you use in your extrapolation?

A I used 20 degrees C.

Q Okay. Do you -- is that the temperature of this plant that you indicate you got the data from?

A The data -- the plant temperatures change throughout the year. Rarely do we operate at 10 degrees C and rarely do we operate at 30. Twenty is roughly close to what many of the plants operate during the year.

Q Okay. So you would agree --

A I used the 20 degree C line --

Q Right.

A -- because the temperatures in the plants do change throughout the year --

Q Okay.

A -- but it's not 10 usually and it's not 30 usually.

Q Okay. You would agree, though, that this graph does not exactly match the data from your wastewater treatment plant that you based this calculation on?

A Correct. It's an example data based on a widely accepted graph for design of wastewater treatment plants.

Q Okay. And --

A It's been used for, I think, 25 years or so.

Q Yes. That publication is from 1992, I believe?

A Correct.

Q Is there a more recent version?
A There is.
Q Okay. Do you know whether those numbers have changed?
A I do not believe they've changed. They do now, I believe, use the Monod equation which I don't have here with me, but it shows it also matches the same lines.
Q Okay. All right. I'd like to look now at Public Staff Darden Redirect Exam Exhibit 1 which was previously entered into evidence. And if you don't have a copy of that, we have plenty of extras. Would you like a copy?
A Yes, please.
Q Okay.
MS. JOST: And if anybody else would like a copy, we have plenty. I think everybody has a copy now.
Q Now, looking at this exhibit, would you please identify the month that the operational change you refer to in your testimony was implemented?
A I began my changes at about the second week of April. That's when -- the plants that I became involved with. There were already some that they had started with prior to that, but the second week in April, the ones that I -- I visited the high-risk plants first when I

joined Aqua.

Q All right. And as we discussed earlier, you determined, based on your extrapolation from the graph, that the changes you made would result in an approximately 10 percent increase in sludge production; is that right?

A Correct.

Q Okay. Now, looking at this graph, would you agree that the sludge quantities hauled during the months of April and May of 2018 increased far in excess of that amount?

A Yes.

Q So the 10 percent is not really an accurate estimation?

A It will be over the 12-month period.

Q And so why, then, do we have a much more significant increase in those two months?

A In those two months I was having the mixed liquor brought down to lower concentrations. That was mixed liquor that was already in the plant. It was being taken off. It was from the previous months.

Q And so why is it -- what is the relationship between that process that you just explained and the lower sludge hauling rates in the previous months.

A Which month are you speaking of?

Q For example, January, February, March of 2018.

A Could you ask the question again?

Q Yeah. I guess I'm asking why was there a peak during those two months as opposed to the preceding period?

A Well, in April is when I asked them to remove more sludge specifically from the Neuse Colony and also from Carolina Meadows. Those are plants I'd visited and I thought had more mixed liquor than was reasonable as far as concentration.

Q So when you say -- I'm sorry. Go ahead.

A So I asked them to remove mixed liquor and bring the concentration down closer to 3,000.

Q So are you saying, then, that they removed more -- there was sludge already there that they removed?

A Correct. Sludge is in the plant for -- in those periods were 30 days --

Q Okay.

A -- was the average inside the wastewater treatment aeration system.

Q So was this -- strike that. So is that -- could you characterize that as like catch-up hauling to get rid of the excess sludge?

A I wouldn't. I'd consider that part of the sludge that was generated in the previous months.

Q Okay.

A So they probably were under hauled in November, December, and January to operate at 3,000, and they were bringing it back to the 3,000 milligram per liter concentration.

Q I see. So you're saying that it was under in the previous months, and so you did --

A It was sludge inside the wastewater plant that was removed that could have been removed in an earlier time period.

Q Okay. All right. If you could please look at the months June and July on the graph.

A Correct.

Q Can you explain why those numbers have returned to levels that are equal or less than the months earlier in 2018 before this change was implemented?

A June they were -- in the case of Neuse Colony the schools go out, so about 30,000 gallons per day of the school flow comes off that plant, and so the plant would not be wasting that much sludge. And I also asked them to slow down a moment on the plant as far as wasting to allow the nitrifier population to increase to provide

us better ammonia removal until the sludge had a chance to get used to operating at 3,000 concentration.

Q So --

A That's one of our biggest plants. It has a bigger impact on the --

Q Okay.

A -- sludge hauling.

Q And so if you see a decrease when school is let out, wouldn't you expect that to happen every year?

A Yes.

Q Okay.

MS. JOST: I'd like to now pass out what we have -- what I'd like to be marked as Public Staff Pearce Rebuttal Cross Exam Exhibit 2.

