INFORMATION SHEET

PRESIDING: Commissioner Brown-Bland, presiding; Chairman Finley and Commissioners Dockham, Patterson, Gray, Clodfelter and Mitchell
PLACE: Commission Hearing Room, Raleigh, NC
DATE: September 18, 2018
TIME: 10:30 a.m. – 12:52 p.m.
DOCKET NO.: W-218, Sub 497
COMPANY: Aqua North Carolina, Inc.
DESCRIPTION: Application for Authority to Adjust and Increase Rates for Water and Sewer Utilities Service in All Service Areas in North Carolina
VOLUME: 7

APPEARANCES

FOR AQUA NORTH CAROLINA, INC.:
Jo Anne Sanford, Esq.
Robert H. Bennink, Jr., Esq.
Dwight Allen, Esq.
Britton Allen, Esq.
Brady Allen, Esq.

FOR THE USING AND CONSUMING PUBLIC:
Elizabeth D. Culpepper, Esq.
William E. Grantmyre, Esq.
Megan Jost, Esq.

WITNESSES

Please see attached.

EXHIBITS

Please see attached.

EMAIL COPIES ORDERED: E-mail: Sanford, Townsend, Force, Culpepper
PRINTED COPIES ORDERED:
REPORTED BY: Joann Bunze — TRANSCRIPT PAGES: 128
TRANSCRIBED BY: Joann Bunze — PREFILED PAGES: 47
DATE TRANSCRIBED: September 21, 2018 — TOTAL PAGES: 175

PLACE: Dobbs Building, Raleigh, North Carolina

DATE: Tuesday, September 18, 2018

TIME: 10:30 a.m. - 12:52 p.m.

DOCKET NO.: W-218, Sub 497

ORIGINAL EXHIBITS

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: 7

Noteworthy
Reporting Services, LLC

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NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP

DATE 9-18-18
DOCKET #: W 218 Sub 497
NAME OF ATTORNEY Sanford (Jo Anne)
TITLE
FIRM NAME Sanford Law Office, PLLC
ADDRESS PO Box 28085
CITY Raleigh
ZIP NC 27611

APPEARING FOR: Agua

APPLICANT ____ COMPLAINANT ____ INTERVENO R ____
PROTESTANT ____ RESPONDENT ____ DEFENDANT ____

PLEASE NOTE: Electronic Copies of the regular transcript can be obtained from the NCUC website at HTTP://NCUC.commerce.state.nc.us/docksr ch.html under the respective docket number.

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NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP

DATE 9/11/18
DOCKET #: W-218, SUB 479
NAME OF ATTORNEY Robert H. Bennink, Jr.
TITLE ATTORNEY
FIRM NAME BENNINK LAW OFFICE
ADDRESS 130 MURPHY DRIVE
CITY CARY, NC
ZIP 27513

APPEARING FOR: AQUA NORTH CAROLINA, INC.

APPLICANT ✓ COMPLAINANT _____ INTERVENO R _____
PROTESTANT _____ RESPONDENT _____ DEFENDANT _____

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NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP

DATE 9-11-2018
DOCKET #: W218 Sub 497
NAME OF ATTORNEY Dwight Allen, Brian Allen, Brady Allen
TITLE
FIRM NAME Allen Law Offices, PLLC
ADDRESS 1514 Glenwood Ave. Suite 200
CITY Raleigh, NC
ZIP 27612

APPEARING FOR:

APPLICANT ✓ COMPLAINANT ____ INTERVENO R ____
PROTESTANT ____ RESPONDENT ____ DEFENDANT ____

PLEASE NOTE: Electronic Copies of the regular transcript can be obtained from the NCUC website at HTTP://NCUC.commerce.state.nc.us/docksr ch.html under the respective docket number.

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NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP

DATE 9/11/18
DOCKET #: W-218, Sub 497
NAME OF ATTORNEY Teresa Townsend and Margaret Force
TITLE Special Deputy Attorney Gen & Assistant Attorney Gen
FIRM NAME NC Dept. of Justice
ADDRESS P O Box 629
CITY Raleigh
ZIP 27602

APPEARING FOR: The Using and Consuming public

APPLICANT _____ COMPLAINANT _____ INTERVENO R ✓
PROTESTANT _____ RESPONDENT _____ DEFENDANT _____

PLEASE NOTE: Electronic Copies of the regular transcript can be obtained from the NCUC website at HTTP://NCUC.commerce.state.nc.us/docksr ch.html under the respective docket number.

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Signature: Margaret Force Teresa Townsend
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NORTH CAROLINA UTILITIES COMMISSION
PUBLIC STAFF - APPEARANCE SLIP

DATE September 11, 2018 DOCKET #: W-218 Sub 497

PUBLIC STAFF MEMBER Elizabeth D. Culpepper, Megan Jost, and William E. Grantmyre

ORDER FOR TRANSCRIPT OF TESTIMONY TO BE **EMAILED** TO THE PUBLIC STAFF - PLEASE INDICATE YOUR DIVISION AS WELL AS YOUR EMAIL ADDRESS BELOW:

ACCOUNTING _____
WATER _____
COMMUNICATIONS _____
ELECTRIC _____
GAS _____
TRANSPORTATION _____
ECONOMICS _____
LEGAL elizabeth.culpepper@psncuc.nc.gov
CONSUMER SERVICES _____

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***PLEASE INDICATE BELOW WHO HAS SIGNED A CONFIDENTIALITY AGREEMENT. IF YOU DO NOT SIGN, YOU WILL NOT RECEIVE THE CONFIDENTIAL PORTIONS!!!!

ELIZABETH D. CULPEPPER, MEGAN JOST, WILLIAM E. GRANTMYRE

Elizabeth D. Culpepper Megan Jost

Signature of Public Staff Member

Water Quality Plan

Prioritize specific sites and address aesthetic water quality issues based on:

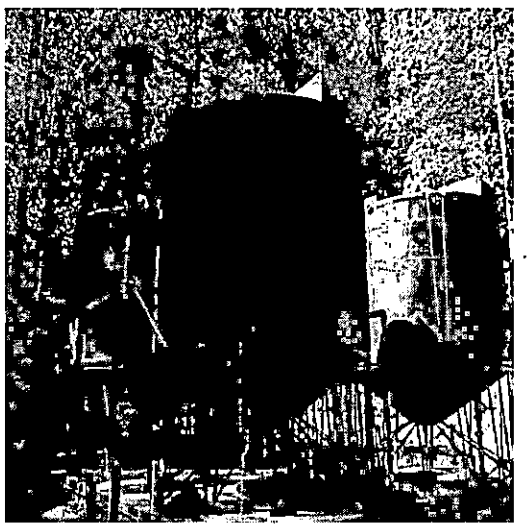
1. Scientific, engineering, and health data
2. Notice of deficiencies
3. Customer complaints

Plan Considerations:

- Capital - Treatment/Filtration Plan
- Process Improvement
  - Tank Cleaning
  - Flushing

Collaborative Approach:

- Develop a common framework to address and prioritize secondary water quality issues
- Regulatory support



H/A

Groups Based on Mineral Levels

GROUP : Iron and Manganese Condition		Action
• Group 1 Sites: Fe + Mn > 1 or Mn > 0.3 mg/L (Public Health Protection – Mn)		Filtration & Flushing & Tank Cleaning
• Group 2 Sites: Fe > 0.6 or Mn > 0.1 mg/L Aesthetics & Home Plumbing Protection		Sequestration or Filtration & Flushing
• Group 3 Sites: Fe > 0.3 or Mn > 0.05 mg/L Aesthetics		Sequestration & Flushing
• Group 4: Under sMCL		Flushing as needed

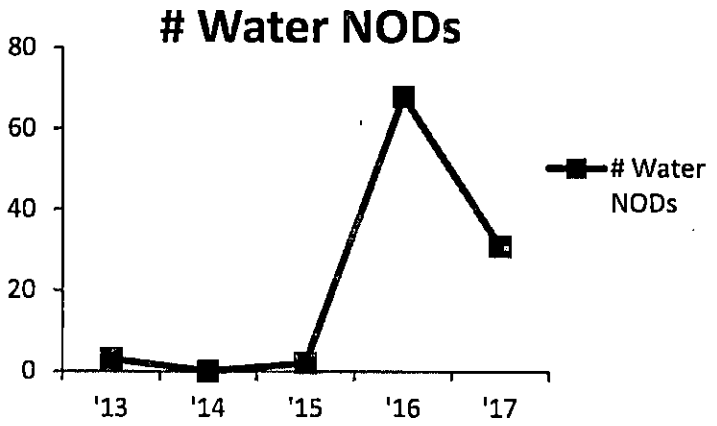
Secondary Water Quality in NC

NCDEQ began issuing Notice of Deficiencies for exceeding sMCLs for Fe and Mn in the Raleigh Region in February 2016.

- (8) Tier 1 NODs: Fe + Mn > 1 mg/L, no treatment
- (13) Tier 2 NODs: Fe or Mn > sMCL, no treatment
- (47) Tier 3 NODs: Fe + Mn >1 and sequestration

**Treatment is defined as media filtration and/or sequestration.

**Cartridge filters are not considered treatment per NCDEQ



Water Quality Prioritization Summary
179 Sites > sMCL

	Criteria	Capital Timing	Sites	Subtotal
Yrs 1-2	**Group 1** (& NOD)	2019-2020	25	25
Yrs 2-3	**Group 1** (Non-NOD & >10 Lab D)	2020-2021	14	14 / 39
Yrs 4-7	**Group 1** (Non-NOD & <10 Lab D)	2022-2025	53	53 / 92
On-Going	**Group 2** Fe>.6 Or Mn >.1	On-Going	76	76 / 168
On-Going	**Group 3** Fe>.3 Or Mn >.05	On-Going	11	11 / 179
	Subtotal		**179**	**179**

NOTE: Above counts are approximate and subject to change upon initiation of project and subsequent detailed review of site parameters.

Water Quality Plan Summary

Filtration Implementation Plan

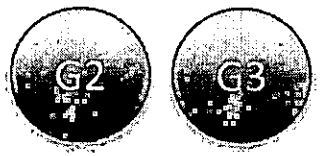
2019 – 2021 (Approx. $12M)

- 39 Filtration Projects
- Group 1, NOD sites (25)
- Group 1 Non-NOD sites >10 Lab D (discolored water) work orders (14)

2022 – 2025 (Approx. $16M)

- 53 Filtration Projects
- Group 1, Non-NOD sites <10 Lab D (discolored water) work orders (53)

On-Going



- 87 sites
- Group 2 (76) + Group 3 (11)
- Continued site analysis necessary to determine necessary treatment
  - Sequestration, cartridge filter

Flushing and Tank Cleaning Programs

NOTE: Above counts are approximate and subject to change upon initiation of project and subsequent detailed review of site parameters

Plan Requires Parallel Paths

CAPITAL

OPERATIONAL

Years

All Group 1 and Group 2 sites will receive Operational Flushing while capital work is evaluated and scheduled

Crockett Exhibit B
Customer Education Information
W-218 Sub 497

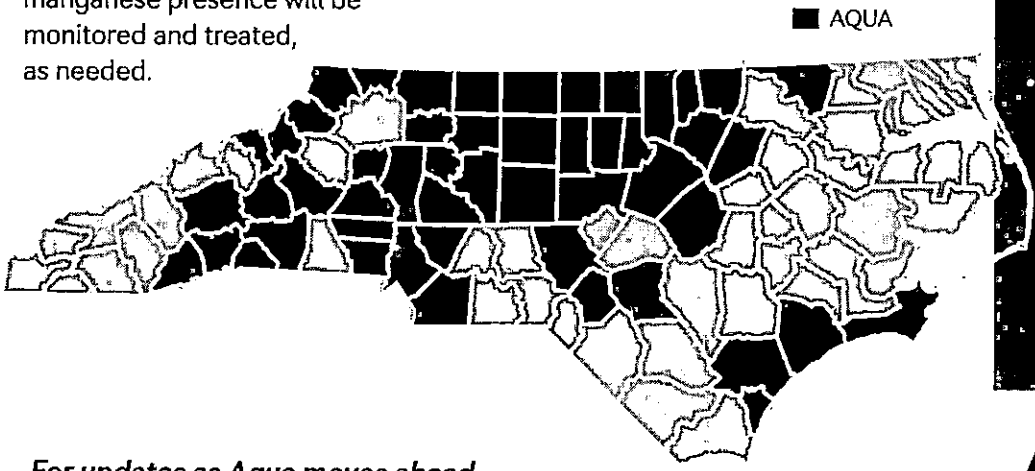
AQUA NORTH CAROLINA Water Quality News

June 2018

Aqua North Carolina President Outlines Water Quality Improvement Plan

In a recent letter to Aqua North Carolina customers, President Shannon V. Becker described plans to address aesthetic water quality issues in some of our well water systems in the state. Working with state regulators, Aqua's water improvement program addresses naturally occurring iron and manganese. These minerals don't affect health, but they can make water look discolored or affect the way it tastes and smells. The plan includes:

- For systems with high levels of iron and manganese, new filtration treatment will be installed. The goal is to install new filtration treatment within a reasonable timeline; the wells that need it most will see filtration within the next three to five years. Installations will be prioritized based on the amount of compounds in the water.
- Areas with moderate levels will be treated with a process to improve overall water aesthetics.
- Systems with little to no iron and manganese presence will be monitored and treated, as needed.
- All systems will be monitored on an ongoing basis to help ensure safety and overall quality of the water source.
- At the same time, Aqua will be employing an aggressive water quality operations plan to help make sure water consistently flows clear. This will mean an increase in scheduled system flushing in many communities and a robust tank-cleaning program that spans Aqua's operation across the state.



For updates as Aqua moves ahead, please visit NCWaterQuality.com.

Aqua in Action

Since 2014, Aqua North Carolina has invested nearly $94 million in water and wastewater system repairs and improvements statewide. Examples include:

- Filter installations and upgrades and other water quality improvements to remove naturally occurring iron and manganese and improve water quality
- Repairs and replacement of aging infrastructure to improve water pressure and increase system reliability to prevent service interruptions
- Wastewater system repairs and replacements to help prevent sewage backups into your home
- Wastewater facility and treatment upgrades to prevent overflows, protect local waterways, and meet regulatory requirements

Aqua continues to carry out ongoing system enhancements to improve both the quality of water and reliability of service.

AQUA

AQUA NORTH CAROLINA Water Quality News

Crockett Exhibit B
Customer Education Information
W-218 Sub 497

Iron and Manganese FAQs

Aqua North Carolina is rolling out a plan to lessen the impact of iron and manganese on your water supply. But what exactly are these minerals, and how do they affect your water?

1. What is iron and manganese?

Iron and manganese are naturally occurring minerals that can be found in the earth's bedrock. About five percent of the earth's crust is composed of iron, while 0.1 percent is made of manganese.

2. How does it get in my water?

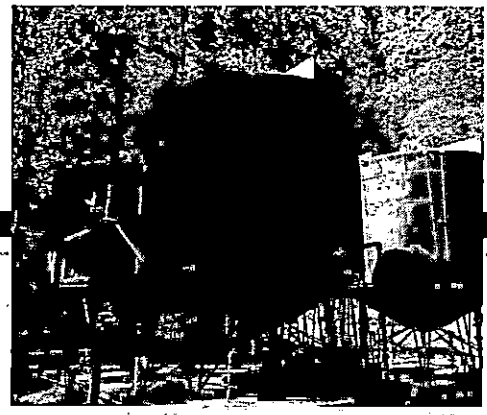
Water traveling through soil and rock can dissolve minerals as it passes through, carrying microscopic particles as it flows. When water containing iron and manganese leaves the aquifer through the well and eventually becomes exposed to oxygen, it oxidizes the minerals, causing it to change from colorless, dissolved forms to colored, solid forms.

3. What is Aqua doing to address iron and manganese?

Working with its state regulators, Aqua developed a multi-phase plan for improving water quality across our communities. First steps included instituting specific criteria to analyze and prioritize filtration need based on the level of iron and manganese found in the water.

Aqua will prioritize filter installations for systems with the greatest levels of iron and manganese. Most wells will see filters within the next three to five years. In the meantime, Aqua will begin an aggressive tank-cleaning and system-flushing program in communities served by these wells.

In communities with lower levels of iron and manganese, Aqua will examine the possibility of filter installation, as well as the need to add new processes that will keep iron and manganese in its colorless state. Tank cleaning and system flushing will be carried out as mineral levels dictate.



For more frequently asked questions, visit NCWaterQuality.com.

Iron and Manganese are pervasive, naturally occurring minerals that affect the water supply in North Carolina. While these minerals don't affect health, they can discolor water and affect the way it tastes and smells. In 2017, Aqua North Carolina launched an aggressive water quality improvement program that includes the installation of new filters, enhanced water treatment, tank cleaning, system flushing, and ongoing monitoring to help ensure safety and overall quality of the water source.

Visit NCWaterQuality.com for more information.

AQUA

I/A

Attorney General Crockett Cross Exhibit 1

Mr. W. Allen Hardy
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration

Dear Mr. Hardy:

Attached you will find Aqua's Q2- 2018 responses and updates for the current notice of deficiency (NOD) water systems. We have developed this cover letter to supply you with a concise summary of our current and ongoing efforts.

There are 6 wells that we are requesting to be removed from the quarterly reporting based on consistent water samples demonstrating water quality under sMCL levels and a reduction in customer complaints.

- Saddleridge #20- P20
- Ethans Glen #19 & #20 – P97
- Middle Creek Acres #1 – P01
- Stanstead #2
- Woodvalley #11
- Brayton Park #2 (Well no longer exists)

There are four NOD wells that have been submitted to public staff for approval of greensand filtration.

- The Barony #5
- Woodvalley #9
- Georges Grant #1
- Upchurch #1 & #4

There are two NOD wells that have public staff approval for greensand filtration and are currently being engineered for installation.

- Ridgebrook Bluffs/Westbury #1
- Wakefield #6

There are two current NOD wells that have been installed since 1st quarter report.

- Hampton Park #6
- Galloway #2

There are 24 wells included in this report for which we believe require greensand filtration based on the consistent sample results and customer complaints. Aqua is in process of completing the executive summary to garner Commission support with the installation of greensand filtration at these sites.

- Avocet #1
- Branston #2
- Forest Glen #1
- Forest Glen #2
- Chari Heights #1
- Trapper's Creek #2
- Southwood #1
- Cary Oaks #3
- Belle Ridge #2
- Duncan Ridge #5
- River Oaks #3
- Olde South Trace #1
- Hickory Creek #1
- Georges Grant #1
- Hawthorne well #1 and #2
- Enclave at Barton Creek Bluffs #18
- Enclave at BB #18
- Carlysle Manor #4
- Cotesworth #2
- Briarwood/Kildaire #1
- High Meadows #2
- Southwood #1
- Belle Ridge #2
- Seville #1

There are 4 wells that continue to require additional in-depth investigation to determine appropriate measures to appropriately address heightened iron and/or manganese levels at these well sites due to inconsistent sample results and/or the possibility of taking the well offline based on limited current capacity.

- Tyndrum well #1
- Eagle Creek well #3
- Glendale well #1
- High Grove well #1

The investigation efforts will revolve around the following;

- Current sampling techniques being performed by the ORC
- Current chemical feed locations/operation
- Current chemical dosages being used
- Capacity study

Additional water quality improvement efforts:

Water storage tank cleaning – Aqua kicked-off a vigorous tank cleaning program in 4th quarter of 2017 for all sites initially identified as a Group 1 well sites intended to remove any excess residual build up inside our storage, hydro and elevated tanks. Over 30 hydro tanks have been cleaned since this effort began along with one elevated storage tank. Aqua is on track to finish cleaning all hydro tanks on the NOD report reporting list during Q2-2018. Once we have completed all the NOD systems, Aqua will continue these efforts in remaining systems on a reoccurring schedule. Two elevated storage tanks in the Bayleaf system will also be cleaned and painted in 2018.

Distribution sampling – The distribution sample results were added to these reports as part of a holistic approach to better understand the current condition inside our distribution system and begin a secondary investigation and action plan outside of these reports to also help further improve water quality and aesthetics for our customers. The locations are not being tracked at this time but will be in the near future as that project becomes more streamlined.

Distribution flushing - Aqua is currently changing our water main flushing techniques. The volume of water and velocity needed to effectively scour the water mains in most of these smaller systems isn't possible with the current storage availability. Aqua has recently partnered with Southern Corrosion, Inc, to help rectify this issue. Southern Corrosion will be assisting Aqua by utilizing temporary tankage to increase available water volume during flushing events to help produce a more effective scour during flushing.

AQUA

June 27, 2018

Mr. W. Allen Hardy
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office
NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency
Iron and Manganese Concentration
Bayleaf Master System
Wake County
WSF ID Nos: P12, P19, P28, P39, P63, P67, P75, P76, P92, P93, P97, P3B, P4B, P7B
Water System No: NC039233

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Bayleaf Master System P12, P19, P28, P39, P63, P75, P76, P92, P3B, P4B, P7B. The Bayleaf Master water system is comprised of 122 active wells and 117 points of entry (POE). The current number of customers served is 6,112 and the system is approved to serve 6,356 connections.

Due to the number of wells associated with our Bayleaf Master System Notice of Deficiencies, Aqua has compiled the requested information in a table format as follows:

- Table 1 provides a summarization of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected at WSF ID Nos. P12, P16, P19, P28, P39, P63, P75, P76, P92, P3B, P4B, P7B as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Barony Well #5 (P63) Approved GPM (77) Avg. Quarterly Runtime (7.54)	• September 2015 - Started using SeaQuest • Jan - Apr 2016 - Flushed system ◦ Sept - Nov 2017 - Flushed system • September 2017 – Cartridge filter installed • September 2017 – Started Distribution and POE total and soluble sampling ◦ March 2018 - Annual flushing complete • December 2017 – Added raw sample data ◦ Q1-2018 system flushed	• Continue water main flushing efforts

Comments:

The executive summary for greensand filtration at well #5 has been submitted to Public Staff/NCUC as part of the Aqua water quality plan. Upon approval, Aqua will begin engineering in 2018 and plans installation of the filter in 2019.

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Enclave at Barton Creek Bluffs Well #18 (P75) Approved GPM (75) Avg. Quarterly Runtime (9.57)	• October 2015 - Started using SeaQuest • Jan - Apr 2016 - Flushed system • February 2017 - Flushed system • June 2017 - Installed cartridge filter • September 2017 – Started Distribution and POE total and soluble sampling • December 2017- Added raw sample data • Q2-2018 System flushed	• Continue flushing efforts

Comments:

Aqua will be submitting the executive summary for greensand filtration at well #18 in 2018 as part of the Aqua water quality plan. Upon approval, Aqua will begin engineering in 2018 and plans installation of the filter in 2019.

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Hawthorne Well #1 & #2 (P76) Approved GPM (73) Avg. Quarterly Runtime (11.21)	◦ February 2016 -Started Using SeaQuest ◦ Jan - Apr 2016 - Flushed system • February 2017 - Flushed system • June 2017 - Installed cartridge filter • September 2017 – Started Distribution and POE total and soluble sampling • December 2017 - Added raw sample data • March 2018 - Storage tank was cleaned ◦ Q2-2018 system flushed	• Continue investigation efforts ◦ Continue flushing efforts

Comments:

The NOD was originally issued due to high concentrations of Fe and Mn. Field investigation and sample results confirm the high concentrations of Fe and Mn. Seaquest feed rates do seem inadequate and will be re-adjusted. Aqua will continue to monitor the sample results. This is a temporary solution as these elevated levels of Fe and Mn qualify this well to have an executive summary created and submitted for greensand filtration. The executive summary for greensand filtration will be completed in 2018.

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Woodvalley #9 (P92) Approved GPM (38) Avg. Quarterly Runtime (11.10)	○ February 2016 - Started using SeaQuest ○ Jan - Apr 2016 - Flushed system ○ February 2017 - Flushed system ○ June 2017 - Well was treated via Aqua free ○ June 2017 - Installed cartridge filter ○ September 2017 - Started Distribution and POE total and soluble sampling ○ December 2017 – Added raw sample data ○ Q2-2018 System flushed	○ Executive summary has been completed and submitted to Public Staff/NCUC

Comments:

Aqua has submitted the executive summary for greensand filtration at well #9 as part of the Aqua water quality plan. Upon approval, Aqua will begin engineering in 2018 and plan installation of the filter in 2019.

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Carlyle Manor Well #4 (P3B) Approved GPM (73) Avg. Quarterly Runtime (7.45)	◦ September 2015 - Started using SeaQuest ◦ Jan - Apr 2016 - Flushed system • June 2017 - Installed cartridge filter • September - Nov 2017 - Flushed system ◦ September 2017 - Started Distribution and POE total and soluble sampling ◦ December 2017 – Added raw sample data • Q1-2018 System flushed	• Executive summary has been completed, will submit to public staff in 2018 • Continue flushing efforts
Comments: Aqua will be submitting the executive summary for greensand filtration at well #4 in 2018 as part of the Aqua water quality plan.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Seville Well #1 (P4B) Approved GPM (44) Avg. Quarterly Runtime (10.68)	◦ August 2015 - Started using SeaQuest ◦ Jan - Apr 2016 - Flushed system • Sep - Nov 2017 - Flushed system • September 2017 - Started Distribution and POE total and soluble sampling • Dec 2017 –Added raw sample data • Q1- 2018 Flushing Complete	• Executive summary has been completed, will submit to public staff in 2018 • Continue water main flushing efforts
Comments: Aqua will be submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
George's Grant Well #1 (P7B) Approved GPM (66) Avg. Quarterly Runtime (7.45)	◦ Oct 2015 - Started Using SeaQuest • Jan - Apr 2016 - Flushed system ◦ Jun 2017 - Installed cartridge filter • Sep - Nov 2017 - Flushed system • Sep 2017 – Started Distribution and POE total and soluble sampling ◦ Feb. 2018 Flushing complete • Dec 2017 Started Raw, Entry Point and Distribution Soluble and Insoluble Iron • Q1-2018 System flushed	• Executive summary has been completed, will submit to public staff in 2018 • Continue water main flushing efforts
Comments: Aqua will be submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Woodvalley Well #11 (P93) Approved GPM (29) Avg. Quarterly Runtime (10.43)	• December 2016 – Started using SeaQuest • February 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • Q2-2018 System flushed	• Continue water main flushing efforts
Comments: Based on the data supplied and steps Aqua has taken; we respectfully request that this system be removed from the required quarterly updates.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Barton Creek Bluffs Well #10 Approved GPM (15) Avg. Quarterly Runtime (9.27)	• March 2016 – Started using SeaQuest ◦ February 2017 – Flushed system ◦ September 2017 – Took soluble and insoluble well head and distribution samples ◦ December 2017 – Added raw sample data distribution soluble and insoluble iron ◦ Q2 – 2018 Flushed system	◦ Continue water main flushing efforts ◦ Continue investigation efforts
Comments: The NOD was originally issued due to high concentrations of Fe and Mn. Sample results confirm the high concentrations of Fe and Mn. The elevated Fe levels are insoluble; however, the Mn levels show to be fully soluble. Seaquest feed rates do seem inadequate and will be re-adjusted. Aqua will continue to monitor the sample results and have submitted an executive summary for greensand filtration.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Ethan's Glen Well #19 and #20 (P97) Approved GPM (18/11) Avg. Quarterly Runtime (7.23)	• Dec 2016 - Started feeding SeaQuest ◦ Sep - Nov 2017 - Flushed system • Sep 2017 - Took soluble insoluble well head and distribution samples • Dec 2017 Started Raw, Entry Point and Distribution Soluble and Insoluble Iron • Q1- 2018 Annual Flushing Complete • Seaquest has been optimized for these wells.	• Continue water main flushing efforts
Comments: Based on the data supplied and steps Aqua has taken; we respectfully request that this system be removed from the required quarterly updates.		

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

Aqua is committed to providing water to its customers that meets their expectations at a reasonable cost. If you have any questions or comments, please contact me at (919) 653-6982.

Sincerely,

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 -Bayleaf Sample Data

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Barony Well #5	1/6/2014	11					1				0.47					
	9/20/2016	14.9													4.4	1.6
	1/16/2017	7.43					1.35				0.61					
	3/23/2017	5.5													14	1.4
	6/8/2017	8.5													6.2	2
	4/19/2017	6.2					1.53				0.62					
	4/16/2017	6.2													22	6.7
	9/15/2017	9.93					1.71	<0.022	0.0322	0.254	0.55	0.424	0.0156	0.0044		
	10/2/2017	20.86					1.57	0.728	0.766	0.142	0.503	0.475	0.309	0.0165		
	10/16/2017	11.99					1.69	<.0220			0.577	0.57				
	10/23/2017	12.74					1.71	0.0829	0.0709	<0.022	0.545	0.463	0.0039	0.0262		
	11/6/2017	8.69					1.5	0.0304	0.813	0.693	0.506	0.485	0.455	0.452		
	11/17/2017	6.46					1.48	0.571	1.45	<0.022	0.486	0.424	0.404	0.269		
	12/11/2017	5.61	1.79	0.0411	0.609	0.599	1.69	0.596	0.577	0.563	2.25	0.703	0.562	0.425		
	1/5/2018	5.94	1.71	<0.0220	0.601	0.72	1.65	<.0220	1.6	<0.022	0.733	0.549	0.724	0.361		
	2/2/2018	5.9	1.48	<0.0220	0.538	0.529	1.42	0.182	1.42	0.156	0.538	0.484	0.535	0.462		
	3/2/2018	6.8	2.07	0.105	0.536	0.516	1.76	0.201	1.45	0.0259	0.541	0.504	0.527	0.506		
	4/6/2018		1.93	<0.0220	0.61	0.597	2.1	0.352	1.63	0.0946	0.607	0.47	0.6	0.4		
Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Enclave at Barton Creek Bluffs #18	10/9/2013	8.1					1				0.29					
	10/12/2019	10.46					1.49				0.348					
	12/20/2016	12.8													3.2	1.5
	3/23/2017	6.9													2.6	2.4
	4/26/2017	6.4													13	3.1
	6/8/2017	7.6													6	5.1
	9/13/2017	7.6					1.03	0.151	<0.022	<0.022	0.256	0.241	0.0304	0.027		
	9/27/2017	8.64					0.475	0.222	0.0229	<0.0220	0.377	0.404	0.0147	0.0104		
	10/5/2017	18.67					0.753	0.165	0.0545	<0.220	0.393	0.375	0.0296	0.0075		
	10/16/2017	12.66					2.94	0.173			0.625	0.584				
	10/23/2017	12.96					1.76	0.201	0.0643	0.0778	0.385	0.319	0.0449	0.0017		
	11/8/2017	11.26					0.566	0.31	0.0437	<0.220	0.372	0.363	0.0493	0.0428		
	12/12/2018	11.4	1.63	<0.0220	0.295	0.264	0.515	0.085	0.261	<0.220	0.328	0.282	0.118	<0.0011		
	1/22/2018	11.3	1.25	<0.0220	0.325	0.314	4.01	0.115	0.433	<0.220	0.601	0.308	0.0673	0.0284		
	2/26/2018	9	0.872	0.0275	0.268	0.271	0.53	0.317	<0.220	0.0378	0.288	0.279	0.0053	0.0395		
	3/15/2018	7.29	0.233	0.2	0.0186	0.012	0.683	0.0659	1.18	0.103	0.49	0.442	0.51	0.499		
	4/11/2018	10.24	0.334	0.232	0.395	0.397	0.41	0.1	0.125	0.0408	0.392	0.357	0.0506	0.0038		
	5/10/2018	9.62	1.98	<0.0220	0.514	0.478	0.483	0.181	0.272	0.042	0.333	0.306	0.279	0.213		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Hawthorne # 1 & 2	5/19/2016	10.7					1.01				0.53					
	9/20/2016	14.2													22	1.7
	3/23/2017	10.3													14	3.9
	6/8/2017	15.51													12	11
	9/15/2017	16.9														
	9/28/2017	21.72					0.833	0.164	0.0585	<0.0220	0.531	0.184	0.0108	0.0012		
	10/6/2017	23.6					0.882	0.309	<.0220	<.0220	0.417	0.343	0.0024	0.0016		
	10/23/2017	18.38					0.892	0.0559	0.139	<0.0220	0.32	0.225	0.0308	0.006		
	11/7/2017	11.86					0.634	0.0331	0.0234	<0.0220	0.202	0.134	0.0029	0.0013		
	11/16/2017	8.38					0.814	<0.0220	0.736	<0.0220	0.233	0.104	0.269	0.141		
	12/14/2018	9.8	13.9	0.0298	0.391	0.362	2.38	0.171	<.0220	<0.0220	0.423	0.181	0.0014	0.0011		
	1/22/2018	10.1	6.96	<0.022	0.54	0.5	1.42	0.102	0.116	0.0572	0.478	0.102	0.0196	0.0032		
	2/26/2018	12.2	1.24	0.15	0.693	0.489	1.07	0.0817	0.0482	<0.0220	0.693	0.276	0.144	0.304		
	3/28/2018	6.7	1.08	0.0386	0.582	0.614	1.1	<0.0220	0.87	0.217	0.586	0.547	0.402	0.287		
	4/5/2018	8.19	0.941	<0.022	0.847	0.578	0.775	0.0407	<.0220	<.0220	0.457	0.353	0.0852	0.507		
	5/2/2018	7.56	0.828	<.00600	0.531	0.518	0.952	0.0163	0.206	<.00600	0.526	0.486	0.531	0.518		
Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Woodvalley #9	10/7/2015	8.39					0.8				0.5					
	12/19/2016	12.9													4	0.91
	3/23/2017	7.3													11	2.9
	6/16/2017	0.13													0.01	0.01
	9/14/2017	9.54					0.221	<0.022	0.091	<0.022	0.344	0.264	0.013	<0.0011		
	9/28/2017	10.51					0.124	0.0316	0.0465	<0.0220	0.33	0.332	0.0567	0.0112		
	10/5/2017	15.89					0.226	<0.0220	0.0255	<0.0220	0.259	0.205	0.0057	0.0039		
	10/16/2017	9.99					0.0856	<.0220			0.324	0.393				
	10/24/2017	14.55					0.126	<0.0220	0.0549	<0.0220	0.226	0.185	0.0142	0.0017		
	11/10/2017	6.38					0.391	0.0744	0.0417	<0.0220	0.371	0.137	0.0089	<0.0011		
	12/14/2017		1.03	<0.0220	0.549	0.399	0.273	<0.0220	<0.0220	<0.0220	0.397	0.0658	0.0306	0.0018		
	1/25/2018	10.1	0.146	<0.0220	0.352	0.353	0.164	<0.0220	0.0367	<0.0220	0.369	0.326	0.0386	0.0042		
	2/22/2018	2	0.703	<0.0220	0.465	0.442	0.22	0.33	<0.0220	<0.0220	0.342	0.303	0.0025	<0.0011		
	3/22/2018	7	0.0732	<0.0220	0.453	0.441	0.0836	0.0356	0.0836	0.0338	0.341	0.321	0.317	0.299		
	4/16/2018	11.98	0.0901	0.0448	0.321	0.311	0.0987	0.0338	0.0409	<0.0220	0.32	0.233	0.0085	0.002		
	5/4/2018	9.85	0.634	<.00600	0.55	0.413	0.0822	0.0327	0.159	0.0327	0.398	0.376	0.272	0.207		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Carlyle Manor #4	10/7/2015	8.5					2				0.67					
	9/20/2016	11.7													18	1.3
	10/3/2016	10.5					1.21				0.68					
	3/23/2017	5.6													5.6	2.6
	6/9/2017	8.6													2.4	2.3
	9/15/2017	6.04														
	10/2/2017	20.86					1.22	0.928	0.283	0.0341	0.681	0.658	0.223	0.0079		
	10/23/2017	12.79					0.949	0.36	0.169	<0.0220	0.623	0.51	0.0835	0.0778		
	11/6/2017	10.01					0.736	<0.0220	0.538	<0.0220	0.567	0.461	0.0658	0.036		
	11/17/2017	6.51					0.731	0.264	0.104	<0.0220	0.593	0.502	0.019	0.0168		
	12/11/2017	5.52	0.802	0.17	0.662	0.625	0.813	0.228	0.672	0.569	0.293	0.0993	0.0432	0.0164		
	1/5/2018	5.7	0.806	<0.0220	0.622	0.616	0.766	<0.0220	0.828	0.114	0.584	0.543	0.644	0.601		
	2/2/2018	6.1	0.931	<0.0220	0.624	0.618	0.647	<0.0220	0.804	<0.0220	0.531	0.437	0.612	0.492		
	3/2/2018	6	0.0821	0.0485	0.578	0.532	0.57	0.0511	0.579	0.0667	0.582	0.484	0.561	0.518		
	4/6/2018	7.41	0.835	<0.0220	0.619	0.61	1.03	<0.0220	1.11	<0.0220	0.637	0.413	0.738	0.549		
	5/1/2018	9.39	1.06	<.00600	0.61	0.471	0.623	0.0097	0.678	0.025	0.556	0.46	0.681	0.588		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Seville #1	1/9/2016	7.25					1				0.5					
	9/20/2016	14.1													3.8	0.84
	1/19/2017	7.43					1.02				0.557					
	3/23/2017	5.8													2.3	0.85
	6/8/2017	8.5													2.5	3.6
	9/15/2017	9.81					0.947	0.0915	0.495	0.246	0.467	0.421	0.054	0.0599		
	9/28/2017	15.41					1.05	0.307	0.0676	<.0220	0.385	0.332	0.0317	0.0147		
	10/5/2017	20.09					1.23	0.33	1.09	0.308	0.507	0.417	0.271	0.208		
	10/23/2017	11.3					0.413	0.0973	0.732	0.648	0.141	0.125	0.0334	0.013		
	11/10/2017	9.11					0.595	0.105	0.541	0.112	0.166	0.15	0.165	0.163		
	11/16/2017	7.7					1.82	0.19	2.17	0.241	0.218	0.203	0.278	0.254		
	12/15/2017	0	1.48	0.397	0.556	0.529	1.96	0.271	0.234	0.21	0.579	0.508	0.0157	0.0057		
	2/2/2018	0	8.94	<0.0220	1.1	0.914	13.3	<0.0220	13.4	<0.0220	0.99	0.958	1.05	1.01		
	3/15/2018	1.47	0.187	0.0413	0.134	0.121	0.375	0.158	1.05	0.242	0.146	0.146	0.562	0.513		
	4/18/2018	6.9	1.56	0.0971	0.623	0.585	1.38	0.103	1.47	0.0601	0.603	0.563	0.616	0.556		
	5/2/2018	7.36	1.05	0.032	0.578	0.573	0.969	0.0295	0.973	0.0242	0.568	0.469	0.568	0.481		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
George's Grant #1	7/16/2015	6.16					1.3				0.63					
	12/12/2016	15													15	2.4
	3/1/1932	5.5													6.4	2.7
	6/8/2017	8.5													9.6	7.2
	10/2/2017	20.84					1.48	0.0512	1.08	0.588	0.636	0.511	0.295	0.22		
	10/23/2017	12.77					1.72	0.192	0.283	0.301	0.662	0.527	0.0209	0.015		
	11/6/2017	10.03					1.32	0.121	1.4	0.493	0.608	0.506	0.624	0.542		
	11/17/2017	6.67					1.65	0.0304	1.4	0.0489	0.655	0.503	0.35	0.271		
	12/11/2017	5.54	1.51	0.296	0.665	0.681	1.95	0.0337	0.706	0.585	1.24	0.462	0.585	0.424		
	1/8/2018	5.7	1.43	0.92	0.596	0.558	1.63	0.0441	1.29	0.15	0.628	0.549	0.636	0.601		
	2/2/2018	6.1	1.47	0.0429	0.644	0.65	1.53	0.18	1.42	0.0259	0.65	0.519	0.669	0.526		
	3/2/2018	5.9	1.94	0.0327	0.672	0.638	1.69	0.289	1.45	0.181	0.686	0.535	0.672	0.637		
	4/6/2018	5.53	1.67	<.0220	0.702	0.692	1.88	0.114	1.61	0.298	0.705	0.597	0.694	0.581		
	5/3/2018	9.49	0.525	0.125	0.199	0.188	0.658	0.309	0.243	0.0097	0.252	0.242	0.225	0.2		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Woodvalley #11	9/15/2015	9.46					1.32	0.0328	1.15	0.0275	0.582	0.484	0.266	0.127		
	12/10/2015	7.3					0.18				0.285					
	9/22/2016	9.7													ND	0.151
	3/6/2017	7.91													10	0.61
	4/26/2017	10.13													8	0.41
	5/24/2017	10.4													8.4	0.22
	6/9/2017	11.8													7.6	0.36
	9/15/2017	9.74					<0.0220	<0.022	0.72	0.042	0.0325	0.0248	0.0361	0.011		
	9/28/2017	10.53					<0.0220	<0.0220	0.114	<0.0220	0.0396	0.036	0.0337	0.0022		
	10/6/2017	20.93					<0.0220	<0.0220	0.0259	<0.0220	0.0373	<0.0110	0.0064	0.0011		
	11/10/2017	9.64					<0.0220	<0.0220	0.0567	<0.0220	0.0187	<0.0110	0.0102	0.001		
	12/14/2017		<0.0220	<0.0220	0.0265	0.0065	0.0479	<0.0220	0.0855	<0.0220	0.0436	0.0053	0.0616	0.0017		
	Off Line	0														
	2/22/2018	6.2	0.0334	<0.0220	0.13	0.12	0.042	<0.0220	<0.0220	<0.0220	0.135	0.111	0.0027	<0.0110		
	3/15/2018	7.05	0.0268	<0.0220	0.148	0.135	0.0302	<0.0220	0.055	<0.0220	0.127	0.119	0.0085	0.0029		
	4/16/2018	12.2	0.103	<0.0220	0.144	0.0135	0.0287	<0.0220	0.0406	<0.0220	0.139	0.13	0.0083	0.0021		
	5/2/2018	9.85	0.0323	<.00600	0.0848	0.0826	0.0141	<.00600	0.0078	0.0067	0.129	0.112	0.0089	0.0022		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Ethan's Glen #19	9/17/2014	7.22					1.87				0.0179					
	9/22/2016	10.6					0.08				0.078					
	3/8/2017	7.5														
	4/26/2017	7.8													0.13	0.31
	9/14/2017	6.8					<0.022	<0.022	<0.022	<0.022	0.0028	<0.001	<0.0011	<0.001		
	9/27/2017	9.29					<0.022	<0.022	<0.022	<0.022	0.0029	<0.001	0.0024	<0.001		
	10/5/2017	19.38					<0.022	<0.022	0.784	<0.220	0.004	0.0014	0.0062	<0.001		
	10/23/2017	12.65					0.197	<0.022	<0.022	<0.022	0.0045	<0.001	<0.0011	<0.001		
	11/8/2017	10.07					0.542	0.165	0.0525	<0.022	0.0039	0.0012	0.0027	0.0015		
	11/17/2017	7.71					0.0326	<0.0220	0.723	<0.220	0.0037	<0.001	0.0072	<0.001		
	12/13/2018	7.2	0.0698	<0.022	0.0027	0.0052	0.121	<0.0220	0.0293	<0.220	0.0026	<0.001	0.0023	<0.001		
	1/8/2018	7.5	<0.022	<0.022	0.003	0.0032	0.0868	<0.0220	<0.220	<0.220	0.003	<0.001	0.0012	<0.001		
	2/2/2018	6	0.0283	<0.022	0.0023	0.0021	0.0635	<0.0220	<0.220	<0.220	0.0018	<0.001	0.0014	<0.001		
	3/2/2018	6.55	0.0476	<0.022	0.0431	<0.022	0.0431	<0.0220	0.0351	<0.0220	0.0024	0.0012	0.0023	0.0011		
	4/6/2018	6.66	0.0622	<0.022	0.0022	0.0021	0.0718	<0.0220	<0.220	<0.0220	0.0024	0.0022	0.0022	0.0022		
	5/2/2018	7.85	<.00600	<.00600	0.0026	0.0016	0.0288	<.00600	0.0144	<.00600	0.0019	0.0034	0.0018	0.0009		
Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Ethan's Glen #20	9/17/2014	9.6					1.87				0.0179					
	9/22/2017	10.6					0.38				0.035					
	3/8/2017	7.5														
	4/26/2017	7.8													0.51	0.31
	9/14/2017	6.3														
	9/14/2017	6.8					<0.022	<0.022	<0.022	<0.022	0.0028	<0.0011	<0.0011	<0.0011		
	9/27/2017	9.29					<0.022	<0.022	<0.022	<0.022	0.0029	<0.001	0.0024	<0.001		
	10/5/2017	19.38					<0.022	<0.022	0.784	<0.220	0.004	0.0014	0.0062	<0.001		
	10/23/2017	12.65					0.197	<0.022	<0.022	<0.022	0.0045	<0.001	<0.0011	<0.001		
	11/8/2017	10.07					0.542	0.165	0.0525	<0.022	0.0039	0.0012	0.0027	0.0015		
	11/17/2017	7.71					0.0326	<0.0220	0.723	<0.220	0.0037	<0.001	0.0072	<0.001		
	12/13/2018	7.2	0.0739	<0.022	0.0025	0.0016	0.121	<0.0220	0.0293	<0.220	0.0026	<0.001	0.0023	<0.001		
	1/8/2018	7.5	<0.0220	<0.0220	0.0016	0.0015	0.121	<0.0220	0.0293	<0.220	0.0026	<0.001	0.0023	<0.001		
	2/2/2018	6	0.217	0.022	0.002	0.0013	0.0635	<0.0220	<0.220	<0.220	0.0018	<0.001	0.0014	<0.001		
	3/2/2018	6.55	0.0476	<0.0220	0.048	<0.0220	0.0431	<0.0220	0.0351	<0.0220	0.0024	0.0012	0.0023	0.0011		
	4/6/2018	6.66	0.08	<0.0220	0.0021	0.0018	0.0718	<0.0220	<0.220	<0.0220	0.0024	0.0022	0.0022	0.0022		
	5/2/2018	7.85	0.0174	<.00600	0.0016	0.0024	0.0288	<.00600	0.0144	<.00600	0.0019	0.0034	0.0018	0.0009		

Table 3 - Bayleaf Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10550495	LABD-S	EMAIL FROM GREYSON WITH PHOTO OF TUB LACED WITH BLACK SEDIMENTCUSTOMER STATES HE RAN THE WATER FOR 2 MINS PRIOR TO TRYING TO FILL TUB	5/3/2018	5/3/2018	564960	2808 SUNNYSTONE WAY	RALEIGH, NC 27613-6181	BARTON CREEK BLUFFS	Cl2 .94 ph 7.4 Po4 1.6 fe .13 mn .230Post flush results did find black sediment.upon arrival very little sedimenLeft after flushin instructed customer to flush inside lines
10599165	LABD-S	EMAIL FROM TINA WITH PHOTO BEFORE AND AFTER OF FILTER FILLED WITHBLACK SEDIMENT AFTER ONLY THREE MONTHS USAGE	5/31/2018	5/31/2018	537887	12433 BAYLEAF CHURCH RD	RALEIGH, NC 27614-9168	CARLYLE MANOR	Cold pull cl2 n/a ph 7.3 po4 n/a fe 0.10 mn 0.007 5 min cl2 n/a ph 7.3 po4 n/a fe 0.06 mn 0.002 Some test n/a due to filter. called. no ans. left vm. left door tag. wtr ok
10591303	LABD-S	PER MEGAN BLACK RESIDUE	5/25/2018	5/25/2018	538256	12520 AMORETTO WAY	RALEIGH, NC 27613-8569	ENCLAVE OF BARTON CRK BLF	Cl2- .61 Ph- 7.4 po4- 1.57 fe- .14 mn- .032Possible filter causing issuesFSR:carterm, EVT:Lab

WSIC/SSIC Three-Year Plan I/A

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

April 2, 2018

Ms. M. Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: Aqua North Carolina, Inc.
Ongoing Three-Year WSIC/SSIC Plan
Docket Nos. W-218, Subs 363A and 497

Dear Ms. Jarvis:

Pursuant to the General Rate Case Order issued on May 2, 2014, in Docket No. W-218, Sub 363 and Commission Rules R7-39(m) and R10-26(m), respectively, Aqua North Carolina, Inc. ("Aqua" or "Company") is required to file an Ongoing Three-Year WSIC/SSIC Plan ("Ongoing WSIC/SSIC Plan") within 60 days of the end of each water system and sewer system improvement charge period. Aqua's Ongoing WSIC/SSIC Plan was initially due to be filed on or before Thursday, March 1, 2018. However, the Company was granted an extension of time until today to make this filing.