A May I answer the last question? If we do look at the data for July, I think July looks lower on the previous years on this graph. July '16 it's low, July '17 is low, and it's actually higher in July '18 than either of the previous two years. That's the way I look at the data.

Q Okay. Thank you.

MS. JOST: All right. So we're going to be passing out another exhibit that I just mentioned I'd like marked as Public Staff Pearce Rebuttal Cross

Examination 2.

COMMISSIONER BROWN-BLAND: This exhibit being passed out now will be identified as Public Staff Pearce Rebuttal Cross Examination Exhibit Number 1.

MS. JOST: Oh, you're right. I'm sorry. The other one had already been marked previously. Thank you.

(Whereupon, Public Staff Pearce Rebuttal Cross Exhibit 1 was marked for identification.)

Q All right. So this graph is pretty much identical to the one we were just looking at with the exception of this addition of the green line, and that shows the July 2017 through June 2018 12-month average, and that time period is the period that Aqua is requesting sludge expenses be calculated based on; is that right?

A Yes. At the time I made my rebuttal, that was the best information they had available.

Q But that is the --

A That's the request.

Q -- was a test year that you've requested; is that right?

A Correct.

Q Okay. Could you please count the number of

months during that 12-month period in which the actual sludge hauling equaled or exceeded the 12-month average?

A Four, I believe.

Q Okay. And so that would mean, then, that during eight of those months or eight of the 12 months, the actual sludge hauled was less than the 12-month average; is that right?

A Yes. However, the changes had only occurred in April 2018, which could explain why only a few months had shown the increase.

Q But overall, those are the only three months. It goes back down, correct?

A It goes back down before or after?

Q Before and after, correct? So you are asking -- you are saying that this period is representative of what sludge hauling is going to be going forward, correct?

A I'm not saying it's fully representative. I think it will actually be higher than this average of this year, but to give a one-year test period, it makes more sense to use them after the changes were made included in that test period. I suspect it'll be higher than that 12-month time period, but that is meeting what I thought was going to be the rate case, a 12-month look

back.

Q But the data that we have, which is right here on this graph, shows that during this period only four months were at or above the level that you are saying is -- should be used as the means of establishing the cost that the Company covers, correct?

MR. DWIGHT ALLEN: Objection. He's already responded to the question, and she's --

A I suspect if we took more months, there would be more --

MR. DWIGHT ALLEN: Wait just at minute.

THE WITNESS: Sorry.

MR. DWIGHT ALLEN: Did you sustain or object?

THE WITNESS: I'm sorry.

COMMISSIONER BROWN-BLAND: Sustained.

MS. JOST: All right. I don't have any further questions. Thank you.

REDIRECT EXAMINATION BY MR. DWIGHT ALLEN:

Q Mr. Pearce, is it true that the Company has modified its processes for dealing with sludge because of burping issues?

A Yes.

Q And --

COMMISSIONER GRAY: Move that mic over.

A Yes.

THE WITNESS: Sorry, sir.

MR. DWIGHT ALLEN: Yeah. Put it close and --

THE WITNESS: It scares me. Okay.

MR. DWIGHT ALLEN: Commissioner Gray has trouble hearing, and I have trouble processing quick speech, being from Goldsboro, so just slow it down just a little bit so I can...

Q Now, when you treat the burping issue, it's a process by which you actually separate the liquids from the solids.

A Correct.

Q And is it true that the solids generally fall down -- sprinkle down to the bottom and the water stays right at the top?

A Right. We create a quiet zone, and the solids will fall to the bottom and the clear liquid at the top.

Q And when the solids fall to the bottom, what do they become?

A Well, the majority of it is recycled back into the plant to be used again; however, you have to waste sludge, waste biomass each day so that you maintain a constant concentration. For the most part we're bringing in food, which is coming from people's waste, and growing

bacteria. We're growing this biomass. We have to waste those each day, just the conversion of the food in the wastewater to this biomass and sludge.

Q So it is essentially true, is it not, that it increases the amount of sludge that you have to deal with --

A Yes.

Q -- that process?

A The more food, the more sludge.

Q I want to show you an exhibit, please, which we'd like to be marked as Aqua Pearce Redirect Exhibit Number 1.

COMMISSIONER BROWN-BLAND: All right. It will be so identified.

(Whereupon, Aqua Pearce Redirect Exhibit 1 was marked for identification.)

Q Mr. Pearce, do you recognize this, at least part of it, as similar to the rebuttal cross examination exhibits that you've previously been shown?

A Yes.

Q Now, has Aqua or you received sludge hauling logs for sludge produced during the month of August 2018?

A We have.

Q And if you look at Aqua Pearce Redirect Exhibit Number 1, does it reflect in the last column, the last bar of the graph, your sludge experience for the month of August?