Accordingly, Aqua hereby files the Company's Ongoing WSIC/SSIC Plan in both Docket No. W-218, Sub 363A (the reporting docket for the Company's 2014 application for a general rate increase) and Docket No. W-218, Sub 497 (as part of the Company's pending application for a general rate increase).

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

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

C: Parties of Record

P.O. Box 28085-8085, Raleigh, NC 27611-8085 sanford@sanfordlawoffice.com
Tel: 919.210.4900

EXECUTIVE SUMMARY

The following report provides an update to Aqua North Carolina, Inc.'s ("Aqua" or "Company") ongoing three-year plan regarding the Company's authorized Water and Sewer System Improvement Charge ("WSIC/SSIC") mechanism. This ongoing three-year plan and annual updates are required by North Carolina Utilities Commission Rules R7-39(m) and R10-26(m).

Exhibit 1 provides a list of the individual 2017 completed projects under the current WSIC/SSIC program.

Aqua has identified approximately $27 million of eligible WSIC/SSIC projects over the next three years: these capital improvements are defined in G.S. 62-133.12(c) for water and G.S. 62-133.12(d) for wastewater. The Company is comprised of the following rate entities:

1. Aqua Water
2. Fairways Water
3. Brookwood Water
4. Aqua Wastewater
5. Fairways Wastewater

Aqua has significantly exhausted its statutorily-allowed 5% investment for eligible WSIC/SSIC infrastructure projects and is now presenting a new three-year projection of WSIC/SSIC-eligible capital projects for each rate entity as follows:

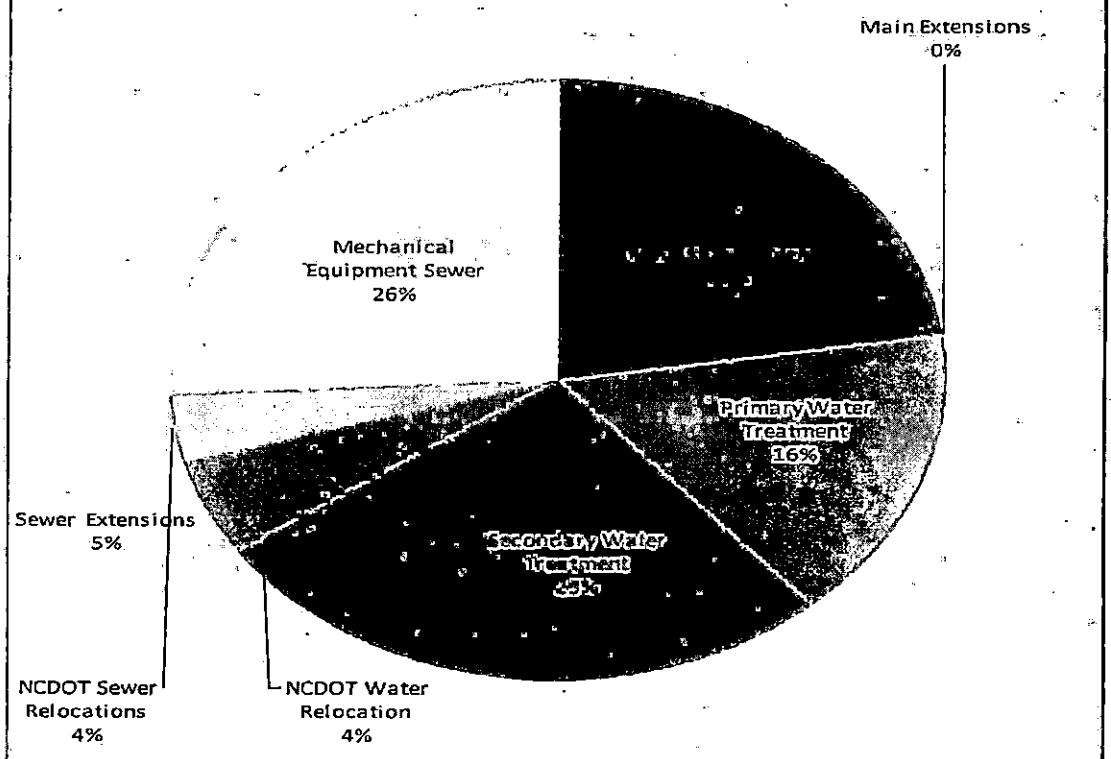
2018 -2020 WSIC/SSIC Capital Projection

Rate Entity	Planned Capital $	
ANC Water	$	13,712,059
ANC Wastewater	$	6,919,833
Brookwood Water	$	3,633,001
Fairways Water	$	2,207,968
Fairways Wastewater	$	304,730
Total Estimated $	**$**	**26,777,591**

Aqua plans to continue investing in its infrastructure during the 2018-2020 three-year time period under the WSIC/SSIC mechanism. This level of spending is testimony to Aqua's commitment to our Company's mission of protecting and providing Earth's most essential resource. It is important to note that planned expenditures represent specific projects identified as eligible under the WSIC/SSIC mechanism; however, planned projects within a rate entity may not be submitted for recovery if a rate entity WSIC or SSIC cap has been reached. Additionally, changes in priorities may occur that can affect factors used in our prioritization methodology; therefore, there is no guarantee that an identified project will move forward past the planning stages.

Aqua continuously evaluates eligible WSIC/SSIC projects and, in this plan, the Company describes its proposed investments within the following categories: 1) NCDOT Water and Sewer Main Relocation Projects, 2) Primary Water Quality Projects, 3) Projects identified in Aqua's Secondary Water Quality Plan, 4) Distribution Replacements and Main Extensions, 5) Inflow & Infiltration, 6) Mechanical Equipment, and 7) Other Eligible Water and Wastewater Projects.

FIGURE 1. 2017 Expenditures by WSIC/SSIC FILING
AQUA NORTH CAROLINA



WSIC CATEGORY*			AMOUNT	AMOUNT
Main Replacements	C.1	$	1,091,980.24	22.6%
Main Extensions	C.2	$	-	0.0%
Primary Water Treatment	C.3	$	769,502.13	15.9%
Secondary Water Treatment	C.4	$	1,113,520.57	23.1%
NCDOT Water Relocation	C.5	$	176,398.37	3.7%
	SUBTOTAL WSIC	$	3,151,401.31	65.3%

SSIC CATEGORY*			AMOUNT	AMOUNT
Sewer Extensions	D.1	$	254,228.49	5.3%
Inflow and Filtration	D.2			0.0%
NCDOT Sewer Relocations	D.3	$	177,299.52	3.7%
Mechanical Equipment Sewer	D.4	$	1,242,343.91	25.7%
	SUBTOTAL SSIC	$	1,673,871.92	34.7%
	TOTAL 2017 WSIC SSIC*:	$	4,825,273.23	100%

WSIC PROGRAM

In estimating the amount of money available to be invested into Aqua's water infrastructure, the first consideration must account for the capital that will be required in relocating the Company's water distribution infrastructure as deemed necessary by the NCDOT. Overall, the Company's WSIC Program investment strategy, in order of priority, is listed below:

- NCDOT Water Main Relocation Projects
- Primary Contaminants
- Secondary Water Quality
- Main Replacements, Valves, Services
- Water Main Extensions

Figures 1 and 2 below summarize the total 2018–2020 planned WSIC investment by category and rate entity.

Figure 1. WSIC Investment by Category

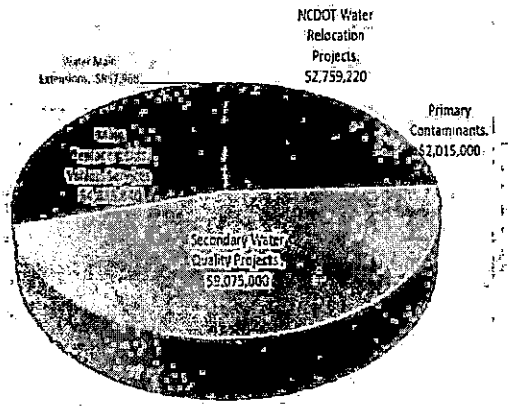
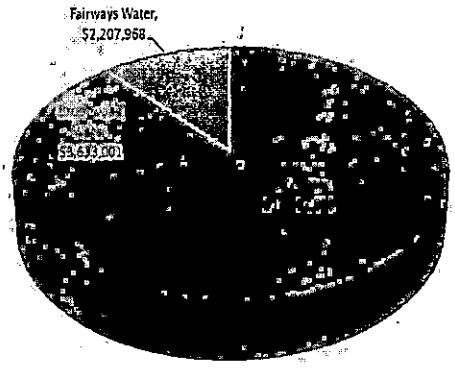


Figure 2. WSIC Investment by Rate Entity



I. Subsection (c)(5): North Carolina Department of Transportation (NCDOT) Water Main Relocation Projects

In 2017, Aqua completed and submitted for recovery one (1) WSIC eligible NCDOT water main relocation project as identified in Exhibit 1. The water main relocation cost was $176,398.

NOTE: The NCDOT Cedar Creek Drive water main relocation project was completed in the fall of 2017. It involved the relocation of a 4-inch water main at a cost of $44,508. The Cedar Creek Drive relocation will be included for cost recovery in the Company's next WSIC filing.

2018–2020 - Aqua has been notified by NCDOT that it will be responsible for relocating water mains at the locations noted below. These projects have been included in Exhibit 2.1.

a) **U-4405 RAEFORD RD UTILTIES RELOCATION OPC - $1,500,000 (11,800 LF – 6" / 8" Water Main) – to be completed in 2018**

NCDOT Schedule:

- Project extending to Old Raeford Rd / S. Raeford Rd Intersection. Impacts Aqua existing water main for about 1,500 feet
- Environmental and General permits ready January 2018
- Current Roadway NCDOT Bid Let Fall 2018 >>3.5 year duration >>Spring 2022 completion.

Aqua Schedule:

- Bid was in November 2017 and Construction began in January 2018
- Construction duration estimated to be 8 Months, July 1 Substantial Completion
- Significant project risk - oversight required.
- Gas Main relocation getting started Spring 2018, will be working in tandem
- Dewberry is providing on-site construction management and utility coordination with periodic site visits

b) **R-3825B HWY 42 – GLENN LAUREL RD, UTILITIES RELOCATION OPC - $59,200 (70 LF – 6-INCH WM) – to be completed in 2019**

NCDOT Schedule:

- Agreement underway, Dewberry owes NCDOT Agreement Plans and Quantity Take off
- Aqua and NCDOT determining payment plan based upon NCDOT EOPC
- NCDOT Roadway Let Date 11/2018
- Begin Construction 1/2019
- ROW acquisition is behind schedule
- Attending Monthly Utility meeting in Wilson

Aqua Schedule:

- Construction Duration – first 6-8 months of NCDOT project (FEB-OCT 2019)
- 90% Design complete, Agreement plans underway, Dewberry to rework plans and specifications to comply with NCDOT Drafting and Bid Item standards.
- Significant project as primary force main for Neuse Colony WWTP
- NCDOT will provide partial inspection services
-

c) **R-2370B/I-5717 HWY 150 —FROM MARSHALL STEAM STATION PAST I-77 TO US 21 OPC - $650,000 (4,500 LF – 6-INCH WM) – to be completed in 2019**

NCDOT Schedule:

- Aqua to discuss construction with NCDOT. In the project or self-build
- Agreement precedence with Hwy 42
- NCDOT BID Date July 2019

Aqua Schedule:

- Dewberry underway March 2018
- 50% - Agreement Plans due NCDOT Oct 2018
- Final Plans and Specifications Feb 2019
- Estimated Construction completion in 2019

d) 17BP.8.R.124 CHAPEL RIDGE WATER MAIN RELOCATION - $150,000 (600 LF – 12-INCH WM) - to be completed in 2018

NCDOT Schedule:

- 2018

Aqua Schedule:

- Currently, Aqua is working on obtaining two easements. The project schedule and ultimate cost is solely dependent on obtaining the two easements.
- This project is tentatively scheduled to be completed in 2018

e) U-2519BB 006 STRICKLAND ROAD - $400,000 (3,770 LF – 6-INCH WM & 531 LF – 2-INCH WM) – to start in 2018 and finish in 2019

NCDOT Schedule:

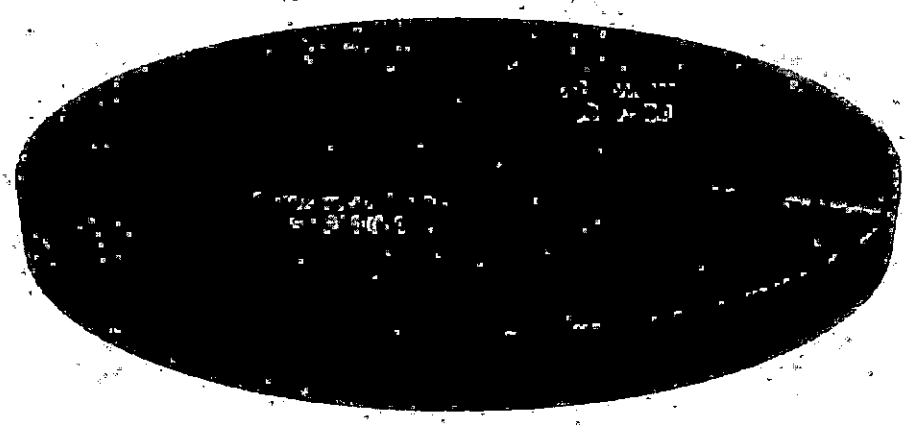
- Pending easements

Aqua Schedule:

- Utility relocation expected to begin in 2018 and to be completed in 2019.

Summary: Based on the projects noted above, it is expected that Aqua will spend $2,759,220 in relocating water mains over the next three years. See Figure 3 below.

Figure 3. NCDOT Water Main Relocation by Rate Entity



II. Subsection (c)(3): Primary Drinking Water Quality Capital Improvements

Primary water quality projects are intended to significantly reduce or eliminate contaminant concentrations of radionuclides, volatile organic compounds (VOCs), Total Organic Carbon (TOC), nitrates, arsenic, lead and copper.

In 2017, Aqua completed and submitted for recovery the installation of five primary filtration units for a total cost of $729,268.79 as identified in Exhibit 1.

2018–2020 – Four WSIC-eligible primary contaminant projects are currently planned for construction. These projects have been included in Exhibit 2.2.

ANC Water:

- Aqua plans to install a radium removal system at Quails Nest Well #2. It is estimated to cost approximately $225,000 and will be completed in 2018.
- Aqua plans to install a VOC removal system at Silver Point well #2. We estimate the VOC removal system to cost approximately $180,000 and the project will be completed in 2019.

Brookwood Water:

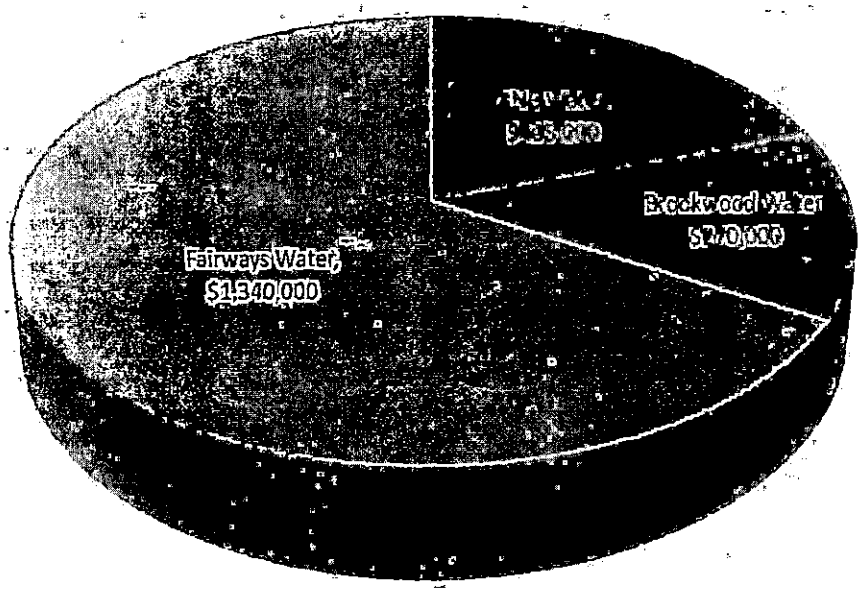
- In 2019, Aqua will likely install a radium removal system at Emerald Gardens Well #8. Estimated cost is $270,000.

Fairways Water:

- The fourth contaminant project is designated for the Cape Master System to prevent further formation of TTHMs. This system's sampling results exceeded the Local Running Annual Average for TTHMs during the third quarter 2017. On August 31, 2017, Aqua hired the engineering services of CDM Smith to perform the Cape Master TTHM Mitigation and Control Plan. The results of the 4-month study showed that converting to chloramination was the most prudent and effective solution. This conversion is estimated to cost $1.34 million. Aqua is under Administrative Order to have the solution engineered and in place by the end of the third quarter 2018.

Summary: Based on the projects noted above, it is expected that Aqua will spend $2,015,000 to install these primary treatment systems over the next three years. See Figure 4 below.

Figure 4. Primary Drinking Water Quality Improvements by Rate Entity



III. Subsection (c)(4): Secondary Drinking Water Quality Capital Improvements

Since 2015, Aqua has (a) obtained approval to install and has installed 23 manganese oxide filters, one chemical free filter, and 16 cartridge filters and (b) has invested approximately $9,200,000 in permanent filtration equipment.

In 2017, Aqua completed and submitted for cost recovery costs associated with the installation of two WSIC-eligible Manganese Oxide (MnO) filters costing $1,051,183 as identified in Exhibit 1.

2018 – 2020 - In late-2017, Aqua met with NCDEQ and the Public Staff of the North Carolina Utilities Commission regarding the Company's ongoing effort and vision in solving secondary water quality issues across the state. Based on an increased level of environmental sensitivity and increased enforcement toward systems that have elevated levels of iron and manganese, the three parties arrived at a logical approach for prioritizing which well sites Aqua would pursue further treatment. This initiative and ongoing analysis has been adopted as Aqua's Secondary Water Quality Plan. The criteria and capital timing are shown in Table 1 below.

Table 1 - Secondary Water Quality Plan Criteria & Capital Timing

Group #	Iron and Manganese Condition
Group1 Sites:	Fe + Mn >1 mg/L or Mn > 0.30 mg/L
Group 2 Sites:	Fe > 0.6 mg/L or Mn > 0.10 mg/L
Group 3 Sites:	Fe > 0.30 mg/L or Mn > 0.05 mg/L

Year	Criteria	Action	Capital Timing
1-2 years	Group 1 & NOD	Filtration & Flushing & Tank Cleaning	2019-2020
2-3 years	Group 1 Non-NOD & >10 Lab D	Filtration & Flushing & Tank Cleaning	2020-2021
4-7 years	Group 1 Non-NOD & <10 Lab D	Filtration & Flushing & Tank Cleaning	2022-2025

For the purposes of this three-year plan, Aqua's focus is to prioritize the Group 1 Sites. These projects have been included in Exhibit 2.3.

Probable cost estimates for the procurement and installation of secondary water quality filter projects have remained stable from the previous plan report. Aqua is still currently utilizing the design-bid-build process.

Aqua has been working with the environmental regulators on alternatives for processing backwash from MnO filters. One such alternative recently approved is the implementation of a dosing tank in combination with a drip system. In response to HB74, Aqua requested more relaxed regulations on backwash permitting. As it currently stands, Aqua has been informed by NCDEQ that smaller filtration units having backwash of 5,000 gallons per week or less will not require permitting. This will allow Aqua to design and build a system for less. As a result, the Company will be able to install more treatment systems.

Over the past three years, Aqua has developed a cooperative working relationship with AdEdge Technologies, a water treatment system vendor, to continuously identify ways to reduce treatment costs. Savings identified to date include media selection, material selection, and bulk purchasing. Aqua continues to review the design process, construction materials, and construction methods to control project costs and improve construction timelines, which would

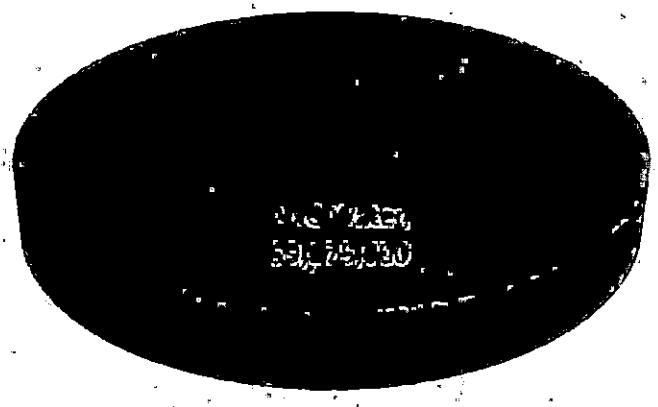
directly benefit impacted customers. Aqua is working to streamline cost and time by standardizing the following design concepts:

- Well flow < 30 gpm - drip disposal system and/or no discharge permit needed
- Well flow <50 gpm with recycle backwash concept
- Well >50 and <100 gpm with recycle backwash concept
- Well flow>100 gpm with recycle backwash concept

Standardizing filter houses will allow Aqua to move toward a design-build schedule allowing cost-plus contracts to better control contractor margins and control project costs. This process will also allow Aqua to investigate precast concrete filter houses, or other less labor-intensive building methods, to significantly reduce contract labor hours and better control costs.

Summary: Based on the projects noted above, it is expected that Aqua will spend $9,075,000 to install these secondary filtration treatment systems over the next three years. See Figure 5 below.

Figure 5. ***Secondary Drinking Water Quality Capital Improvements by Rate Entity***



IV. Subsection (c)(1): Main, Valve, Service, Meter, and Hydrant Replacement Projects

In 2017, Aqua completed and submitted for recovery three WSIC-eligible mains and services projects amounting to $1.09 million as identified in Exhibit 1.

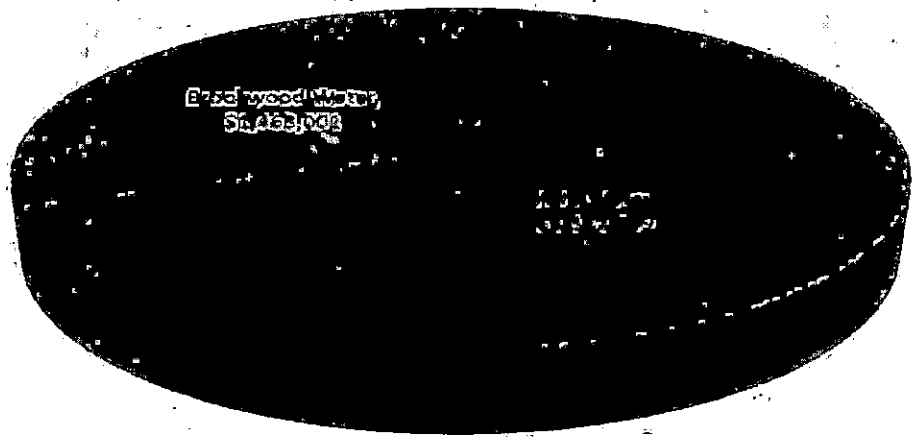
2018–2020 - All main replacement projects are identified and selected based on the integrity of pipe materials used in the distribution system (i.e., thin wall PVC pipe, galvanized iron pipe, or

asbestos concrete pipe), and/or leak data. These main replacement projects have been included in Exhibit 2.4.

Expenditures for service line only replacements are minimal during Aqua's three-year plan. The majority of service lines being replaced are included under the main replacement capital projects. Service line repairs are identified based on age, materials and leak history. To date, most services replaced were existing poly pipe, which has become brittle with age and is unrepairable. When such conditions were encountered and identified, whole system service replacements were performed, rather than waiting for individual service line failures.

Summary: After budgeting and allocating $2,759,220 for NCDOT water main relocation projects, $2,015,000 for primary projects, and just over $9,075,000 for secondary water quality projects, Aqua plans to invest $4,835,840 of WSIC-eligible monies in replacing degrading and/or substandard water mains to enhance the Company's service and reliability in several existing systems over the next three years. See Figure 6 below.

Figure 6. Main, Valve, Service, Meter, and Hydrant Replacement Projects by Rate Entity



V. *Subsection (c)(2): Main Extension Capital Improvement Projects*

The majority of main extension projects completed to date were selected to improve potable water quality.

In 2017, Aqua completed and submitted for recovery one WSIC-eligible mains extension project amounting to $40,233 as identified in Exhibit 1.

2018–2020 - There are currently two planned water main extension projects. These projects have been included in Exhibit 2.5.

Summary: Based on the projects noted above, Aqua will spend $867,968 related to WSIC-eligible main extensions over the next three years. See Figure 7 below.

Figure 7. Main Extension Capital Improvement Projects by Rate Entity

SSIC PROGRAM

The following section summarizes eligible SSIC projects during the current SSIC program. Exhibit 1 provides a list of SSIC projects completed in 2017 under the current WSIC/SSIC program. Figure 1 below summarizes the SSIC categories included in the SSIC three-year plan.

A significant amount of SSIC-eligible funds are allocated to required NCDOT sewer main relocation projects. As a result of this allocation, Aqua has given subsequent priority to wastewater mechanical equipment replacements and then to Inflow and Infiltration (I&I) (SSES) projects. Figures 1 and 2 below summarize the total 2018–2020 planned SSIC Investment by category and rate entity.

Figure 1. SSIC Investment by Category

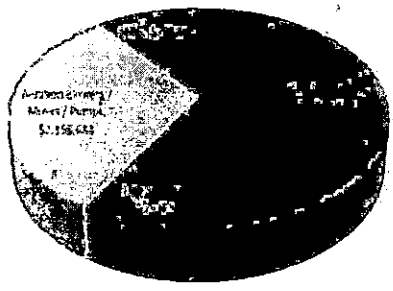
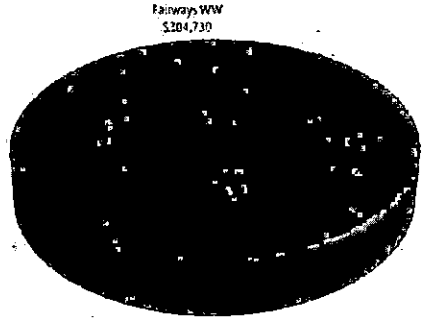


Figure 2. SSIC Investment by Rate Entity



I. Subsection (d)(3): NCDOT Utility Relocation Projects

In 2017, Aqua completed one NCDOT sewer main relocation project as identified in Exhibit 1.

The River Road sewer main relocation project was required as a result of NCDOT replacing an existing bridge located in Wilmington where Aqua had aerial sewer lines. The utility relocation included a directional drill underneath the tidal marsh and creek. This project was in the Fairways rate entity and cost $177,300.

2018 – 2020 - Over the next three years, Aqua plans to complete the following SSIC-eligible sewer mains relocations resulting from NCDOT projects. These projects have been included in Exhibit 2.1.

a) **R-3825B HWY 42 – GLENN LAUREL RD, UTILITIES RELOCATION OPC - $2,764,150 (20,000 LF – 12-INCH FM) - to be completed in 2019**

NCDOT Schedule:

- Agreement underway, Dewberry owes NCDOT Agreement Plans and Quantity Take off

- Aqua and NCDOT determining payment plan based upon NCDOT EOPC
- NCDOT Roadway Let Date 11/2018
- Begin Construction 1/2019
- ROW acquisition is behind schedule
- Attending Monthly Utility meetings in Wilson

Aqua Schedule:

- Construction Duration – first 6-8 months of NCDOT project (Feb-Oct 2019)
- 90% Design complete, Agreement plans underway, Dewberry to rework plans and specifications to comply with NCDOT Drafting and Bid Item standards
- Significant project as primary force main for Neuse Colony WWTP
- NCDOT will provide partial inspection services

b) R-2370B/I-5717 HWY 150—FROM MARSHALL STEAM STATION PAST I-77 TO US 21 OPC - $550,000 (7,000 LF FM) – to be completed in 2019

NCDOT Schedule:

- Aqua to discuss construction with NCDOT. In the project or self-build.
- Agreement precedence with Hwy 42
- NCDOT BID Date July 2019

Aqua Schedule:

- Dewberry underway March 2018
- 50% - Agreement Plans due NCDOT Oct 2018
- Final Plans and Specifications Feb 2019
- Construction estimated to be completed in 2019

c) 17BP.8.R.124 CHAPEL RIDGE SEWER MAIN RELOCATION - $150,000 (600 LF – 8-INCH FM) – to be completed in 2018

NCDOT Schedule:

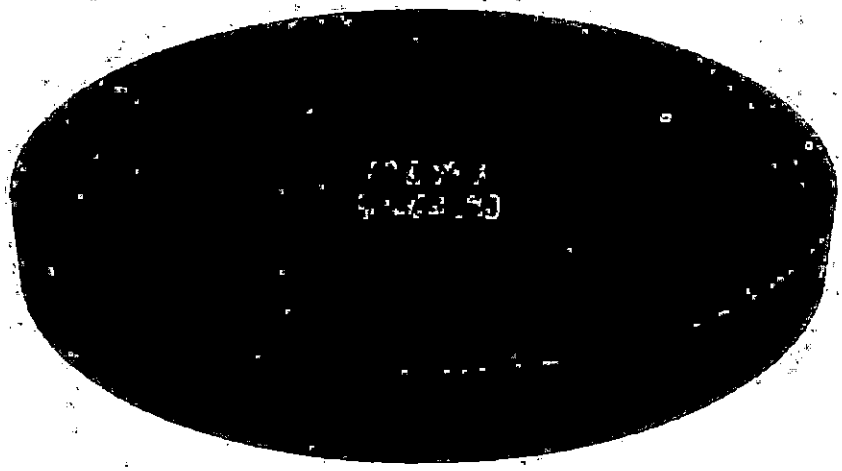
- 2018

Aqua Schedule:

- Currently, Aqua is working on obtaining two easements. The project schedule and ultimate cost is solely dependent on obtaining the two easements.
- This project is tentatively scheduled to be completed in 2018 and is expected to cost approximately $150,000.

Summary: Based on the projects noted above, Aqua will spend $3,464,150 related to NCDOT Utility Relocation Projects over the next three years. See Figure 3 below.

Figure 3. SSIC NCDOT Relocation Projects



II. *Subsection (d)(4): In-Kind Replacements of Pumps, Motors, Blowers and other Mechanical Equipment.*

Projects in this section include planned improvements to our wastewater conveyance and treatment systems. Such improvements include the installation of new pumps and blowers to replace aging equipment, the installation of new membranes requiring replacement, and replacement of actuator valves and other mechanical process equipment.

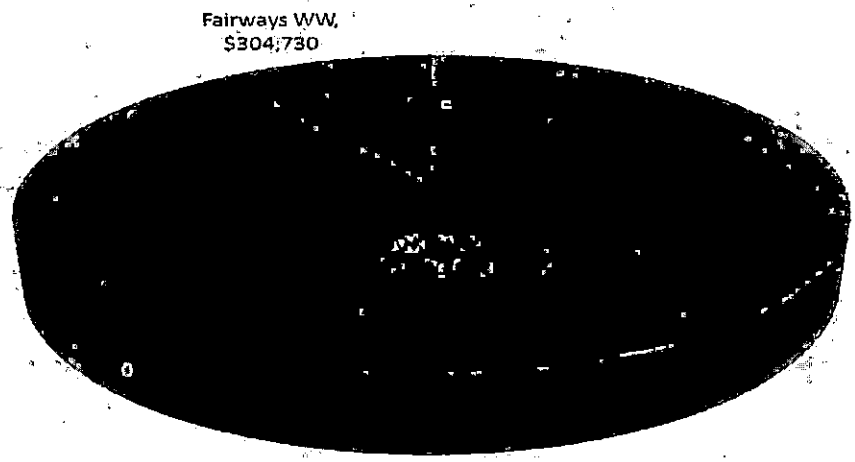
In 2017, Aqua completed sixteen projects within this category for $1.2 million as identified in Exhibit 1. These projects were all within the Aqua WW rate entity and were significantly related to the replacement of blowers, motors, and membranes.

2018–2020 - Figure 4 below represents the planned investments within this category by rate entity, which is made up of the following:

- $1,558,600 for blowers and mixers
- $901,813 for replacing lift station pumps
- $575,000 for installing fine screens

Summary: Based on the projects noted above, Aqua will spend $3,035,413 related to SSIC-eligible in-kind replacements of pumps, motors, blowers and other mechanical equipment over the next three years. See Figure 4 below and Exhibit 2.6 for a detailed list of projects.

Figure 4. Aeration Blowers / Pumps/ Other Mechanical Equipment by Rate Entity



III. Subsection (d)(1): Collection Main Extension Projects to Implement Wastewater Solutions

In 2017, Aqua completed one collection main extension project as identified in Exhibit 1. This project was in the Fairways WW rate entity and related to the abandonment of the Dolphin Bay WWTP. The force main was extended between the Dolphin Bay collection system and The Cape wastewater collection system.

2018–2020 - At this time, Aqua does not have any planned collection main extension projects.

Summary: No collection main extension projects are planned over the next three years.

IV. Subsection (d)(2): Inflow and Infiltration (I&I) Projects

Inflow & Infiltration (I&I) projects otherwise known in the industry as Sewer System Evaluation Surveys (SSES) have historically been selected based on identifying wastewater plants with wet weather peaking factors greater than 3 (Maximum Daily Flow/Average Daily Flow) or identifying wet weather peak inflows greater than 100,000 gallons.

To date, Aqua has completed 22 SSIC-eligible I&I projects. In 2017, Aqua completed one project within this category for $36,000 as identified in Exhibit 1. As a result of these investigations,

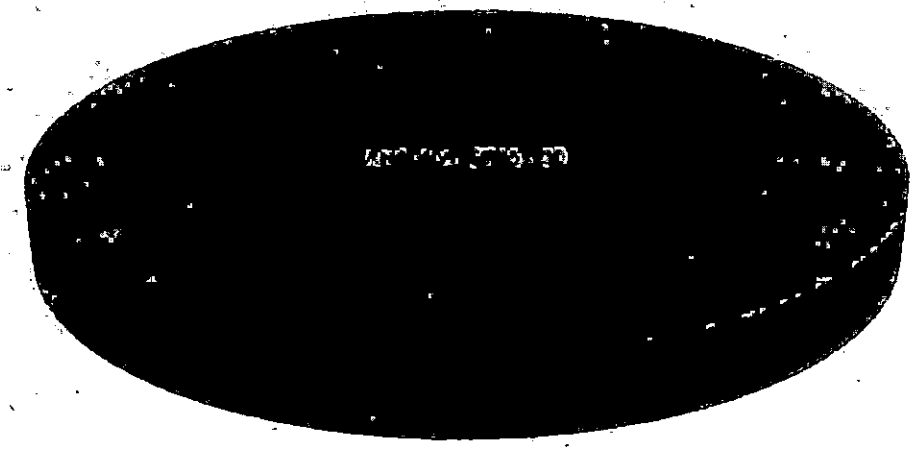
very useful and prudent improvements including manholes repairs, spot repairs, and cured in place pipe (CIPP) technology to repair aging gravity sewer have been implemented.

2018–2020 - Aqua currently plans to perform three I&I (SSES) projects as follows:

- Willow Creek (follow-up work)
- Barclay Downs
- Emerald Plantation

Summary: Based on the projects noted above, Aqua plans to spend $725,000 related to SSIC-eligible I&I Projects over the next three years. See Figure 5 below.

Figure 5. Influent & Infiltration Projects



As part of the Company's March 7, 2018 rate case filing, Aqua has requested the authority for a reset of the current surcharges to zero and the authority to file WSIC/SSIC projects on a going-forward basis after the next general rate case order. Aqua's current estimate of investment in years 2018-2020 by rate division and WSIC/SSIC category are identified in the tables below.

TABLE 1: Estimate of 2018-2020 WSIC Planned Expenditures

WSIC Category		RATE DIVISION		
		BROOKWOOD	AQUA WATER	FAIRWAYS WATER
Main Replacements	C.1	$ 1,463,001	$ 3,372,839	$ -
Main Extensions	C.2	$ -	$ -	$ 867,968
Primary Water Treatment	C.3	$ 270,000	$ 405,000	$ 1,340,000
Secondary Water Treatment	C.4	$ -	$ 9,075,000	$ -
NCDOT Water Relocation	C.5	$ 1,900,000	$ 859,220	$ -
TOTAL:		$ 3,633,001	$ 13,712,059	$ 2,207,968

TABLE 2: Estimate of 2018-2020 SSIC Planned Expenditures

SSIC Category		RATE DIVISION	
		AQUA SEWER	FAIRWAYS SEWER
Sewer Extensions	D.1	$ -	$ -
Inflow and Filtration	D.2	$ 725,000	$ -
NCDOT Sewer Relocations	D.3	$ 3,464,150	$ -
Mechanical Equipment Sewer	D.4	$ 2,730,683	$ 304,730
TOTAL:		$ 6,919,833	$ 304,730

Significant projects scheduled for the next three years demonstrate Aqua's commitment to continue providing primary and secondary water quality treatment. Aqua has identified $2,015,000 in primary water quality capital projects for chlorinated by-products and radionuclides. Specifically, Aqua plans on investing $1,340,000 to reduce the formation of TTHMs. In addition, the Company has committed to continuing its secondary water quality campaign and anticipates spending $9,075,000 for the installation of 32 iron and manganese filters over the next three years. Aqua continues to research improved treatment processes and work with NCDEQ on alternative backwash methods to reduce capital costs in an effort to install more filters.

Aqua has begun a new wastewater screening initiative to replace manual bar screens with automated base screens to improve wastewater treatment processes. Proper influent screening can retain large solids and coarse material found in the influent stream to the wastewater treatment plant that has the potential to damage or clog subsequent equipment (i.e.; piping, wastewater tanks, diffusers, pumps, clarifiers, etc.), reduce overall treatment process reliability and effectiveness, and even contaminate waterways.

EXHIBITS

Exhibit 1 - 2017 WSIC / SSIC Completed Projects

	Project Name	2017
ANC Water		
FP35801016107	WSIC Fallscrest Main Replacement	$196,615
FP35800094108	WSIC Greymoss Filter Project	$679,748
FP35800052806	WSIC Camelot Rplc Main/Svc Ph 2	$541,094
FP35800060091	WSIC Broadhurst Radium Filter	$206,496
FP35100060527	WSIC Henson Farms Radium Filter	$217,634
FP35801052069	WSIC Valve Rplc Fontain Village	$59,000
FP35801060542	WSIC Mallard Crossing Fe/Mn Filter	$371,435
FP35800053383	WSIC Thornburg Nitrate Filter	$200,044
FP35800064286	WSIC Lake Rand Backwash Tank	$62,338
FP35800067564	WSIC Inwood Forest Uranium Filter	$31,802
FP35801051925	WSIC Lamar Acrs Uranium/Interconnect	$40,233
FP35100060527	WSIC Hartman Farms Radium Filter	$73,293
FP35800068762	WSIC Rplc Well Mtr Altice Est 453	$491
	Subtotal	**$2,680,223**
ANC WW		
FP35101015524	SSIC Replace LS/WWTP Pumps	$645
FP35880016166	SSIC Rplc WWTP Blowers & Motors	$6,968
FP35881057193	SSIC Alexander Island Blower Rplc	$83,925
FP35880052359	SSIC Hasentree Blower Replacement	$28,501
FP35880052362	SSIC The Preserve Blower Rplc	$95,693
FP35880066671	SSIC Neuse River Blower Rplc	$22,130
FP35880068949	SSIC Barclay Downs Rplc Lift Sta	$26,015
FP35101570894	SSIC Cannonsgate Membrane Rplc	$321,346
FP35881058249	SSIC Bridgeport Blower Rplc	$92,803
FP35880052360	SSIC Hawthorne Blower Rplc Project	$150,669
FP35880068843	SSIC Carolina Meadow Blower Rplc	$12,662
FP35101564841	SSIC Emerald Plantation Blower Rplc	$74,930
FP35101570893	SSIC Sterling Farms Membrane Rplc	$231,198
FP35101571612	SSIC Cannonsgate Actuator Rplc	$50,830
FP35101080215	SSIC Spring Crk Rplc Aeration Blwr	$8,848
FP35101080241	SSIC Willow Crk Aeration Blwr Rplc	$3,326
	Subtotal	**$1,210,489**
Brookwood Water		
FP35740057144	WSIC BeverlyDr/CliffFor Main/Svc Rpl Ph 2	$274,508
FP35740069777	WSIC Wilson Ave/Little St Main Rplc	$20,273
	Subtotal	**$294,780**
Fairways Water		
FP35681651666	WSIC River Rd DOT Relocate Main	$176,398
	Subtotal	**$176,398**
Fairways Wastewater		
FP35640151700	SSIC Force Main Ext Cape/Dolphin Bay	$254,228
FP35640169737	SSIC I & I Beau Rivage Promenade Dr	$36,029
FP35640151699	SSIC River Rd DOT Relocate Main	$177,300
	Subtotal	**$467,557**
	Total	**$4,829,448**

Exhibit 2.1 NCDOT Water/Sewer Main Relocation By Rate Entity

	Project Name	2018	2019	2020	3 Yr Run Rate
ANC Water	R-3825B Hwy 42 Glen Laurel Road		$59,220		
	R-2370B/I-5717 Hwy 150		$650,000		
	Chapel Rdg NCDOT Bridge Reloc	$150,000			
	Subtotal	$150,000	$709,220	$0	$859,220
ANC WW	R-3825B Hwy 42 Glen Laurel Road		$2,764,150		
	Chapel Rdg NCDOT Bridge Reloc	$150,000			
	R-2370B/I-5717 Hwy 150		$550,000		
	Subtotal	$150,000	$3,314,150	$0	$3,464,150
Brookwood Water	U-4405 Raeford Road	$1,500,000			
	WSIC Strickland Rd DOT project	$400,000			
	Subtotal	$1,900,000	$0	$0	$1,900,000
Fairways Water	No Current Projects				
	Subtotal	$0	$0	$0	$0
Fairway WW	No Current Projects				
	Subtotal	$0	$0	$0	$0
	Total	$2,200,000	$4,023,370	$0	$6,223,370

Exhibit 2.2 Primary Contaminant Treatment Projects by Rate Entity

	Project Name	2018	2019	2020	3 Yr Run Rate
ANC Water	Quails Nest Combined Radium Well #2	$225,000			
	Silver Point VOC Filter	$30,000	$150,000		
	Subtotal	$255,000	$150,000	$0	$405,000
Brookood Water	Emerald Gardens #8(Brookwood)	$25,000	$245,000		
	Subtotal	$25,000	$245,000	$0	$270,000
Fairways Water	TTHM Reduction-LAS Implementation	$1,340,000			
	Subtotal	$1,340,000	$0	$0	$1,340,000
	Total	$1,620,000	$395,000	$0	$2,015,000

Exhibit 2.3 Secondary Water Quality Site Selection

Group / System Name	Estimated $	Year
2018 In - Progress		
WSIC Ogburn Farms	$340,000	2018
WSIC Hamptn Pk Well 6	$345,000	2018
Galloway	$155,000	2018
Shannon Woods #3	$353,000	2018
Snow Creek Heights #2	$260,000	2018
Stoney Creek #1/#4	$440,000	2018
Stonehenge #1/#6	$580,000	2018
Wilders Ridge	$266,000	2018
Subtotal	**$2,739,000**	
Group 1 - NOD - Bayleaf		
Enclave at Barton Creek Bluff	$190,000	2019
Martindale	$274,000	2019
Seville	$190,000	2019
Carlyle Manor	$274,000	2019
Georges Grant	$360,000	2019
The Barony	$360,000	2019
Woodvalley	$190,000	2019
Subtotal	**$1,838,000**	
Group 1 - NOD (non-Bayleaf) >10 calls		
Kensington	$360,000	2019
Forest Glen	$274,000	2019
Subtotal	**$634,000**	
Group 1 - NOD (non-Bayleaf) < 10 calls		
Avocet	$274,000	2019
Duncan Ridge	$274,000	2019
Glendale-Charl Heights	$274,000	2019
Old South Trace	$274,000	2020
River Oaks	$274,000	2020
Southwood	$190,000	2020
Trappers Creek	$360,000	2020
Wakefield	$360,000	2020
Subtotal	**$2,280,000**	
Group 1 - No NOD - Bayleaf > 10 calls		
Barton Creek Bluffs #11	**$190,000**	2020
Group 1 - No NOD (Non Bayleaf) > 10 calls		
Kildaire Estates	$190,000	2020
Kildaire Estates	$274,000	2020
Brayton Park	$190,000	2020
Greymoss	$190,000	2020
Sedgemoor	$190,000	2020
Highland Trails	$360,000	2020
Subtotal	**$1,394,000**	
Total	**$9,075,000**	

Exhibit 2.4 Main, Valve, Service, Meter, and Hydrant Replacement by Rate Entity

	Project Name	2018	2019	2020	3 Yr Run Rate
ANC Water	WSIC Murdock Main Replacement		$2,018,095		
	WSIC Rplc Mains Jamestowne		$732,652		
	WSIC Southgate Main Replacement	$622,092			
	Subtotal	$622,092	$2,750,747	$0	$3,372,839
Brookwood Water	WSIC Kimbrook Dr/Hollywd Main/Svc			$307,903	
	WSIC Main Extend Dandy Loop 1,000'			$269,974	
	WSIC Village Hills Main/Svc Rplc			$885,124	
	Subtotal	$0	$0	$1,463,001	$1,463,001
	Total	$622,092	$2,750,747	$1,463,001	$4,835,840

Exhibit 2.5 Main Extensions - Capital Improvement Projects by Rate Entity

		2018	2019	2020	3 Yr Run Rate
Fairways Water	WSIC Main Extension Cathay/RvrBreez	$0	$0	$700,673	$700,673
	WSIC River Oaks Main Extension	$0	$0	$167,295	$167,295
	Total	$0	$0	$867,968	$867,968

Exhibit 2.6 In Kind Replacements of Pumps, Motors, Blowers and other Mechanical Equipment

Rate Entity	Project Name	2018	2019	2020	3 Yr Run Rate
ANC WW	SSIC Country Valley Fine Screen		$200,000.00		$200,000.00
	SSIC Planned Blw/Motor Rplc Mark		$50,000.00		$50,000.00
	SSIC Rplc Blowers Country Wds East	$500,000.00			$500,000.00
	SSIC Windemere Replc Blowers		$50,000.00		$50,000.00
	SSIC Harbor Estates Replace Blowers		$40,000.00		$40,000.00
	SSIC Diamond Head Replc Blowers		$30,000.00		$30,000.00
	SSIC Crismark L/S Replc blower		$2,800.00		$2,800.00
	SSIC CWE Redwood L/S Replc blower		$2,800.00		$2,800.00
	SSIC Replace LS/WWTP Pumps	$25,000.00	$180,000.00	$110,250.00	$315,250.00
ANC WW	SSIC Plan Blwr Motor Rplc Marker		$ 50,000.00		$ 50,000.00
	SSIC Salem Glen Rplc Eq Blower		$ 5,000.00		$ 5,000.00
	SSIC Salem Qtrs Rplc Aeratn Blwr		$ 30,000.00		$ 30,000.00
	SSIC Willow Creek Rplc Blowers		$ 65,000.00		$ 65,000.00
	SSIC Replace LS/WWTP Pumps		$ 53,812.00	$ 28,941.00	$ 82,753.00
ANC WW	SSIC Neuse-Rvr Vil Blower Rplc		$ 15,000.00		$ 15,000.00
	SSIC Hawthorne EQ Blower Rplc		$ 30,000.00		$ 30,000.00
	SSIC Chapel Ridge Blower Rplc		$ 100,000.00		$ 100,000.00
	SSIC Hawthorne Fine Screen	$ 225,000.00			$ 225,000.00
	SSIC Tradewinds EQ Blower/Pumps		$ 25,000.00		$ 25,000.00
	SSIC Crooked Creek Blower Rplc		$ 125,000.00		$ 125,000.00
	SSIC Replace LS/WWTP Pumps	$ 25,500.00	$ 183,600.00	$ 112,455.00	$ 321,555.00
ANC WW	SSIC Grand Villas Replace Blowers		$ 18,000.00		$ 18,000.00
	SSIC Castle Bay Fine Screen			$ 150,000.00	$ 150,000.00
	SSIC Bogue Watch Actuators Rplc		$ 50,000.00		$ 50,000.00
	SSIC Cannons Gate EQ Rplc pumps	$ 25,000.00			$ 25,000.00
	SSIC Grand Villas Rplc EQ Pumps	$ 25,000.00			$ 25,000.00
	SSIC Avendale Replace Mixers		$ 25,000.00		$ 25,000.00
	SSIC Avendale Replace Blowers		$ 10,000.00		$ 10,000.00
	SSIC Emerald Plantation Rplc EQ Pum	$ 6,000.00			$ 6,000.00
	SSIC Replace LS/WWTP Pumps Coas	$ 10,000.00	$ 10,500.00	$ 11,025.00	$ 31,525.00
ANC WW	SSIC Woodlake Blowers	$ 100,000.00	$ 25,000.00		$ 125,000.00
ANC WW Subtotal					**$2,730,683.00**
Fairways WW	SSIC The Cape Blower Replacement	$ 210,000.00			$ 210,000.00
	SSIC Replace LS/WWTP Pumps	$ 30,050.00	$ 31,550.00	$ 33,130.00	$ 94,730.00
Fairways Subtotal					**$ 304,730.00**

VERIFICATION.