A Yes.

Q And what is that experience?

A It was a month, again, that was higher than the two-year average proposed in the rebuttal.

Q And if you -- even if you were using a two-year average, if you remove the low numbers at the beginning, place them with higher numbers at the end, it would increase the average?

A Yes.

Q As you drop out low numbers and you increase higher numbers, the average goes up, doesn't it?

A It does.

Q And would you agree with me that what we're really trying to do is determine what is the representative level of ongoing sludge hauling expense for Aqua?

A Correct.

Q And in your judgment, is the determination of a representative level of ongoing spent best determined by more recent data or by older data?

A More recent data.

Q And the more recent data, of course, appears on the right side of this exhibit, does it not?

A Yes. The more recent data is on the right side of the exhibit.

Q And that includes your experience for August?

A Correct.

Q Now, when we talk about July and the summer months, you mentioned that there are schools involved?

A Correct.

Q And to state the obvious, there are not as many students in schools in the summertime.

A Correct.

Q And if they had summer school, the summer school would probably be the early part of the summer in June, perhaps, maybe not in July?

A Correct.

Q So does it surprise you that the July numbers are lower because school is totally out at that time?

A No.

Q And when students come back, your operations return to normal?

A Correct.

Q And so when you group them all in together and

try to get a representative level of what is going on, you have to consider the higher months --

A Sure.

Q -- and not just the months when all the children are out of school, students are out of school --

A Correct.

Q -- is that correct?

MR. DWIGHT ALLEN: Okay. That's all the questions I have. Thank you.

COMMISSIONER BROWN-BLAND: All right. Are there questions by the Commission? Chairman Finley.

EXAMINATION BY CHAIRMAN FINLEY:

Q Mr. Pearce, I believe you said that you were trying to determine a test year level of sludge expense, but that in your opinion, if you look into the future, that this would be a low representation of sludge expense on a go-forward basis. Did I hear you correctly about that?

A Yes, sir.

Q What do you base that opinion on?

A The data from March through August, I assume that will stay high.

Q Well, why do you assume that?

A Because we are operating with lower mixed

liquor, and lower mixed liquor will have an increased sludge production rate. When you operate at higher mixed liquors, the aeration basin acts like a sludge digester and it'll actually break it down further. When you break it down further, it also creates a sludge that doesn't settle as well, it causes the burping issues and the rest. So when you actually -- you have less biomass that can digest the food coming in and you don't -- you basically end up with a leaner, better operating mixed liquor. However, you also generate more of it. You have to waste more of it, it quickly reproduces, you have to take it off site, and that's the reason. So we are not digesting the older sludge in the actual aeration basin.

Q All right.

CHAIRMAN FINLEY: Thank you.

COMMISSIONER BROWN-BLAND: Other questions from the Commission?

(No response.)

COMMISSIONER BROWN-BLAND: All right. Are there questions on Chairman Finley questions?

MS. JOST: No. I don't have any questions.

MR. DWIGHT ALLEN: No questions.

COMMISSIONER BROWN-BLAND: All right. Mr. Pearce, your hour has come. We have --

MR. DWIGHT ALLEN: We would offer his redirect exhibit into evidence, please.

COMMISSIONER BROWN-BLAND: That will be received into evidence, Aqua Pearce Redirect Exhibit 1.

(Whereupon, Aqua Pearce Redirect Exhibit 1 was admitted into evidence.)

COMMISSIONER BROWN-BLAND: And, also, Ms. Jost, going to receive Public Staff Pearce Rebuttal Cross Examination Exhibit 1 --

MS. JOST: Yes.

COMMISSIONER BROWN-BLAND: -- into evidence.

(Whereupon, Public Staff Pearce Rebuttal Exhibit 1 was admitted into evidence.)

COMMISSIONER BROWN-BLAND: All right. We are going to break now for lunch. We should be able to be back at 1:30, and Mr. Becker will be back in the witness box.

(The hearing was adjourned, to be reconvened on Friday, September 21, 2018 at 1:30 p.m.)

STATE OF NORTH CAROLINA

COUNTY OF WAKE

C E R T I F I C A T E

I, Linda S. Garrett, Notary Public/Court Reporter, do hereby certify that the foregoing hearing before the North Carolina Utilities Commission in Docket No. W-218, Sub 497, was taken and transcribed under my supervision; and that the foregoing pages constitute a true and accurate transcript of said Hearing.

I do further certify that I am not of counsel for, or in the employment of either of the parties to this action, nor am I interested in the results of this action.

IN WITNESS WHEREOF, I have hereunto subscribed my name this 26th day of September, 2018.

Linda S. Garrett

Linda S. Garrett, CCR
Notary Public No. 19971700150