Shannon V. Becker, being duly sworn, deposes and says: that he is the President of Aqua North Carolina, Inc.; that he is familiar with the facts set out in the attached **Ongoing Three-Year WSIC/SSIC Plan,** filed in Docket Nos. W-218, Subs 363A and 497; that he has read the foregoing Plan and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

Shannon V. Becker

Sworn to and subscribed before me this
the 2nd day of April, 2018.

Notary Public

My Commission Expires: May 13 2021

ROBYN E. LAMBETH
NOTARY PUBLIC
WAKE COUNTY, NC

CERTIFICATE OF SERVICE

I hereby certify that I have today served a copy of the attached **ONGOING THREE-YEAR WSIC/SSIC PLAN**, filed by Aqua North Carolina, Inc. in Docket Nos. W-218, Subs 363A and 497, on the parties of record, in accordance with North Carolina Utilities Commission Rule R1-39, either by: United States mail, first class postage pre-paid; by hand delivery; or by means of electronic delivery upon agreement of the receiving party.

This the 2nd day of April, 2018.

Electronically Submitted
/s/ Jo Anne Sanford
State Bar No. 6831

SANFORD LAW OFFICE, PLLC
sanford@sanfordlawoffice.com
Tel: 919.210.4900

ATTORNEY FOR AQUA NORTH CAROLINA, INC.

I/A

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	)	REPORT ON CUSTOMER COMMENTS FROM PUBLIC HEARING IN MOCKSVILLE ON MAY 8, 2018, AND FROM GASTONIA ON MAY 9, 2018

NOW COMES Aqua North Carolina, Inc. ("Aqua" or "Company") and files this report in response to public hearings held in this matter in Mocksville and Gastonia.

The Mocksville public hearing was convened at 7:00 p.m. on May 8, 2018, at the Davie County Courthouse in Mocksville, North Carolina. Commissioner ToNola D. Brown-Bland presided, joined by Commissioners Jerry C. Dockham, James G. Patterson, Lyons Gray, Daniel G. Clodfelter and Charlotte A. Mitchell. Staff Attorney William E. Grantmyre appeared for the Public Staff on behalf of the using and consuming public, accompanied by Public Staff Water Engineer Lindsey Darden. Jo Anne Sanford of Sanford Law Office, PLLC appeared on behalf of Aqua, joined by Shannon V. Becker, President of Aqua. Other Company personnel, present and available to assist customers with questions or requests, included: Joe Pearce, Director of Operations; Amanda Owens, Manager of Environmental Compliance; Dean Gearhart, Manager of Rates; Laurie Ison, Area Manager; Dave McDaniel, Regional Supervisor; Dan Lockwood, Manager of Communications; and Tammy Jones, Customer Service Representative.

The Gastonia public hearing was held on May 9, 2018, at the Gaston County Courthouse, 325 Dr. Martin Luther King Way, Gastonia, North Carolina.

Commissioner ToNola D. Brown Bland a presided, joined by Commissioners Jerry C. Dockham, James G. Patterson, Lyons Gray, Daniel G. Clodfelter, and Charlotte A. Mitchell. Staff Attorney William E. Grantmyre again appeared for the Public Staff on behalf of the using and consuming public, accompanied by Public Staff Water Engineer Lindsey Darden. Assistant Attorney General Margaret A. Force noted an appearance for the record on behalf of the Attorney General's Office. Jo Anne Sanford appeared for Aqua, joined by State President Shannon V. Becker. Other Company personnel who were available to assist customers included: Laurie Ison, Area Manager; Matt Costner, Regional Supervisor; Duane Rimmer, Regional Supervisor; Joe Pearce, Director of Operations; Amanda Owens, Manager of Environmental Compliance; Dean Gearhart, Manager of Rates; Dan Lockwood, Manager of Communications; and Tammy Jones, Customer Service Representative.

OVERVIEW OF THE PUBLIC HEARINGS

No customers attended the Mocksville hearing; two customers appeared and offered sworn testimony in Gastonia. Their concerns and the responses are summarized as follows:

Steve Gordon, 207 Lake Hill Court, Belmont, NC (Southport Landing Subdivision)

Mr. Gordon's concerns were associated with Duke Energy coal ash issues. He has lived in his home in Southport Landing Subdivision since 1997, in the home his family built, and has been receiving bottled water from Duke Energy for three years. "Every two weeks, we get seven cases. When my girls lived there.....we were getting like 10 and 12 cases of water every two weeks." *Tr. Vol 2, p. 13, lines 12-15.* He recited his understanding of information concerning settlements between Duke Energy and the adjacent homeowners, all associated with the impact of coal ash on those landowners.

Mr. Gordon's testimony was essentially the following:

- He is tired of bottled water, is ready for a connection to be made, and is concerned about the length of time it is taking;
- He is concerned about the impact of the coal ash controversy on his property values; and
- He objects to the rate increase for water and to the possibility of future rate increases.

RESPONSE:

Aqua requested Mr. Gordon's permission to explain the facts concerning the interconnection with the City of Belmont ("Belmont") after the formal hearing and in a conversational setting, and the Company assured both Mr. Gordon and the Utilities Commission ("Commission" or "NCUC") that it would provide that explanation on the record in this report.

An alternative permanent new water supply for households currently receiving water from wells located within specified distances from coal ash ponds is required to be available by October 2018, pursuant to the terms of the Coal Ash Management Act of 2014, HB 630, passed by the North Carolina General Assembly in its 2015 Session ("the Act"). Mr. Gordon and his similarly situated neighbors located in Heather Glen, Highland on the Point, River Lakes and Southpoint Landing subdivisions ("the Subdivisions"), are directly impacted by the provisions of the Act, as the wells that serve their community are located within the specified proximity to the ash pond at Duke Energy's Allen Steam Station. Since these Aqua customers are served by existing Aqua-owned community wells and do not own their own private residential well, determination of the application of the Act's requirements to these Aqua customers required additional work by the North Carolina Department of Environmental Quality ("DEQ"), Aqua and Duke Energy. Duke Energy proposed several options for providing a permanent alternative source of water supply to Aqua's customers, and DEQ required that those options be submitted for a vote by those customers in the Subdivisions. The option that received the majority of votes, and the one selected, required that Aqua's distribution system be interconnected with Belmont. This allows Aqua to purchase water from Belmont, thus meeting the

requirement that Duke provide an alternative source of water. Two separate physical interconnections between Aqua's distribution system and Belmont's water mains were then designed and constructed; the in-service date is expected to be in June.

Duke Energy will pay the cost of the interconnection between Aqua and Belmont as well as the cost to abandon the two applicable Aqua-owned community wells after the interconnection is in service.[1]

In addition to the physical interconnection with Belmont, Aqua was required to seek Commission approval for a purchased-water agreement in order to purchase and pass through the costs of water supply from Belmont. A purchased water agreement was signed by Aqua and Belmont on March 12, 2018 which provides for the purchase of water at the then prevailing rate for resale customers outside the City limits. On March 28, 2018, in Docket No. W-218 Sub 491, Aqua requested approval to pass-through the costs of bulk water service from Belmont. By Order of April 27, 2018 the Commission approved the proposed tariff and prescribed a Notice to Customers, delivery of which will be certified by filing with the Commission Clerk within 10 days after the next billing.

The current prevailing City rate will result in a significantly higher monthly customer water bill for Aqua's customers in the Subdivisions. Duke Energy offered eligible property owners the opportunity to participate in a financial supplement program to address some diminution in property value and some mitigation of the resulting increased cost of water supply from Belmont. Aqua customers in the Subdivisions were not originally slated to be included in Duke Energy's financial supplement offering; however, Aqua worked successfully with Duke Energy and DEQ to achieve parity for Aqua's customers with other impacted well-owners, in terms of the financial package. Mr. Gordon and his neighbors who are Aqua customers and who have opted into Duke Energy's financial supplement package are now slated to also receive these benefits from Duke Energy. Specifically, property owners that are Aqua customers in the Subdivisions and who opted into the voluntary financial supplement will receive

[1] Duke Energy is not paying for the cost of Aqua's stranded investment in the affected wells.

$5,000 per customer, plus a water bill stipend of approximately $14,097. The water bill stipend is equal to the difference between an average monthly 5,000-gallon usage water bill under Aqua's proposed purchased water rate and the current Aqua uniform rate, over a period of 25 years.

Aqua understands that Duke Energy has made its financial arrangements with Mr. Gordon and his neighbors who similarly qualify. Any additional questions about those arrangements are most reliably answered by Duke Energy.

Thus, with respect to Mr. Gordon's concerns and questions, Aqua reports that:

- The construction of the interconnection to Belmont has been completed and is anticipated to be placed in service in June 2018 after final sampling, testing, inspections and DEQ approvals have been completed and received.
- The Commission has approved the rates that will apply to the purchase of bulk water from Belmont, to be used to serve Mr. Gordon and other similarly-situated Aqua customers in his area.
- The new service and the new rates are scheduled to begin immediately upon activation of the interconnections to the City of Belmont in June 2018.
- Aqua representatives assisted Mr. Gordon by:
    - assisting him informally with the calculation of his payout from Duke Energy;
    - explaining that his payment was based on 5,000 gallons of usage per day, whether or not he used that much; and
    - clarifying that the existing well would be abandoned and that no new water lines through his community were required.

Ashley Norris, 212 Daniel Drive, Gastonia, North Carolina.

Ms. Norris expressed concerns about a "boil water notice" that she received during the week of April 18, 2018, and about the objectionable presence of "brown and dirty" water in her house, otherwise described as a "red film." She

stated that her landlord had been required to replace her dishwasher due to the corrosive impact of manganese on the appliance. Ms. Norris's neighbor was reported to have been required to replace several uniforms due to stains from the presence of manganese in her wash cycle. *(Tr. Vol. 2, p. 23, l. 2-3, 8, and 11-16)*

Ms. Norris's concerns and complaints are essentially these:

- She and her neighbors object to using water that appears to them to be dirty or unclean; and
- She particularly objects to any rate increase in light of the concerns about the water.

RESPONSE:

The notice received in April of 2018 about flushing and refraining from drinking the water, described by Ms. Norris, was a "boil water notice," as Mr. Grantmyre surmised at the hearing, and it was issued on April 26, 2018. This notice is also referred to as a System Pressure Advisory ("SPA") and was issued in response to a break where the water service line meets the water main. This caused Aqua to shut off the service, resulting in a temporary loss in pressure. The resultant pressure drop prompted Aqua to notify its customers and issue an advisory. Aqua technicians replaced the broken service line the same day it was reported and the SPA was lifted on May 2, 2018 after sample testing was completed and lab results returned. Attached is a copy of this "System Pressure Advisory," or SPA.

Ms. Norris described the discoloration from iron and manganese as being part of her own experience as well as that of at least one neighbor. Aqua regrets the negative impacts of this naturally occurring iron and manganese, and wishes to explain the following:

- Aqua's records reflect complaints from Ms. Norris' account being made in June of 2015 (low pressure) and November 2017 (water discoloration).

- The low pressure call in June of 2015 was caused by a valve being partially closed at the street, and was corrected by a field technician.
- The water discoloration call in November of 2017 was caused by the system storage tank becoming air logged, which was addressed within 24 hours by a field technician who also flushed the line at the street.

- Commissioner Brown-Bland instructed Aqua to investigate the information about Ms. Norris's neighbor and the stained uniforms. Ms. Norris later identified the neighbor by name, but she did not know her physical address. Aqua reviewed the accounts of properties adjacent to Ms. Norris, finding one with the surname she associated with the stained laundry. There have been no contacts from this address; no phone calls or work orders exist on the records for this account.
- Iron and manganese are naturally occurring components of the groundwater. These elements are not of concern for primary drinking water standards; however, Aqua clearly understands that a customer's experience with and use of water includes a desire both for fundamental safety and for clarity of the water.
  - Historic test results on wells serving Ms. Norris' community have shown that this system has not experienced elevated levels of iron or manganese that would otherwise require added water filtration.
  - Aqua plans to continue flushing this system on a quarterly basis.

Respectfully submitted, this the 29th day of May 2018.

SANFORD LAW OFFICE, PLLC

Electronically Submitted

/s/Jo Anne Sanford
State Bar No. 6831
Post Office Box 28085
Raleigh, North Carolina 27611
T: 919-210-4900
e-mail: sanford@sanfordlawoffice.com
ATTORNEY FOR AQUA NORTH CAROLINA, INC.

VERIFICATION

Shannon V. Becker, being duly sworn, deposes and says:

That he is the President of Aqua North Carolina, Inc.; that he is familiar with the facts set out in this **REPORT ON CUSTOMER COMMENTS FROM PUBLIC HEARINGS IN MOCKSVILLE and GASTONIA, NORTH CAROLINA, HELD ON MAY 8-9, 2018**, filed in Docket No. W-218, Sub 497; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

Shannon V. Becker

Shannon V. Becker

Sworn to and subscribed before me this
the 29th day of May 2018.

Thomas Rackley

Notary Public

Thomas Rackley
NOTARY PUBLIC
Wake County, NC
My Commission Expires August 27, 2018

My commission expires: August 27 2018

CERTIFICATE OF SERVICE

I hereby certify that on this the 29th day of May 2018, a copy of the foregoing REPORT has been duly served upon all parties of record by electronic service.

Electronically Submitted
/s/Jo Anne Sanford
State Bar No. 6831
SANFORD LAW OFFICE, PLLC
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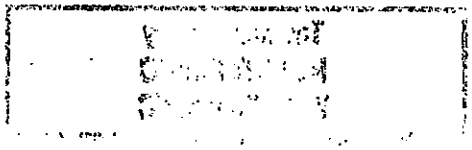
ATTORNEY FOR AQUA NORTH CAROLINA, INC.



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

July 20, 2018

Ms. M. Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: Aqua North Carolina, Inc.
Response to Customer Concerns from June 25, 2018 Public Hearing in Raleigh
Docket No. W-218, Sub 497

Dear Ms. Jarvis:

Please accept for filing the attached copy of the response by Aqua North Carolina, Inc. to customer concerns expressed at the June 25, 2018, public hearing in Raleigh, North Carolina.

As always, thank you and your office for your assistance.

Sincerely,

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

c: Parties of Record

P.O. Box 28085-8085, Raleigh, NC 27611-8085 sanford@sanfordlawoffice.com
Tel: 919.210.4900

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	))))))	REPORT ON CUSTOMER COMMENTS FROM PUBLIC HEARING HELD IN RALEIGH, NORTH CAROLINA ON JUNE 25, 2018

NOW COMES Aqua North Carolina, Inc. ("Aqua" or "Company") and files this report in response to the public hearing held in this matter in Raleigh, North Carolina in the Dobbs Building, Commission Hearing Room 2115, at 7:00 p.m. on Monday, June 25, 2018. Commissioner ToNola D. Brown-Bland served as the Presiding Commissioner and was joined by Chairman Edward S. Finley, Jr., Commissioners Jerry C. Dockham, James G. Patterson, Lyons Gray, Daniel G. Clodfelter, and Charlotte A. Mitchell.

Staff Attorneys William E. Grantmyre, Elizabeth D. Culpepper and Megan Jost appeared for the Public Staff on behalf of the using and consuming public, accompanied by David Furr, Director of the Public Staff Water Division. Margaret A. Force, Assistant Attorney General, Consumer Protection Division, made an appearance for the Attorney General's Office.

Robert H. Bennink, Jr. of the Bennink Law Office appeared on behalf of Aqua, joined by Shannon V. Becker, President of Aqua. Other Company

personnel, present and available to assist customers with questions or requests, included: Joe Pearce, P.E., Director of Operations; Amanda Owens, Manager of Environmental Compliance; Dean Gearhart, CPA, Manager of Rates; Roger Tupps, Regional Supervisor; Lorrie Stagner, Regional Supervisor; Peter Rhodes, Regional Supervisor; Jackie Jackson, Regional Supervisor; Dan Lockwood, Manager of Communications; Robyn Lambeth, Senior Executive Assistant; Lori Messinger, Controller II; Michael Melton, Manager of Engineering; Paula Frost, Customer Field Services; Alice Greene, Team Lead – Customer Care; Miyoshi Harris, Manager of Southern Call Center; Torrey Bunch, Supervisor, Call Center; and Kymoni Moore, Customer Service Representative.

A. Purpose of Report

This report summarizes the customer service quality concerns expressed at the Raleigh public hearing, addresses the Company's responses and levels of corrective actions, and describes generally the Company's position on and communication about its service to these and other North Carolina customers.

B. Overview of the Public Hearing

Representative Joseph R. John, Sr., who represents House District 40 in the North Carolina House of Representatives, testified, along with 19 customers. Three witnesses who spoke on behalf of themselves also represented 16 other customers from their communities, who yielded their time to the ones who testified. The 19 witnesses represented 14 communities located within nine separate water systems, as follows:

Subdivision	Water System
Barton's Creek Bluffs	Bayleaf
Coachman's Trail	Bayleaf
Stonebridge	Bayleaf
Sussex Acres	Bayleaf
Swan's Mill	Bayleaf
Wood Valley	Bayleaf
Castelli	Castelli
Cottonfield Village	Flower's Plantation
High Grove	High Grove
Lake Ridge Aero Park	Lake Ridge Aero Park
Medfield	Medfield
Saddle Ridge	Saddle Ridge
Upchurch	Upchurch
Waterfall Plantation	Waterfall Plantation

Representative John addressed the concerns expressed to him by some of his constituents who are Aqua customers. In addition, each customer who testified objected to the proposed percentage increase in rates and variously raised issues about the level of service (including repairs and maintenance), water quality in terms of iron and manganese particulates and hardness issues, customer communications, and rate comparisons among different kinds of service providers.

C. Aqua's General Responses to Customer Issues Regarding the Company's Water Treatment Protocol for Iron and Manganese

Aqua's operations or compliance management met with, called, or attempted to contact the nineteen customers who testified at the Raleigh public hearing in an effort to better understand each customer's concerns, address them where possible, and/or provide additional explanation as useful. Additionally, on

Tuesday, July 17, 2018, Mr. Becker met personally with Representative John to discuss the concerns of his constituents.

The bulk of the concerns addressed by the nineteen customer witnesses was with the impact of naturally-occurring iron and manganese in the groundwater supply. Aqua will focus initially on this issue, the existing and potential options for treatment, Aqua's current treatment protocol, and the cost consequences that flow from the various options.

Iron ("Fe") and manganese ("Mn") are some of the most abundant naturally-occurring elements of the soil and rock formations from which groundwater is extracted in North Carolina. The low potential for these naturally-occurring elements to be toxic or harmful to humans is reflected in the fact that they are not the subject of primary drinking water standards, but rather of secondary standards. Secondary standards were established to assist public water systems with respect to attributes of water that are not considered to present a health risk.

Despite the absence of a health concern, Aqua recognizes and shares customer concern about the impact of higher concentrations of these elements on the color of the customers' water. The Company, along with the entire industry, is mindful of the complaints about home filter life and stained appliances and clothes, as well as the aesthetic impact and overall customer concern stemming from the presence of these elements. It should be emphasized that this is a historical concern—not a new one—as the geology of the state has produced this issue from the dawn of drilling.

In the Aqua statewide system of more than 1,400 wells, approximately 20%

are challenged by elevated levels of iron and manganese in the groundwater supply. There are several methods of iron and manganese removal and the removal technology of choice depends on the mineral concentrations. To address iron, the following may be used: oxidation, sedimentation, and physical filtration. To address manganese, which is more difficult to remove, oxidation followed by a chemically reactive media (greensand) is typically used for small water systems.

There are other methods used to mitigate elevated concentrations of iron and manganese. The most common method is flushing to remove iron and manganese sediments from the water distribution system. Flushing provides some immediate water quality improvement in the water mains, but increases sediment concentrations in the water services which can temporarily increase the volume of water quality calls from customers. Customers are typically notified of flushing events in their area in advance of the scheduled activity to minimize negative impacts of resultant discolored water and are encouraged to flush their water services through their outside taps during flushing campaigns. Flushing notices identify the period of time the flushing activities performed by Aqua employees will take place; however, the potential discoloration that may result from this activity will extend beyond the scheduled flushing period until the homeowner's services and internal plumbing are also flushed.

A second method is chemical sequestration. Chemical sequestration is typically completed by the addition of inorganic phosphates, such as SeaQuest®. Phosphates combine with iron and manganese to create colorless water-soluble compounds. Phosphates have been approved as a water quality treatment

chemical, but must be introduced at controlled rates to ensure water safety. The use of phosphates can also increase the release of sediments in the water distribution system, and flushing to remove these released sediments is both important to maintain water quality and a temporary source of water quality impairment as sediment is dislodged.

From its first acquisition in North Carolina in 2000, Aqua has spent considerable effort and resources in evaluating and treating these secondary water quality issues. The Company has evaluated and implemented all of the potential solutions discussed above and continues to do so in the most prudent manner. In addition, the Company continues to look for other cost-effective solutions, including different well cleaning methodologies, various sequestering agents, cartridge filters, conventional filtration, and non-discharge/reclaim filters. Aqua has also invested significant time and effort working with environmental regulators to devise a better solution for handling the backwash of conventional filtration. Aqua was successful in developing and installing a drip discharge system that is eligible for use with certain wells. This technique has the potential to save on up-front infrastructure and operation costs. Aqua will be tracking the operational costs of this type of backwash disposal system to compare with the alternative recycle type backwash configuration.

D. Additional General Responses to Customer Issues

Aqua believes it is important to explain some principles and facts that impact both the Company's service obligation and the rules applying to the rate-setting process for public utilities such as Aqua, assuring protections to customers. The

Company appreciates this opportunity to speak to its concerned customers and to its regulators.

1. Proposed Rates – Proposed rates are not subjectively developed. They incorporate actual capital costs previously incurred and representative of current, actual operating costs. The legal principles that govern ratemaking are set forth in North Carolina General Statutes, Chapter 62, and in rules promulgated by the North Carolina Utilities Commission ("NCUC" or "Commission") under those statutes. By law, Aqua receives a rate increase only if it proves, in the face of an investigation by the Public Staff (and any Intervenor opposition), that such an increase is authorized under the law, based on the actual cost and level of prudent and reasonable investment in plant and operation. Further, investment in plant is *only* recoverable after it has been made, placed into service, audited by the Public Staff, and approved by the Commission. This principle—referred to as the "used and useful" requirement—applies whether costs are recovered in a general rate case or under a system improvement charge.[1] Furthermore, objections to the proposed rate increase request and rate design matters raised by some customers at public hearings involve complex issues to be decided by the Commission based upon careful consideration of all the evidence, including customer testimony, offered in this proceeding.
2. Water Quality – Water quality is of utmost importance to customers, as noted by all 19 customers, representing 14 communities and nine water

[1] Also, known as the Water System Improvement Charge ("WSIC") and the Sewer System Improvement Charge ("SSIC").

systems located in Aqua's central region, who testified in Raleigh. Aqua understands this concern and is aggressively working toward addressing secondary water quality issues experienced throughout its 750-system footprint in North Carolina. In addition to the more than eighty filters installed in the last five years at an approximate cost of $10,000,000 in the Central/Piedmont area of North Carolina, Aqua has recently developed and instituted a Water Quality Plan, working collaboratively with state regulators:

a. For well sites with the highest concentrations and loads of iron and manganese, new filtration treatment will be scheduled for installation, subject to Public Staff review and Commission approval. Aqua's goal is to install 10-15 new filtration treatment systems annually starting with the wells that need it most, based on each well's level of iron and/or manganese entering the water system. Installations are being prioritized in coordination with the Public Staff and the North Carolina Department of Environmental Quality ("DEQ").
b. Other well sites will be continually assessed to determine if additional operational and capital improvements are necessary.

In addition to addressing the source water quality issues with filtration and water treatment tools, Aqua is also implementing an aggressive water quality operational plan to ensure that water quality is addressed pending the completion of requisite capital improvements. This plan includes scheduled system flushing and a tank-cleaning program.

Water quality complaints often also result from, among other things, unplanned water main breaks, unexpected equipment malfunction, and activities that may disturb the directional flow of water in a distribution system when implementing capital projects or making other repairs. While Aqua provides advance notification for scheduled flushing activities through its WaterSmart Alert program, certain system repairs are performed on an emergency basis and pre-notification of potential water quality impacts is not always possible.

It should be noted that home (or point of use) filters installed by customers can offer additional filtration of minerals that may be found in water. Whole house filters (e.g., ion exchange, granular activated carbon ("GAC"), reverse osmosis ("RO"), and cartridge filters) will remove certain minerals and chemicals from the water entering the home. The United States Environmental Protection Agency ("EPA") and Center for Disease Control ("CDC") have a series of guidance documents which address whole home filter systems and provide guidance on the selection and consumer use and expectations of these systems. The EPA recommends that filters be certified by the American Water Quality Association ("AWQA"), National Science Foundation ("NSF"), Underwriters Laboratories ("UL") or American National Standards Institute ("ANSI"). The EPA and CDC also state that consumers should have their water tested and that they should contact their drinking water system regarding the supply's quality prior to selecting and installing a home filtration system. In the absence of sampling and/or water

quality data, filter systems may not perform as expected and can cause damage to interior plumbing. The EPA and CDC advise consumers that the selection of filters should be based on the specific contaminants of concern, as the micron size of the filter is designed based on the contaminant. Most filters are designed to remove bacteria or protozoa and the micron size is exceptionally small to be effective in removal of microscopic matter. Utilizing smaller micron pores to remove larger particulates, such as iron and manganese, will result in the consumer having to replace the filter more frequently as it was not designed for that use. Aqua encourages its customers to utilize the CDC and EPA guidance documents when selecting a filter and does provide customers water quality data through its annual Water Quality Report and upon customer request.

3. Customer Communications

   a. Service Pressure Advisory ("SPA") – An SPA is commonly issued via Aqua's WaterSmart Alert notification process when there is a drop in pressure within a water system that results from a source, electrical outage, or distribution system issue. The SPA is issued by Aqua as a precautionary measure to affected customers within a system when there may be potential for bacteriological contamination resulting from reduced water flow (e.g., main break or well failure). Although not required, an SPA recommends that consumers boil their water for one to two minutes as a precautionary measure. Aqua's standard operating procedure for issuing an SPA requires

that once system repairs are complete, Aqua will disinfect the system and take a bacteriological sample that is submitted to an approved laboratory for analysis, which typically takes 24-48 hours to receive results. If sample results are absent bacteria, the customers are notified that the SPA is lifted via a separately issued WaterSmart Alert.

b. Boil Water Advisories ("BWAs") – A BWA is a required EPA and DEQ notification that is issued via Aqua's WaterSmart Alert notification process as a result of certain contaminants or contaminant levels being detected during sampling of a water system; a BWA is not common. BWA's are only issued to customers within a system who should boil their water before use. All customers within an interconnected system (e.g., Bayleaf) will receive an advisory for any single event, as well as a notice "lifting" the requirement via Aqua's WaterSmart Alert notification process (if they have subscribed), once test results show the contamination is no longer an issue.

c. Legal Compliance Regarding Notice – In a rate case, the Public Notice to customers is prescribed by the requirements of statute and is issued by the Commission, based upon the input of Aqua and the Public Staff. It is a joint effort to provide specific information to all customers about current and proposed rates. Rate notices are sent to the billing addresses of each and every customer located within a system for which a rate case is filed.

d. Communication Improvements – The Company has created a website dedicated to providing information related to the issue of iron and manganese. The website can be found at www.NCWaterQuality.com. This website is meant to serve as an educational resource for better understanding of the issues of iron and manganese for customers, community leaders and other key stakeholders. Customers can sign up for direct email updates. In addition, customers can ask direct questions about their system and better understand the process for receiving approval for the installation of additional filtration treatment, which is documented in the Company's Water Quality Plan.

With respect to call handling, when a customer contacts the call center, the telephone number from which they are calling along with the last seven digits of their account number links to the customer's record on the service representative's monitor. This provides immediate access to the customer's address, service area, and prior service orders. The customer service representative often knows the customer's address prior to the caller providing their address. If this information is unknown, the customer enters their zip code and is transferred to a call center representative. The customer service representative also has knowledge of the system notices which have been issued for those respective addresses.

Aqua's call system previously provided additional interactive voice response ("IVR") functionality related to service outages based on caller-entered zip code information. When a zip code was entered, the automated response could indicate that a general service issue existed for an entered zip code; however, zip codes have large populations and have multiple subdivisions within them. This may result in customers being misinformed or confused about specific issues in their area. Aqua reviewed this issue internally and eliminated this functionality, effective July 11, 2018. This will reduce customer confusion and improve their call experience.

Beginning in the second quarter of 2018, Aqua implemented a new customer service initiative designed to provide an opportunity for customers to have a personal contact after certain types of Field Operator visits to a customer's home. In addition to leaving door tags, field operators now contact customers after every service leak or discolored water work order they complete to inform the customer of the status of their work and answer questions. Aqua believes this is an important step in improving customer service and provides valuable feedback. Often times, a customer may not know that a Field Operator visited a customer's house because a door tag might not be visible or a customer might not understand the work performed. This follow-up call, along with another made to these same customers the following week, helps close the loop with

customers and better understand whether the customer's issue was resolved.

4. Investment in Replacing Aging Infrastructure – As documented by the EPA and the American Water Works Association ("AWWA"), significant investment is needed throughout North Carolina—more than $20 billion—to replace aging water and wastewater infrastructure, including drinking water pipes, wastewater collection pipes, and wastewater treatment facilities.[2] Aqua has invested approximately $94 million in capital spend in North Carolina since the Company's last rate case in 2014.

5. Rate Comparisons – Any attempt to make meaningful comparisons between statewide average costs for all water and wastewater service providers and the costs of a provider like Aqua likely results in an "apples to oranges" assessment. The core distinction is found in the concept of "economies of scale." The cost of serving an individual customer in an urban area is typically less than one located in a rural area. Urban consumers may be served water from a large surface water impoundment or river or have their wastewater treated in large central treatment facilities. Governmental entities tax their citizens, and they are often not required to utilize "cost-of-service" ratemaking principles, as are the public utilities

[2] See, http://portal.ncdenr.org/c/document_library/get_file?uuid=df1eeeae-d14b-455d-9ad4-73b5d635f057&groupId=14655572. See also, "Buried No Longer," American Water Works Association (AWWA) - http://www.awwa.org/Portals/0/files/legreg/documents/BuriedNoLonger.pdf; Drinking Water Needs Assessment, U.S. Environmental Protection Agency - https://www.epa.gov/sites/production/files/2015-07/documents/epa816r13006.pdf; and Wastewater Needs Assessment, U.S. Environmental Protection Agency - https://www.epa.gov/cwns/clean-watersheds-needs-survey-cwns-2012-report-and-data.

regulated by the Commission under Chapter 62 of the General Statutes. Contrast this to the areas served by Aqua and others like it: often rural, far less densely populated, and frequently served by smaller community water or wastewater treatment plants and by hundreds of wells, drawing water up from rock and dispersed across the state. The difference in cost attributes are obvious and should inform any conversation about comparisons in respective average costs.

6. General Comments - Aqua appreciates and takes seriously this opportunity to respond to the comments and concerns expressed by the Company's customers at all of the public hearings. While customers may not see visible signs of any improvements or repairs being made to their water and wastewater systems, Aqua notes that investments made by the Company in its water and wastewater utility systems throughout the state of North Carolina are not always obvious to customers, given the nature of some of the work. Additionally, should there be a need for major investment for upgrades or repairs—as there will inevitably be for every system—Aqua has an obligation arising from its status as a regulated public utility to make necessary capital investments to ensure that consumers receive reliable and adequate utility service.

AQUA'S RESPONSES TO SPECIFIC CUSTOMER TESTIMONY

A. Bayleaf

Eleven of the nineteen customers who testified represent communities served by the Bayleaf master system. Most of those customers focused on water quality, reliability and customer service concerns.

With respect to Bayleaf water quality and system reliability, it should be noted that Bayleaf is a large water system made up of 121 wells serving approximately 6,200 homes located in 94 interconnected communities. This interconnection of wells provides redundancy and helps to ensure that water quantity is sufficient throughout the system. However, each well has a different yield capacity and variable water quality, which affects customers differently depending on their physical location and proximity to certain wells. Aqua uses several techniques to improve the water quality and aesthetics of the water from these variable sources. These techniques include removal of the minerals prior to distribution through oxidation and filtration, sequestration of the minerals in their soluble form through the use of phosphates, tank cleaning, and the periodic flushing of distribution systems.

Aqua has invested approximately $2,200,000 on the installation of four greensand filters in the Bayleaf system since 2015, and one more is expected to be complete by the end of 2018 at a cost of approximately $385,000. Additional well filter installations for the Bayleaf master system are included in Aqua's Water Quality Plan, with at least five additional filters planned for installation by the end

of 2019, subject to review by the Public Staff and approval by the Commission, and at an estimated cost of $1,600,000.

Aqua is currently updating a hydraulic model of the interconnected Bayleaf water system and considering the water quality of the individual wells to determine the most prudent option to improve water quality and aesthetics. Wells with poor quality and poor production may be used sparingly---only during times of extreme drought. Aqua is also investigating opportunities to develop additional larger capacity wells where oxidation and filtration treatment is more feasible. In the near term, Aqua will remind customers to contact the Company in a timely manner regarding water quality issues, and Aqua will ensure that this information is provided to its operations and engineering staff to determine the best short-term correction and long-term solution.

1. Becky Daniel – 505 Brittany Bay, Raleigh, NC 27614, Coachman's Trail Subdivision, *Tr. Vol. 3, pp. 28-51.*

Ms. Daniel has been an Aqua water and wastewater customer since May 2006. She brought forward three key concerns: reliability, customer service, and wasted water, which were summarized and presented as "Daniel Public Hearing Exhibit 1".

Aqua's Response: Ms. Daniel states she experienced brown water seven times at her residence between June 20, 2017 and November 6, 2017. Upon follow-up inquiry by Commissioner Patterson, Ms. Daniel indicated that she had

not experienced water quality issues at her house since November 6, 2017 *(Tr. Vol. 3, pp. 48)*.

Aqua reviewed its records to research and better understand Ms. Daniel's complaints. Two of these brown water experiences were the result of flushing the distribution system in her area. With respect to the September 12, 2017 flushing campaign, Ms. Daniel states that flushing began at approximately 7:30 a.m. She testified that Aqua's notice states that the flush period is between 8:30 a.m. and 4:30 p.m.; however, the standard notice that is issued prior to all scheduled flushes states flushing will occur between the hours of 8:00 a.m. and 4:30 p.m. *(Daniel Attachment A, pages one through four)* Although Aqua is unable to confirm the start time of the flushing activities each day of the five-day period Ms. Daniel's community was being flushed, it is possible that Aqua personnel arrived early to start flushing prior to 8:00 a.m. In the future, Aqua will ensure that its staff does not begin scheduled flushing outside of the announced timeframes.

The second reference to brown water was for November 6, 2017, when the discoloration appeared at 6:30 p.m., after the 4:30 p.m. end of a scheduled system flushing event. When Aqua flushes lines, changes in system operating pressure are intended to dislodge particulates in the water mains. During flushing, system pressures fluctuate within the customers' service lines, freeing particulates in their lines. In Aqua's notice of flushing, we suggest that customers flush their water lines by running the outside spigot for a few minutes to help purge any sediment from entering their household plumbing. Per Ms. Daniel's detailed description, after flushing the outside spigot, the water "cleared up".

With respect to the other brown water complaints:

- June 20, 2017 – There was an operational issue with the recycle bag filter located at Coachman's Well #4. Once it was corrected, the surrounding distribution system was flushed for several days to clear the system of sediment.
- August 7, 2017 – The Coachman's Trail #4 well and greensand filtering system were checked and found to be operating correctly. Another well in the Bayleaf system, Chatsworth Well #7, had to be shut down for repairs. It is believed that the shutdown resulted in a change in water pressures and flow direction in the distribution system and suspended particulates in the distribution system, thus causing water discoloration.
- September 1, 2017 – Customer contacted Aqua at 7:30 a.m. and by 10:45 a.m. an Aqua field technician was on-site. He discussed the meter change-out, the potential for flow reversal in distribution systems, and the increased use of phosphate in the distribution system. Prior to the technician's arrival, the customer flushed the water from the distribution system and the water ran clear. Ms. Daniel's detailed discussion expresses concerns that the technician stated flushing would be biennial, meaning every two years. It is possible that the technician actually said "biannual"- which means twice per year, or that the technician misspoke. Aqua

initiated biannual flushing (two times per year) in 2017 and intends to continue this frequency until it is deemed unnecessary to do so.

- October 1, 2017 (Sunday) and October 8, 2017 (Sunday) – Ms. Daniel states there was light brown water on these dates which she was able to clear with spigot flushing. She states she contacted Aqua and received an automated response.

Additionally, on October 10, 2017, Ms. Daniel, as a parent of a Brassfield Elementary School student, was notified by the school system that the school was working with Aqua concerning brown water issues. Aqua was contacted by Brassfield Elementary School staff and the issue was investigated by Aqua field personnel. The water was found to be clear. Brassfield Elementary School elected to use bottled water until investigation by Aqua was completed.

Regarding Ms. Daniel's concern related to receiving an SPA erroneously, Aqua staff did make a SCADA ("Supervisory Control and Data Acquisition") dispatch error on July 9, 2017, as an SPA was issued to the entire Bayleaf master system. Instead, the SPA should have been issued for the smaller Hunter's Landing Subdivision within the Bayleaf master system, which was valved off during a water line repair. The error was quickly identified and corrected within several hours by issuing a lift to the Bayleaf customers and reissuing the SPA to only the Hunter's Landing customers.

Ms. Daniel's last concern was wasted water due to a water meter leak on Aqua's side of the meter. The water meter leak was a small leak that was not affecting water pressure nor water quality. It is not Aqua's intent to waste water;

however, Aqua does prioritize corrective maintenance based on the severity of the problem.

Aqua installed a $1.2 million filtration treatment system on Coachman's well #4 in 2016. Coachman's well #4 is the single largest well site serving the Bayleaf master system at 600 gallons per minute. This well was intermittently utilized during the process prove-in period, during which time Aqua experienced various operational issues that caused water quality concerns in the area. We apologize for the impact to water quality caused by various operational challenges related to the prove-in of this filtration system. Since the fall of 2017, the treatment system has operated well.

Most of the specific concerns highlighted within Ms. Daniel's testimony above were previously responded to in the attached letters sent to her in response to her concerns. *(Daniel Attachment B, pages one through eight)*

Ms. Daniel offered several recommendations to the Commission, including determining the root cause of the Bayleaf system issues, requiring bi-monthly quality reports, and requiring additional information about service. The root cause of the water quality issue is the source groundwater; Aqua files required reports with the DEQ concerning water quality; and Aqua currently provides a communication system with website, phone, email and text notification of system outages.

Upon conclusion of the hearing, Ms. Amanda Owens, Manager of Environmental Compliance, briefly spoke with Ms. Daniel regarding water quality. Ms. Owens stated she appreciated Ms. Daniel's testimony and requested she

contact her to discuss her concerns further. Ms. Owens provided Ms. Daniel her business card, including direct contact information, for future correspondence. Additionally, Mr. Becker contacted and spoke at length with Ms. Daniel about her concerns and potential improvements that may be made related to water quality and customer relations. Ms. Daniel agreed to participate in a future focus group held with Aqua to gather customer input and provide feedback on potential improvements.

2. Reece Dillard – 11304 Coachman's Way, Raleigh NC 27614, Coachman's Trail Subdivision, *Tr. Vol. 3, pp. 61-68.*

Mr. Dillard states he has been a resident since 1988. He called Aqua on May 28, 2018 when he experienced low water pressure. An automated message stated there was a problem in the area. The next day, Mr. Dillard called and received the same message. On the third day, Mr. Dillard called again and received an automated message indicating there was not a service issue in his area (zip code); however, he was still experiencing low water pressure. Upon investigating, he discovered a leak near the meter box and turned the service line off, at which time he contacted Aqua and spoke to a Customer Service Representative. Aqua sent field staff to repair the leak, but Mr. Dillard did not immediately receive a leak credit for the event. Mr. Dillard states Aqua needs a better phone notification system. He also indicates that he has experienced brown water outside of flushing periods, that maintenance of Aqua's system is poor, and

that the well site has not been mowed this year. Mr. Dillard believes Aqua wells are draining down the water table in the area.

Aqua's Response: Aqua has addressed the automated-message concern in the Company's general response.

On May 30, 2018, a service order was issued to investigate low water pressure. A leak was verified at the meter located adjacent to the meter box and on the customer side. The meter contractor repaired the leak and a credit was issued. At the time of Mr. Dillard's testimony, he had not yet seen a credit applied to his bill; this credit is expected to be shown in Mr. Dillard's next bill.

With respect to discolored water and maintenance concerns, Mr. Dillard's residence is located in the Coachman's Trail community and is impacted by similar issues addressed in the response to Ms. Daniel's testimony above.

With respect to maintenance, preventative and corrective maintenance are completed on a continuing basis on Aqua's water systems, including maintaining the well, treatment and distribution systems, as well as regular mowing of Aqua's well lots. With respect to mowing well lot #4, it was last mowed on June 13, 2018, prior to the Raleigh customer hearing, and is typically mowed eight times per year.

Last, with respect to Aqua drawing down the water table, the water table aquifer is utilized by multiple users including but not limited to Aqua, private homeowners' wells, and private golf course irrigation wells. During periods of drought, more shallow wells are at greater risk of impact than deeper wells. In the Bayleaf area, Aqua utilizes a network of 121 interconnected wells to minimize and reduce the risk of water outages during periods of heavy use and drought.

Management staff contacted Mr. Dillard and discussed his concerns, which were primarily issues with his water leak at the meter and the application of the credit that was agreed to be provided. We confirmed that the credit is pending and will appear on his next water bill in July.

3. Melissa Mitchell – 11512 Hardwick Court, Raleigh NC 27613, Coachman's Trail Subdivision, *Tr. Vol. 3, pp. 79-83.*

Ms. Mitchell has been a resident since 1984 and is an Aqua water customer. In November 2017, she contacted Aqua customer service concerning brown water and that the Aqua representative recommended that she open her outside tap to clear the brown water from the line. She declined to do so, because she would have to get her hose out and because it was a waste of water. Ms. Mitchell indicated she was told to ship her stained comforter to Kansas for testing to confirm her claim. She additionally claims that her appliances are being damaged and wants to know whether the Water Quality Plan is for three, five or seven years. She expressed frustration with being told to flush and of leaks that persist for weeks and complains of roads not repaired or properly maintained after leaks are repaired.

Aqua's Response: On November 24, 2017, an Aqua field service representative went to the home in response to a customer call. From an outside faucet, the water was tested prior to flushing and was found to have an elevated iron concentration, which cleared after the technician flushed for ten minutes.

Aqua believes there may have been a misunderstanding in the communication about the comforter, as Aqua does not have a claims office or support located in Kansas. Damaged items for which a customer seeks recovery are typically requested to be sent to the Cary, NC office for assessment.

Though customers have been informed by Aqua that the first phase of the Water Quality Plan will take up to seven years, the highest priority well sites with the highest mineral loads are expected to be addressed earlier.

With respect to Ms. Mitchell's concern regarding the frequency of flushing, the Bayleaf system is currently scheduled for semi-annual flushing as a proactive measure to reduce sediments that may have built up in the distribution system.

With respect to repairing water leaks, Aqua ensures that any necessary excavation to make a line repair is only completed after other utility lines (e.g., gas, electric, telecom) locations have been requested and the applicable utility has been given time to mark their locations to reduce the risk of damaging lines. If a leak is small and does not significantly alter system pressure, it is not considered an emergency and repairs are not completed until the three-day utility locate notice (NC811) is provided to the other utilities. With respect to roadway repairs, Aqua has not received any complaints regarding roadway repairs in this community. The roads in this area are older and in need of general resurfacing. Based on our observation of road markings in this area, the North Carolina Department of Transportation ("DOT") is preparing to resurface these roads.

Ms. Amanda Owens, Manager of Environmental Compliance, contacted Ms. Mitchell to discuss her water quality concerns. Ms. Owens provided

information on the necessity and regulatory requirements that prompt flushing campaigns, provided clarification on the time frame for greensand filter installation, discussed resources (mentioned above) on home house filters, and discussed measures Aqua can take to improve communication within the Bayleaf community. Ms. Mitchell stated she appreciated the call. Upon further follow-up discussion with Ms. Mitchell regarding Ms. Mitchell's claim, she stated that "Rust Out" had removed the stains on her comforter and that an Aqua technician provided her with a replacement bottle of "Rust Out"; therefore, she did not have to file a claim.

4. Shannon Brien – 11800 Edgewater Court, Raleigh NC 27614, Coachman's Trail Subdivision, *Tr. Vol. 3, pp. 99-101.*

Ms. Brien, a water customer, states she moved into this residence in July 2015 and that she is a realtor and a state political coordinator for the NC Realtors Political Action Committee ("PAC"). She stated that, when showing homes, she must explain to clients the situation with groundwater serving Aqua customers. She also indicated that every home she has sold had a filter system installed or needed one.

Aqua's Response: Ms. Amanda Owens, Manager of Environmental Compliance, attempted to contact Ms. Brien in early July but has been unable to connect as of the date of this report. Ms. Owens left her contact information on voicemail so Ms. Brien can contact her to discuss specific water quality concerns.

5. Jack Robinson – 213 Carriage Trail, Raleigh NC 27614, Coachman's Trail Subdivision, *Tr. Vol. 3, pp. 152-157.*

A water customer, Mr. Robinson states that iron and manganese are considered an aesthetic issue and not regulated by statute or rule. He asked the Commission to deny Aqua the requested rate increase unless a surety bond is put in place to ensure that Aqua mitigates the problem. Mr. Robinson stated that Aqua's 2016 annual report indicated it was investing $1.2 billion for infrastructure rehabilitation in 2017 – 2019, and of this amount, the Bayleaf water system only received digital meters.

Aqua's Response: Aqua has been working on water quality issues in the Bayleaf system for many years. As noted in Aqua's General Response, over the last several years Aqua has installed four greensand filters in the Bayleaf system, in which it has invested approximately $2,200,000 with another filter under construction and expected to be completed in 2018 at an estimated cost of $385,000. Additional well filter installations for the Bayleaf system are included in Aqua's Water Quality Plan, with five more filters planned to be installed by the end of 2019, subject to concurrence by the Public Staff and approval by the Commission, at an estimated cost of $1,600,000. Since the last rate case, Aqua spent in excess of $6,000,000 in capital repairs and improvements related to filters, pumps, tanks, electrical and SCADA equipment needed to run the 121 wells serving Bayleaf as well as the 140 miles of water mains that make up its distribution system.

Management staff contacted Mr. Robinson and he appreciated the contact by Aqua. The discussion addressed facility maintenance and the use of phosphates (e.g., SeaQuest®) as an approved and widely-accepted form of effective water treatment. Additionally, Mr. Robinson was informed that the water meter replacement program did not cause delays in implementing the Water Quality Plan.

6. Richard Vitale – 10301 Boxelder Drive, Raleigh NC 27613, Wood Valley Subdivision, *Tr. Vol. 3, pp. 51-56.*

A water and wastewater customer of Aqua, Mr. Vitale characterizes Aqua as mismanaged, complains of damaged fixtures and stains, prefers consumption-based wastewater billing, and asserts there have been no service improvements in his area. Mr. Grantmyre asked him if anyone has advised him to use citric acid to clean stains and he said they had not.

Aqua's Response: Aqua has no records of comments or damage claims from Mr. Vitale directly to Aqua. In addition to the continuous capital investments Aqua has made to improve its service levels and the development of its Water Quality Plan, Aqua has increased the number of field staff and supervisors since 2016 to optimize operations.

Management staff tried to reach Mr. Vitale by phone to discuss his concerns but were unsuccessful. A voicemail with direct contact information was provided.

7. Mark Sullivan – 208 Emerywood Drive, Raleigh NC 27615, Stonebridge Subdivision, *Tr. Vol. 3, pp. 102-105.*

A water customer, Mr. Sullivan states there are two problems: muddy water and communication. He states that Aqua needs satisfactory performance under the present rate structure before a decision is made on an increase in rates. Around Thanksgiving 2016, he had brown water and was told this was caused by "adding too much of a cleanser purifier" in the water.

Aqua's Response: In late-fall of 2016, Aqua began to utilize SeaQuest® for the Stonebridge water system and a period of brown water ensued prior to the system flushing in January 2017. With respect to communication, Aqua records indicate a call from Mr. Sullivan on May 30, 2017 regarding water quality. In response to this call, an Aqua field service representative responded and verified that iron and manganese concentrations were both elevated at the residence. The field service representative explained to the customer that there was a temporary operational issue with a greensand filter in that area.

Since the time of his testimony, management staff has attempted to reach Mr. Sullivan to discuss his concerns. Aqua left a voicemail but has been unable to connect as of the date of this report.

8. Kristina Heinz – 501 Emerywood Drive, Raleigh NC 27615, Stonebridge Subdivision, *Tr. Vol. 3, pp. 111-15.*

Ms. Heinz, a water customer, states that she moved into the neighborhood in September 2014 and that she began experiencing intermittent cloudy or brown

water as well as inaccurate notifications since November 2014, with a poor response from Aqua. She states that she experienced brown water for about six weeks in the summer of 2016 and was told the water was safe to drink. Ms. Heinz noted that she had the water tested and the iron concentration was 7.5 parts per million. She states she filed a complaint with the NCUC in September 2016, after which her problem was resolved.

Aqua's Response: With respect to the September, 2016 complaint to the NCUC, a review of Aqua's records indicated an initial call from Ms. Heinz on August 1, 2016, when the customer reported aerated water and orange sediment in the residence. An Aqua field service representative was dispatched, spoke with the customer and explained that due to high water usage, the wells were operating with extended run times and aeration was occurring. This aeration scours the distribution pipes and dislodges sediment in addition to creating a temporary "milky" color until the air bubbles settle. A second call from this customer was received on August 19, 2016, reporting black sediment in the water. An Aqua field supervisor spoke with Mrs. Heinz on September 1, 2016, to address her concerns.

There are 121 wells which supply water to the Bayleaf master water system. Aqua is currently updating a hydraulic model for this water system. It will be used to determine those areas in the distribution system at the most risk for secondary water quality complaints and will evaluate operational options to reduce those risks.

Aqua has no records of calls from Ms. Heinz made after the resolution of her 2016 complaint.

Ms. Amanda Owens, Manager of Environmental Compliance, attempted to contact Ms. Heinz in early and mid-July to discuss her water quality concerns, but has been unable to make connect as of the date of this report. Ms. Owens left a message with her direct contact information for Ms. Heinz to call her to discuss her water quality concerns.

9. Susan Holmes – 405 Tharps Lane, Raleigh NC 27614, Swan's Mill Subdivision, *Tr. Vol. 3, pp. 105-111.*

A water customer of Aqua, Ms. Holmes moved to this residence in 2002 and has experienced occasional brown water. She installed a filter system from Home Depot in February 2018 and was told that the filter cartridges should last three months; however, she noticed that within 11 days the filter had significant build-up of a black greasy substance. An Aqua technician evaluated her water and reported to her that the iron and manganese levels were high. She asserted that before Aqua increases its rates, the Company needs to increase its water quality.

Aqua's Response: On June 20, 2018, an Aqua supervisor spoke with Ms. Holmes about the black material on the filter---manganese---and dispatched a technician that day. The technician flushed the water at the house using an outside faucet for approximately five minutes, after which time the water ran clear. As part of Aqua's Water Quality Plan and Bayleaf hydraulic modeling work, a recommendation will be made for either additional treatment systems or alternative operation to continue to improve water quality.

Mr. Joe Pearce, Aqua's Director of Operations, spoke with Ms. Holmes immediately following the customer hearing and has corresponded with her several times since then. He has provided information regarding filtration, the water quality program, and Aqua's Bayleaf system modeling effort.

10. Peter Jogodka – 12413 Glenlivet Way, Raleigh NC 27613, Sussex Acres Subdivision, *Tr. Vol. 3, pp. 115-123.*

Mr. Jogodka, a water and wastewater customer for three years, indicated that his home is 15 years old, that his base water bill is over $100 per month, and that he has a home filter system due to the sludge sediment issues. He states that the local Aqua representatives are easy to deal with and are friendly, but that he has called Aqua for three months with no response. Mr. Jogodka states that he pressed an Aqua technician on site until the field technician provided him with local management contact information, which enables him to email when he has problems. He contends that Aqua's release of chemicals on the easement needed by Aqua to access its pump station next to his home is impairing the integrity of his driveway, and that he has complained about it since he moved in.

Lastly, Mr. Jogodka states he has observed water meters leaking after the meter replacement program.

Aqua's Response: After investigation, Aqua's response is:

- If a leak is discovered on a new or old meter, or persistent wetness around the meter box is observed, Aqua recommends

that a customer contact Aqua Customer Service so we can dispatch a technician to repair the leak as soon as possible.

- Mr. Jogodka and Mr. Roger Tupps, Aqua Supervisor in this area, had several email and phone conversations in attempts to properly and prudently resolve Mr. Jogodka's concerns about his driveway.
- Aqua sent a supervisor and an engineer to physically inspect the easement area for potential chemical contamination on February 21, 2017, noting areas of dead grass both on Mr. Jogodka's side of the road and across the road. Their determination was that Aqua had not spilled chemicals at this site.
- This easement is used weekly for wastewater pump station inspection and maintenance. Periodically, pump stations must be accessed by pump trucks to remove grease and rags from the pump station. Aqua maintains the easement and added gravel to the easement on June 11, 2018.
- Mr. Joe Pearce, PE, Director of Operations, recently visited the site and found the culvert under Mr. Jogodka's driveway was not being maintained. The culvert outlet was approximately sixty percent blocked by soil and the culvert itself had old basketballs lodged in it along with several rocks, which were noticed and several were removed by Mr. Pearce. Due to the blockage of water and the driveway's location at the downslope end of a

cul-de-sac, large volumes of storm water from the road ditch resultantly flow across these driveways and down Aqua's gravel easement road. Mr. Pearce saw minor cracks in the driveway but did not note any grade changes or subsidence. Mr. Pearce contacted Mr. Jogodka concerning the culvert, the driveway and the storm water runoff issue. To reduce the rate of erosion on the gravel drive, Mr. Pearce believes a concrete approach apron with drainage grate to direct storm water off the gravel drive may be necessary to prevent storm water undercutting of the concrete driveway. Mr. Pearce will return to the site during a rain event to review the runoff patterns and determine the method to stabilize the gravel drive to the pump station and help address Mr. Jogodka's related concerns. Mr. Pearce and Mr. Jogodka have discussed coordinating improvement efforts to ensure Mr. Jogodka's contractors and Aqua's contractors are not working in the same area at the same time.

11. Robert Strazis – 2816 Sunnystone Way, Raleigh, NC 27613, Barton Creek Bluffs Subdivision, Tr. Vol. 3, pp. 138-144.

Mr. Strazis, a water and wastewater customer since 2001, states that he began noticing a decline in water quality in 2014. He states that he has replaced his water heater and installed a filtration system. The original filter was a ten-inch filter which lasted three days, and now he has a twenty-inch filter with two filter

tanks and salt filters. He states the filters have "black stuff" on them, and that they smell horrible and have a greasy feeling. He refers to a letter received from Aqua stating there are no health effects from the discolored water (iron and manganese); however, he believes this is inaccurate as his wife was experiencing Parkinson's Disease-like symptoms and he was experiencing migraines. He stated that once they stopped drinking the water, they both improved. He also mentions that other neighbors have health issues.

Aqua's Response: Based on a review of Aqua's records, Mr. Strazis has contacted Aqua five times since December 2014 with discolored water complaints. The most recent call was on February 27, 2017.

The Bayleaf wells are being evaluated as part of the Water Quality Plan; additionally, an updated hydraulic model is being completed to determine the appropriate treatment and operational controls to ensure these secondary water quality issues are resolved.

Management staff have had several conversations with Mr. Strazis since the hearing. Field staff have also followed up on site, and these team members are working with him to resolve his concerns.

B. Non-Bayleaf Water Systems – Specific Responses to Customer Concerns

1. Michael Dowd – 5711 Sky Lane Drive, Durham NC 27704, Lake Ridge Aero Park Subdivision, *Tr. Vol. 3, pp. 123-129.*

Mr. Dowd, a water customer, states that he has resided in his home for less than a year and was representing the homeowners association for his community.

To address his sediment issues, he replaces his home filter about every three weeks, though the filter should last about three months. He additionally experiences brown water in the bathtub and three coffee pots have been damaged in less than a year due to a sludge-like substance. Mr. Dowd indicated that he had to replace the water heater, which was about 5 years old, noting the previous owners had not flushed it as it should have been. He also states that he had received Aqua's letter about upgrades at other systems and wanted to know when upgrades to a small system like Lake Ridge (30 homes) would be done.

Aqua's Response: On May 24, 2018, an Aqua Field Service Representative responded to a call from the Dowds and field tested the water quality at the residence, which resulted in an iron concentration of 0.43 mg/L and a manganese concentration of 0.0 mg/L. To reduce the concentration of iron in the distribution system piping, the system was flushed between June 4 and June 7, 2018. The Lake Ridge Aero Park system will be added to the Water Quality Plan monitoring schedule. Dependent upon the water quality data, treatment necessary to address the iron and manganese levels will be modified accordingly.

Ms. Amanda Owens, Manager of Environmental Compliance, spoke with Mr. Dowd by phone in early July to discuss his concerns. His primary issues are sedimentation in his appliances, home filtration system, and Aqua's future plans for his subdivision. Ms. Owens provided Mr. Dowd with information from the CDC and EPA on whole house filtration systems (see General Response). Mr. Dowd stated that he has been working with his HOA on a sub-committee regarding water quality. Ms. Owens stated if he needed additional information or would like Aqua

to be present at a future meeting to please contact her. Ms. Owens also provided information on Aqua's secondary Water Quality Plan, under which confirmation sampling has been scheduled for Lake Ridge Aero Park. Ms. Owens provided Mr. Dowd with her contact information and asked him to contact her if he had a question regarding water quality.

2. Ralph Sandle – 5621 Bella Terra Court, Wake Forest, NC 27587, Castelli Subdivision (water customer of Aqua), *Tr. Vol. 3, pp. 129-132.*

Mr. Sandle states that the water system was flushed two weeks ago (week of 6/11) and for the first time in ten years. He indicated that he experiences brown water and a chlorine odor. Mr. Sandle stated he now has serial filters at his home – a 5-micron filter followed by a 1-micron filter, with reverse osmosis for drinking water. He further states that Aqua's customer service is dismal, but that the field technicians are professional and pleasant although his emails to representatives for his area go without response. Mr. Sandle added that he recently learned that the Greycliff and Saddlebrook Ridge systems were inter-connected to their system.

Aqua's Response: Based on a review of Aqua's records, on February 21, 2017, Mr. Sandle called to state that he had brown water occurring at his house frequently. A field service representative visited the home and found the water was clear at the outside spigot. On January 26, 2018, Mr. Sandle reported a strong chlorine smell from his water. Chlorine is used in all of Aqua's water systems as a beneficial disinfectant. A field service representative came to the site, tested the chlorine and found the concentration to be 1.1 mg/L, which is well within

acceptable levels. Although we are unaware of the Aqua email address to which Mr. Sandle is sending his e-mails, Mr. Roger Tupps, an Aqua supervisor in this service area, has had both telephone and email conversations with Mr. Sandle.

Mr. Robert Krueger, the Central Area Manager, also contacted Mr. Sandle by phone. Mr. Sandle emphasized that his primary concern is communications when issues arise. Mr. Krueger, therefore, provided Mr. Sandle with his contact information for which he was appreciative.

3. Amy Bickers – 3225 Pontellier Court, Fuquay Varina, NC 27526, High Grove Subdivision, *Tr. Vol. 3, pp. 132-138.*

Ms. Bickers states that her water is sometimes black and smells like dirt, and she had pictures of toilet stains and discolored water in cups and sinks. She indicated that, before she purchased the home, a civil engineer stated that Aqua was awesome at installing wells but cannot maintain them. She also stated that Aqua should be subjected to a moratorium on wells installed until they can fix the issues they now have.

Aqua's Response: Based on a review of Aqua's records, the Company has no record of Ms. Bickers contacting Aqua directly regarding a water quality complaint. However, the High Grove subdivision has experienced water quality issues in the past. The High Grove subdivision has 148 customers and there have been eight water quality calls in the past year.

The High Grove system includes three wells. A cartridge filter was installed on Well #1 in the second quarter of 2018. Wells #2 and #3 are scheduled to

receive cartridge filters in the third quarter of 2018 to reduce the heightened manganese load from those wells. The High Grove subdivision is currently a part of Aqua's water quality monitoring program and will continue to be evaluated for water quality treatment needs.

Ms. Amanda Owens spoke with Ms. Bickers on July 16, 2018. Ms. Bickers provided additional information regarding her water quality and expressed concerns regarding chemical treatment. Ms. Owens explained that chemical treatment, specifically chlorine disinfection and phosphates, are regulatory requirements to eliminate pathogens or corrosion control for lead and copper, in addition to iron and manganese treatment. Ms. Owens discussed the Water Quality Plan and timing for filter installation. She provided Ms. Bickers with an update on the installation of the additional cartridge filters. Ms. Owens offered to attend a HOA meeting to discuss her community's water quality issues and provided Ms. Bickers her direct contact information for future communication on the cartridge filters and any other concerns. Ms. Bickers stated that she appreciated the call and would remain in touch with Ms. Owens as needed.

4. Chris Jones - 7000 Electra Drive, Raleigh NC 27607, Medfield Subdivision, *Tr. Vol. 3, pp. 144-152.*

Mr. Jones, a water customer, states that he experiences consistent low water pressure, but that he had higher pressure when he lived two streets away in the same area. He additionally stated that bloodwork for his family shows high levels of iron and that, although he has never had orange or brown water, he

wished to provide a picture of his neighbor's water. He states that there are taste and odor issues associated with the water and that Aqua does not notify customers when there is an outage.

Aqua's Response: The Medfield subdivision has substantial changes in elevation. Customers in the subdivision do have varying water pressures depending upon their home's elevation. Aqua will place data logging pressure monitors on the system to confirm system pressures and address those areas that fall below 30 psi.

Aqua appreciates Mr. Jones' comment that he has not experienced brown or discolored water at this residence - the Medfield system does not have a history of elevated iron or manganese. Regarding the water's taste, the Company notes that it adds sodium hypochlorite to the well to reduce the risk of pathogenic organism growth in the water distribution system. Sodium hypochlorite does produce a faint chlorine odor, typically much less than a pool.

Regarding Mr. Jones' complaint about notice, Aqua maintains an emergency alert system called WaterSmart Alerts, which notifies customers of outages. The Company will attempt to confirm that it has Mr. Jones' correct contact information. Lastly, with respect to the claim that Aqua only provides reactive maintenance, the Company disagrees. Aqua spent approximately $2,600,000 over the last year to replace all of the water mains, services, and meters in the Medfield system and then flushed the system in November 2017. The system is monitored continuously via a Supervisory Control and Data Acquisition ("SCADA")

system and certified operators complete scheduled maintenance to ensure the system operates well.

Mr. Joe Pearce, Director of Operations, contacted Mr. Jones to discuss his concerns and better understand the pressure issues he notes he experiences. Mr. Jones agreed to participate in pressure monitoring at his home to determine the appropriate corrective measure, if any.

5. Debra Cook - 3634 East Cotton Gin Drive, Clayton, NC 27527, Cottonfield Village Subdivision, *Tr. Vol. 3, pp. 57-61.*

A water and wastewater customer, Ms. Cook states she is a retired school teacher and that she is opposed to the rate increase. She states that her water usage is very low, and that she would prefer metered wastewater rate.

Aqua's Response: Aqua appreciates the comments made by Ms. Cook, and would like to clarify that the proposed percentage water rate increases are averages calculated using the monthly water consumption for an average customer, which for Aqua's North Carolina consolidated customers is approximately 4,990 gallons per month and would result in an 8.1% increase. The Company is presenting the need for the rate increase with its case, which is predominately driven by infrastructure replacement. Regarding metered wastewater rates, this issue has been addressed by the Commission, which is supported by the Company. Wastewater service depends significantly on fixed costs. This, in addition to billing challenges and related costs, supports the continued use of a flat wastewater charge.

6. Darlene Kinsey – 1412 Upchurch Woods Drive, Raleigh NC 27603, Upchurch Place Subdivision, *Tr. Vol. 3, pp. 68-73.*

Ms. Kinsey, a water customer of Aqua, represents the Home Owners Association and has been in communication with Aqua for about five years. She states that they have a brown/black water issue. Aqua drained and cleaned the system's tank about three years ago, after which air in the water lines was so bad that it vibrated the pipes on one occasion. The problem was fixed within three days. Ms. Kinsey states that she sent a petition to Aqua about a month ago concerning water quality and requested a response, which she had not yet received. She further stated that cartridge filters have been installed within the last year and are changed by Aqua every Thursday by "Steve", who she has been told is fantastic. Unfortunately, her community is continuing to receive poor, discolored water.

Ms. Kinsey stated that she was unaware that Aqua and the Public Staff had been unable to come to an agreement as of yet in their discussions about installation of a greensand filter in her system.

Aqua's Response: Ms. Kinsey's community has groundwater that experiences high levels of iron and manganese. In 2015, Aqua installed a temporary water storage vessel and cleaned the inside of the system's hydropneumatic tank, which is on a 5-year cleaning schedule. With respect to the air issue, in August 2016, an air compressor at the well malfunctioned, introducing air into the distribution system and causing a surge of discolored water. The water

lines in the area were flushed to clear the lines. On May 21, 2018, Aqua received a letter from Ms. Kinsey to which Aqua responded on June 20, 2018. Ms. Kinsey had likely not received the letter at the time of the hearing as it may have been in route via US mail. The main points of the letter are that on September 4, 2015, Aqua requested approval from the Commission to install a greensand filter for the Upchurch Place Subdivision, which was not recommended by the Public Staff for approval at that time. Aqua took Public Staff recommended steps to improve water quality, including cleaning the hydropneumatic tank, adding a sequestering agent, and flushing the distribution system regularly. Aqua continued to request approval of the greensand filter and has collected more than 150 iron and manganese data points on this water system since August 2015 to support the request. At the conclusion of the hearing, Mr. Joe Pearce, Aqua's Director of Operations, discussed the status of Aqua's request for a greensand filter with Ms. Kinsey and indicated that he will continue to keep her informed of the status of the request.

On June 26, 2018, the Public Staff responded to several submitted iron and manganese filtration project requests by email to Ms. Amanda Owens, Aqua's Environmental Compliance Manager, including a specific request for additional information related to the Upchurch Place request. Aqua responded to this additional request and on July 10, 2018, the Public Staff informed Aqua that it would recommend approval of the greensand filter for this water system, which is now in process of being submitted to the NCUC for final approval. Ms. Kinsey was informed of the progress and was pleased.

7. Patricia Fleming – 7308 New Forest Lane, Wake Forest NC 27587, Waterfall Plantation Subdivision, Tr. Vol. 3, pp. 73-78.

Ms. Fleming, a water customer since 2001, states that she appeared at the last rate hearing. She notes that there are two filtration systems on their water system with one most recently installed at Well #5 in 2016. She states they had good water for a while; however, in the fall of 2017 they started having a number of brown water complaints throughout the neighborhood. Ms. Fleming stated she had been told by an Aqua technician that the reason for the discolored water was due to mismanagement of the system. Ms. Fleming then reviewed a recent survey she had completed by some residents of the subdivision.

Aqua's Response: There are three wells in the Waterfall Plantation system. The water from two of these wells are treated with greensand filtration. After the installation of the filtration system in 2016, significantly improved water quality was noted in this subdivision. In 2017, Aqua experienced multiple operational issues with the greensand filter and water quality suffered. Aqua resolved the operational issues and the distribution system was flushed in January 2018. Water quality has since returned to its improved status and Aqua expects Waterfall Plantation's improved water quality to continue for the foreseeable future.

Management staff contacted Ms. Fleming by phone and left a voicemail. Ms. Fleming contacted staff and left a voicemail stating she would contact others in the neighborhood to determine if there were any current problems.

8. Don Hess – 6200 Trevor Court, Raleigh NC 27613, Saddleridge Subdivision, *Tr. Vol. 3, pp. 84-98.*

Mr. Hess stated that the water tank in his community was "ratty" looking, and that Aqua's staff did what they could for the tank but was limited based on financial constraints. Mr. Hess states that iron does not just come and go. After discussions with field techs, he was told several reasons it occurs, including: high-pressure cleaning, iron and manganese, and SeaQuest®. He notes that SeaQuest® is the source of a problem and is concerned that it creates trihalomethanes (THMs). Mr. Hess contacted a member of the Public Staff to discuss SeaQuest®, to which he was told it was a "good substance". Mr. Hess also indicated that he was disappointed that Aqua would not provide a one-week notice before flushing occurred. He explained that he only drinks bottled water.

Aqua's Response: With respect to the reference to the condition of the tank, the Company reviewed its records and confirmed that the outside of the tank in question was cleaned by Aqua in 2015.

With respect to iron "just going away" and the reasoning for the discolored water, the concentration and visibility of the iron within the water system can vary based on both source water quality and operational conditions. Flushing will temporarily stir iron, and other sediments, in water lines causing temporary and episodic discoloration.

With respect to THMs, testing is completed as required for many water system contaminants including total trihalomethanes (TTHMs); TTHMs have not been above regulatory standards in this water system.

As mentioned in the General Comments section of this report, customers are typically notified of flushing events in their area in advance of the scheduled activity.

Ms. Amanda Owens, Manager of Environmental Compliance, followed up with Mr. Hess in early July. Mr. Hess's primary concerns during their conversation were Aqua's flushing notifications and water quality. Mr. Hess provided some suggestions regarding notifications, which Ms. Owens provided to operations. Aqua will review its flushing notice processes to include Mr. Hess' input to determine what improvements to the messaging and timing of the notices can be made.

Ms. Owens also shared information regarding the Water Quality Plan. Ms. Owens provided Mr. Hess with her direct contact information in case of future questions on water quality.

CONCLUSION

In the 2013-2014 rate case, a total of 25 customers testified in two Raleigh hearings. They represented 21 communities in the area. In this case, a total of 19 customers testified, representing 14 communities in the area. Only three of the 21 communities represented in the 2013 hearings made an appearance at this one. Aqua takes the number of complaints seriously and is committed to customer satisfaction. It is worth noting that much work has been done to address water quality issues and continues at an accelerated pace, driven and supported by Aqua's Water Quality Plan. Aqua has installed more than 80 filters in Aqua's central operational region since the last rate case at a capital investment of

approximately $10,000,000. Addressing all the water quality issues in this heavily populated, iron and manganese-challenged area will take time and is costly, but measurable progress is being made.

Respectfully submitted, this the 20th day of July 2018.

SANFORD LAW OFFICE PLLC

Electronically Submitted

/s/Jo Anne Sanford
State Bar No. 6831
Post Office Box 28085
Raleigh, North Carolina 27611
T: 919-210-4900
E-mail: sanford@sanfordlawoffice.com

/s/Robert H. Bennink, Jr.
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T: 919-760-3185
E-mail: BenninkLawOffice@aol.com

ATTORNEYS FOR AQUA NORTH CAROLINA, INC.

VERIFICATION

Shannon V. Becker, being duly sworn, deposes and says:

That he is the President of Aqua North Carolina, Inc.; that he is familiar with the facts set out in this **REPORT ON CUSTOMER COMMENTS FROM THE PUBLIC HEARING HELD IN RALEIGH, NORTH CAROLINA ON JUNE 25, 2018**, filed in Docket No. W-218, Sub 497; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

Shannon V. Becker

Sworn to and subscribed before me this

the 20th day of July 2018.

Robyn E. Lambeth
Notary Public

ROBYN E. LAMBETH NOTARY PUBLIC WAKE COUNTY, NC

My commission expires: May 13, 2021

NOTICE OF FLUSHING OF THE COMMUNITY'S WATER SYSTEM
Bayleaf Master – NC0392373

Phone

This is an important message from Aqua North Carolina for customers in the Sutton Estates, Henley, Baytree, Cross Gate, Timberline North, Coachman's Trail, Cobblecreek, and Trotter's Ridge water system.

Beginning Monday September 11th and ending Friday, September 15th between the hours of 8:00 a.m. and 4:30 pm, Aqua will flush the distribution system in your community. Flushing washes away naturally occurring minerals that might have deposited on the insides of pipes over time. The natural minerals are not unsafe but they can cause water to be discolored.

Because flushing could temporarily cause discolored water as it cleans out the pipes, we recommend that customers store sufficient water for personal use before flushing begins. Please do not do laundry during the flushing period since the minerals could cause staining especially on light colored items. You will experience low pressure and a short water outage during the flushing time frame.

After we flush the system we recommend that you consider removing and cleaning the aerators on your faucets. We also suggest that you flush your water line by running the outside spigot for a few minutes to help purge any sediment from entering your household plumbing. If you have not done so recently, we recommend you flush your water heater in accordance with the manufacturer's recommendations.

Thank you for your cooperation and patience as Aqua continues to improve your water service. If you have any questions, or if you experience any service problems, please call us at 1 877 987 2782. This message will repeat once if you stay on the line.

Email

Dear Customer,

This is an important message from Aqua North Carolina for customers in the Sutton Estates, Henley, Baytree, Cross Gate, Timberline North, Coachman's Trail, Cobblecreek, and Trotter's Ridge water system.

Beginning Monday September 11th and ending Friday, September 15th between the hours of 8:00 a.m. and 4:30 pm, Aqua will flush the distribution system in your community. Flushing washes away naturally occurring minerals that might have deposited on the insides of pipes over time. The natural minerals are not unsafe but they can cause water to be discolored.

Because flushing could temporarily cause discolored water as it cleans out the pipes, we recommend that customers store sufficient water for personal use before flushing begins. Please do not do laundry during the flushing period since the minerals could cause staining especially on light colored items. You will experience low pressure and a short water outage during the flushing time frame.

After we flush the system we recommend that you consider removing and cleaning the aerators on your faucets. We also suggest that you flush your water line by running the outside spigot for a few minutes to help purge any sediment from entering your household plumbing. If you have not done so recently, we recommend you flush your water heater in accordance with the manufacturer's recommendations.

Thank you for your cooperation and patience as Aqua continues to improve your water service. If you have any questions, or if you experience any service problems, please call us at 1 877 987 2782.

Thank you,

Aqua North Carolina

Text

Aqua will flush the distribution system in your area 9/11 through 9/15/17 between 8:00a.m and 4:30p.m. Please call 18779872782 with questions.

August 8, 2017

North Carolina Utilities Commission

4325 Mail Service Center

Raleigh, NC 27699-4300

To whom it may concern:

I am writing to file a complaint against Aqua NC, my water provider in the Coachman's Trail neighborhood in north Raleigh. Over the past two months, we have had a pattern of issues with safe and reliable service, as well as issues with transparent customer service. I would like to understand what is causing the issues, and I would like to understand what the North Carolina Utility Commission (NCUC), the Public Staff, and Aqua NC are going to do to ensure an improvement in reliable service and transparent customer service in our neighborhood, especially since a rate rider was just approved for water and sewer system improvements (Docket W-218 Sub 363A). Below please find an itemized description of our recent issues.

On the evening of Tuesday June 20, 2017, we had issues with extremely dark brown water, approximately the color of iced tea. No proactive notice was given about an outage or maintenance being performed. Due to the lack of notice, we continued using water in house and ruined a load of laundry. We also drew the dirty water into various water lines in the house including our drinking water line in the fridge, the line into the kitchen sink in which dishes are washed, the line into the tub in which we bathe our son, and the line into our son's sink in which he washes his hands and brushes his teeth. A neighbor contacted Aqua and was told that well number 4, located at 11204 Coachmans Way, had back flushed into our clean water, and that Aqua would be draining the blow-off line. We proceeded to flush our own house from an outdoor spigot for approximately 15-20 minutes, wasting water in the process. This appeared to resolve the issue.

On Sunday July 9, 2017 at approximately 8:00 am, we received an automated, pre-recorded call from Aqua about an immediate outage. The call indicated that after the outage, we should boil our water due to safety concerns. No information was given in the call about the timing, and no timely information about the outage was posted on the Aqua website. Because of the lack of information, I called Aqua while my husband had hurried to fill as many vessels as possible with water so that our family and dog had water to perform basic tasks. After sitting on hold for 15-20 minutes, the customer service representative told me that the outage was only for the Hunters Landing neighborhood

specifically. She said that their system "sends the call out to all Raleigh customers, and it is up to (us) to call Aqua to find out if (our) neighborhood is impacted." This created confusion and a needless emergency in our house and throughout our neighborhood. This confusion could have been avoided by calling only those customers impacted and/or posting timely, specific information on the Aqua website. In this day and age, the lack of transparency is unacceptable.

Also on July 9, 2017, at approximately 7:30 pm, a neighbor informed us of flooding in our yard around the water meter. Due to the fact that it was after hours and not impacting our water supply, we called Aqua the next morning, on July 10, and a service technician came out that day. He indicated that a ball-and-socket joint where the line connects to the meter had broken, and that he did not have the correct part on hand to fix it. He indicated that he would create a ticket and someone would be back "in a few days" to fix the issue, and that we would not be billed for the leaking water because it was leaking before the meter. We waited a full week with no follow-up from Aqua, and then began calling Aqua to understand when the issue would be resolved. I do not know how many times my husband called, but I would approximate at least 5 times over the two-week period spanning July 17 – August 1. Each time, he was told that the work was being performed by a sub-contractor, and that Aqua "did not have any way to know if the ticket was in the sub-contractor's system, or when we might be on the schedule." On August 1, a team finally came out to the house and fixed the issue. By this time we had standing water in our yard, and had wasted an incredible amount of water. While we were indeed not billed for the leak, I find the waste of water deplorable. Again, in this day and age, it is unacceptable that Aqua could give no information about the timing of the repair, and also that it took more than three weeks to fix an issue that was causing water waste.

On the evening of Monday August 7, 2017, we had another issue with extremely dark brown water, approximately the color of iced tea. Again, no proactive notice was given about an outage or maintenance being performed, and no information was posted on the Aqua website. Luckily we noticed it before using water throughout the house, so we flushed from an outdoor spigot for approximately 25 minutes, wasting yet more water. There was no improvement after the flush, so my husband called Aqua. Without providing any information about our location, he was told that "there were disruptions in the area." When he asked if someone was being sent out, the rep then asked him for our location. All the rep could say was that complaints were being directed to a technician. We did not notice improvement before going to bed, so we flushed again on the morning of August 8, wasting even more water. This appeared to resolve the issue.

I would like to understand what is causing the pattern of issues in our neighborhood. I would also like to understand what is going to be done to resolve the problem so that we can count on a safe and reliable water supply.

I spent 11 years of my career at Progress Energy, two of them in the Regulatory Finance group. I consider myself to be an educated consumer of utilities, and therefore held off on writing this letter

because I understand the complexities of providing utility service, and I understand the fundamental rate-making model in North Carolina. However, my time at Progress Energy also taught me that providing safe and reliable service is the top priority for any utility. Aqua has failed in this regard in our neighborhood. The pattern of reliability issues around a basic, fundamental human necessity is unacceptable. Furthermore, the lack of transparent customer service from Aqua is unacceptable, especially in the modern age when there are multiple platforms for communicating timely, specific information.

Please contact me at your earliest convenience to discuss this matter and how it will be resolved. I can be reached at the below contact information. For your reference, our bill is in my husband's name, Paul Daniel.

Thank you for your consideration,

Becky Daniel

Becky Daniel

505 Brittany Bay W

Raleigh, NC 27614

(Coachman's Trail neighborhood)

(919) 673-6141 (cell)

becky0603@nc.rr.com

cc: Jo Anne Sanford, Attorney for Aqua North Carolina, Inc.

Public Staff – Water Division

Randall Kerr, WRAL

AQUA

August 17, 2017

Mrs. Rebecca Daniel
505 Brittany Bay W Lot 95
Raleigh, NC 27614

Dear Mrs. Daniel:

Below is Aqua's response to your correspondence which was forwarded to Shannon Becker's office on August 8, 2017, from Jo Anne Sanford, Sanford Law Office, PLLC, Attorney for Aqua North Carolina, Inc. (Aqua) and Bill Grantmyre, Public Staff Legal, North Carolina Utilities Commission, on August 14, 2017.

Acknowledging your concerns regarding your recent experience with the safe and reliable water service and your experience with Aqua's Customer Service Center, I would like to take this opportunity to address each issue as you have outlined in your correspondence.

June 21, 2017 – Water Quality

An Aqua representative visited your residence on June 21, 2017, to investigate the water quality complaint of discolored water. Field parameters were taken at your residence for chlorine, phosphate, pH, iron and manganese which show that all parameters were within the water quality limits accept for the iron and manganese levels, which were above the maximum contaminant level (sMCL). The water lines were also flushed from an outside faucet. The representative made an attempt to reach you via telephone, however, there was no answer and a door tag was left with the results.

June 26 – June 29, 2017 – Water Quality

Coachman's Trail subdivision is part of Aqua's Bayleaf Master System which serves an estimated 6,000 customers. During the time period the customers in Coachman's Trail were experiencing discolored water. It was determined that during the maintenance of the sediment filter bag, Aqua inadvertently stirred up the distribution system the previous week, which allowed more iron and manganese to enter into the water system resulting in the discolored water.

The original filter bag, size five was re-installed into Well No. 4, and placed back into service on July 5, 2017. No further water quality issues have been reported.

July 9, 2017 – Hunter's Landing Subdivision

There was a system emergency due to a water main break in the Hunter's Landing subdivision. Aqua had to temporarily shut off the water supply to make an emergency repair. Aqua's emergency telephone system, Swift Reach, was utilized to contact all customers that reside in the Bayleaf Master System. However, only these customers residing in Hunter's Landing subdivision should have received the emergency notification. This internal error has been addressed.

July 10, 2017 – Leak at the meter

Mr. Daniel contacted Aqua's customer service center to report a leak at the meter. An Aqua representative visited the property to investigate the leak. The meter yoke had a small leak on Aqua's side of the meter. The pressure at your residence was checked to confirm no loss of system pressure. Due to the high volume workload, the leak repair was handled by priority order with the repairs being completed on August 9, 2017.

August 7, 2017 – Water Quality

Aqua received several discolored water quality calls from customers in the Bayleaf Master System. Coachman's Trail Well No. 4 was checked and found to be running with no reported issues.

System Upgrade

On December 3, 2014, Aqua received approval from the North Carolina Utilities Commission, to install iron and manganese removal filter system at multiple wells serving the Bayleaf Master System; including; Coachman's Trail Well No. 4, Devon Wells No. 1 and 3, Stonebridge Well No. 17, and Stone Creek Well No. 18. The filter installations at these wells were completed in October, 2015, and are operational. These filter systems are designed to significantly lower the amount of iron and manganese in the water. Regular distribution system flushing, tank cleanings in combination with SeaQuest treatment will help prevent the accumulation of sediment and build-up.

Customer Service

The calls that took place with Aqua's customer service representatives will be individually reviewed by their immediate supervisor. Any corrective action needed will be addressed and used as training and coaching opportunities for the representatives.

I would like to apologize for your recent experiences encountered and can assure you that it is Aqua's desire and priority to provide our customer with quality water and customer service.

Please do not hesitate to contact the Call Center at 877-987-2782 if you have any further service issues or have questions or concerns regarding your account.

Sincerely,

Alice N. Greene
Regional Customer Care Team Lead

AQUA

September 6, 2017

Ms. Rebecca Daniel
505 Brittany Bay West
Raleigh, NC 27614

Dear Ms. Daniel:

Aqua North Carolina, Inc. (Aqua) would like to offer the following response in regards to your letter dated August 8, 2017, concerning the water quality concerns in the Coachman's Trail subdivision. Aqua has also responded to the Public Staff of the North Carolina Utilities Commission and the NC Division of Water Quality regarding the Coachman's Trail water quality.

On June 21, 2017, Aqua made an onsite visit to your residence and took samples which showed the following results: chlorine 1.4 mg/L, pH 7.2 mg/L, phosphate .8 mg/L, iron .41 mg/L and manganese .029 mg/L. After investigating the cause of the discolored water at your residence, our technician attempted to contact you but there was no answer and a door tag was left indicating he was onsite investigating the problem.

It was determined the discolored water you reported was coming from Coachman's Trail Well #4. A blow-off and a fire hydrant located in the area were opened in an effort to help flush the water lines and clear up the water. Aqua continued to flush the water lines until June 26, 2017, at which point the distribution system had cleared.

Aqua's emergency telephone system was utilized on July 9, 2017, to issue a Special Pressure Advisory (SPA) when there was a system emergency due to a water main break in the Hunter's Landing subdivision and Aqua had to temporarily shut off the water supply to make an emergency repair. It was realized the SPA should not have gone out to the entire Bayleaf master system and within approximately three hours of the first notice a System Pressure Lift notice was issued to these customers.

Aqua has reviewed the calls from you and your husband that were made in June and July 2017. We were unable to locate where a customer service

representative (CSR) made the response "sends the call out to all Raleigh customers and it is up to (us) to call Aqua to find out if (our) neighborhood is impacted." Although the CSR's were not able to fully respond to your inquiries, the calls were handled in a professional manner. The response quoted above would have been an inappropriate response to any customer inquiry and not one Aqua's CSR's have been trained to provide. In the event incorrect information is provided to Aqua's customers by a CSR, coaching opportunities are provided.

A technician did respond to the call you made on July 10, 2017, regarding a leak at the meter. It was determined the meter yoke had a small leak on Aqua's side of the meter and was not causing any pressure loss to your residence or to the system. A contractor was contacted to make the leak repair and due to the high volume workload, the leak repair wasn't completed until August 1, 2017.

Discolored water was reported on August 8, 2017, after a well in the Chatsworth water system had to be shut down. This caused a flow reversal in the distribution system, thereby causing the discolored water experienced by you. A blow-off was opened and the water was clear in the distribution system by August 9, 2017.

Aqua would like to apologize for the recent experiences you have encountered. It is our desire to resolve any problems and address concerns our customers may have. Please do not hesitate to contact our Call Center at 877-987-2782, if you have any further service issues or have questions or concerns regarding your account.

Sincerely,

Alice N. Greene
Regional Customer Care Team Lead

CERTIFICATE OF SERVICE

I hereby certify that on this the 20th day of July 2018, a copy of the foregoing **REPORT** has been duly served upon all parties of record by electronic service.

Electronically Submitted

/s/Jo Anne Sanford
State Bar No. 6831
SANFORD LAW OFFICE, PLLC
Post Office Box 28085
Raleigh, North Carolina 27611-8085
Tel: (919) 210-4900
sanford@sanfordlawoffice.com

ATTORNEY FOR AQUA NORTH CAROLINA, INC.

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

July 16, 2018

Ms. M. Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: Aqua North Carolina, Inc.
Response to Customer Concerns from June 26, 2018 Public Hearing in Wilmington
Docket No. W-218, Sub 497

Dear Ms. Jarvis:

Please accept for filing the attached copy of the response by Aqua, North Carolina, Inc. to customer concerns, expressed at the July 26th public hearing in Wilmington, North Carolina.

As always, thank you and your office for your assistance.

Sincerely,

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

c: Parties of Record

P.O. Box 28085-8085, Raleigh, NC 27611-8085 sanford@sanfordlawoffice.com
Tel: 919.210.4900

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	)	REPORT ON CUSTOMER COMMENTS FROM PUBLIC HEARING HELD IN WILMINGTON, NORTH CAROLINA ON JUNE 26, 2018

NOW COMES Aqua North Carolina, Inc. ("Aqua" or "Company") and files this report in response to the public hearing held in Wilmington, North Carolina in the New Hanover County Courthouse, at 7:00 p.m. on Tuesday, June 26, 2018. Commissioner ToNola D. Brown-Bland served as the Presiding Commissioner, joined by Chairman Edward S. Finley, Jr. and Commissioners Jerry C. Dockham, James G. Patterson, Lyons Gray, Daniel G. Clodfelter, and Charlotte A. Mitchell.

Staff Attorney William E. Grantmyre appeared for the Public Staff on behalf of the using and consuming public, accompanied by David Furr, Director of the Public Staff's Water and Sewer Division.

Robert H. Bennink, Jr., of the Bennink Law Office, appeared on behalf of Aqua, joined by Shannon V. Becker, the Company's President. Other Company personnel, present and available to assist customers with questions or requests, included: Joe Pearce, P.E., Director of Operations; Amanda Owens, Manager of Environmental Compliance; Dean Gearhart, CPA, Manager of Rates;

Dan Lockwood, Manager of Communications; Joel Mingus, Area Manager, Coastal Area; Chris Collins, Field Supervisor, Coastal Area; Nancy Brammer, Human Resources; Robyn Lambeth, Senior Executive Assistant; and Alice Greene, Team Lead – Customer Care.

OVERVIEW AND GENERAL RESPONSES TO CUSTOMER ISSUES

Aqua believes it is important to explain to its customers various principles and facts that relate to the Company's service obligation, to customers' concerns, and to the rules that apply to the rate-setting process, assuring protections to customers. The Company appreciates this opportunity to speak to its customers and to its regulators.

The six witnesses who testified at the Wilmington public hearing voiced no current or ongoing service quality complaints affecting their utility service. Aqua appreciates that fact and believes that the lack of testimony addressing service problems supports a finding that the Company is providing "adequate, efficient, and reasonable service" to its Wilmington area customers, as required by G.S. 62-131(b).

Customer testimony focused primarily on opposition to Aqua's proposed rate increase, which is the essential issue to be decided by the North Carolina Utilities Commission ("Commission" or "NCUC") based upon careful consideration of all the evidence offered in this proceeding, including customer testimony. Aqua's rates will be set in this legal proceeding based upon the statutory requirements of proof and after challenge by expert consumer advocates. No public utility, including Aqua, is entitled to a rate increase unless it has proved to

the Commission essentially that it spent money—only as necessary, or "prudently"—to provide the service that is required. Additionally, Aqua cannot recover on its investment in plant until after that plant: (a) is in use and providing service to customers; (b) has been audited by the Public Staff; and (c) is approved by the Commission. This is true whether the rate increase is sought in a general rate case, like this one, or under the "system improvement charges" (also known as "WSIC" and "SSIC").

Aqua asserts that the Company should not receive rate increases unless it proves its case to the Commission—by presentation of evidence, subject to the law, and against the thorough review by the Public Staff. Rates charged by Aqua must be based on the actual cost-of-service and must be justified by detailed proof which is carefully examined and challenged by the Public Staff in a contested legal proceeding, such as this pending rate case. Rate increases, while controversial, are necessary to support prudent investment in this capital-intensive industry.

In that regard and since 2014, Aqua North Carolina has spent approximately $9.8 million in water and wastewater system repairs and improvements in the Fairways systems alone. This includes in excess of $1.5 million related to water items such as well and filter renovations, treatment equipment, generators, meters, services, main relocations and renovations, as well as other repairs and replacement of aging infrastructure to improve water quality and flow pressure, and increase system reliability. As part of the $9.8 million investment amount listed above, the Company completed the following capital projects within the Company's Fairways sewer service area:

- Beau Rivage plant expansion and upgrades to three lift stations - $5.3 million
- Addition of an equalization basin and fine screen to The Cape - $1.3 million
- Force main extension to The Cape and taking Dolphin Bay Wastewater Treatment Plant ("WWTP") offline – $254,000
- Department of Transportation ("DOT") River Road main relocation - $177,000

Finally, and in response to an understandable refrain among customers of regulated utilities, as heard in Wilmington, any attempt to make broad, meaningful cost comparisons among providers is to engage in an "apples to oranges" assessment, absent extensive examination of both the differences in the characteristics of the actual cost to serve and the obligation—or lack thereof—to charge cost-based rates. This is true whether one is attempting to argue from a comparison to statewide average rates or to the rates of any specific provider.

One core distinction is found in the concept of "economies of scale." The cost to serve an individual customer in Raleigh or Charlotte will likely on average be less than the cost to serve the average Aqua customer. The urban areas are densely populated, they generally source water from large surface impoundments or rivers, they treat waste in large central treatment facilities, they tax their citizens, and they are often not required to utilize "cost-of-service" ratemaking. Contrast this to the areas served by certain utilities that are regulated by the Commission, like Aqua. They are often rural, water is sourced from wells, waste is treated in smaller plants, there is no rate support from municipal or county taxes, and "cost

of service" ratemaking is required by Chapter 62 of the General Statutes.

Aqua hereby incorporates by reference these comments in its response to the following specific customers objections to the proposed rate increase.

SPECIFIC RESPONSES TO CUSTOMER CONCERNS

1. Joseph Napoli, 71 Brisbane Drive, Rocky Point, NC - Avendale Subdivision (Pender County) - *Tr. Vol 4, pp. 15 – 18.*

Mr. Napoli made no complaints about service. He has been an Aqua customer (sewer-only) since January 2016. His comments addressed flat-rate sewer rate design, his inability to receive County sewer, and the rate disparity between his New Hanover County utilities experience and his Pender County experience. He noted that the flat rate for sewer produces the same rate without regard to usage, which means a one-person household pays the same as a five-person household; however, in response to Mr. Grantmyre's questions which attempted to determine whether Mr. Napoli preferred metered sewer rates, he declined to answer affirmatively. In response to the witness's observation that the County provides his water, Mr. Grantmyre explained that County service for sewer is not available.

2. Guenter Kass, 702 Tiara Drive, Wilmington, NC - The Cape Subdivision, (New Hanover County) - *Tr. Vol. 4, pp. 19 – 23.*

Mr. Kass, a water and sewer customer since October 2002, spoke on behalf of the Fairways Homeowners' Association ("HOA") and brought forward no complaints about service, but rather focused on the increase in rates---percentage and otherwise---including the requested adjustment for consumption.

Fairways is one of Aqua's five rate entities in this state. The Fairways rates are lower than the rates charged to customers of the Company's other four rate entities. The proposed wastewater rates in this rate case proceeding, should they be approved, would narrow the gap between the rates paid by Fairways' customers and those paid by Aqua's "uniform rate" customers, thus moving toward an equalization across divisions of the combined costs to serve.

	Rate Groups and New Systems	Current Monthly Base Charge (Includes WSIC/SSIC)	Monthly Bill at Current Rates	Proposed Monthly Base Charge	Monthly Bill at Proposed Rates
	SEWER				
	Aqua NC (Flat - Res)	67.31	67.31	70.22	70.22
	Fairways (Flat - Res)	$38.09	$38.09	$58.90	$58.90

When Aqua attempted to consolidate its rate structure in 2008, in Docket No. W-218 Sub 274, the Commission accepted the parties' Stipulation and ordered that the Fairways water and wastewater systems maintain separate rate structures. Thus, this smaller group of customers retained more of the "system-specific" rate characteristics than did Aqua's other rate entities. Aqua's goal remains the achievement of a more balanced allocation of costs across its ratepayers, in order to properly share common costs and to help minimize potential rate shock resulting from large capital outlays on smaller customer populations (like the ones made to the Fairways sewer facilities since the last rate case). Movement toward a more uniform rate structure will result in more balanced sharing among customers of the benefits of a statewide system. This will be specifically relevant to Fairways, since Aqua faces a multi-million-dollar investment in sewer plant for that system in the near future.

3. **David Hough, 7825 Cypress Island Drive, Wilmington, NC - Cypress Island Subdivision (New Hanover County) - *Tr. Vol. 4, pp. 22 - 26.***

Mr. Hough, a water and sewer customer since 2009, stated that he did not receive notice of the rate increase, that he travels extensively, that he was gone most of the winter (returning on Memorial Day), that he uses a mail-forwarding service, and that the Company has his e-mail address. There was no indication from Mr. Hough that his other neighbors had not received their rate increase customer notice; neither did Mr. Hough discuss a problem with having received his bills. He did not understand the justification for this increase, he objected to the amount of the increase, and he expressed concern about paying an availability charge for the extensive period that he is absent from this property. Mr. Grantmyre correctly explained the rationale for the base charge for service, which is required without regard to usage. Aqua would like for its customers to know that this charge represents the fixed cost attributable to the ability to provide service to the customer, since the necessary infrastructure constitutes a cost to maintain and serve, without regard to the customer's presence or absence from the premises.

Ms. Amanda Owens, Aqua's Manager of Environmental Compliance, spoke with Mr. and Mrs. Hough after the public hearing regarding the rate notice in question and provided her contact information to the Houghs plus a pledge that an Aqua representative would contact them.

Ms. Alice Greene, Aqua's Team Lead – Customer Care, contacted Mr. Hough on June 28, 2018, to discuss his Aqua account and mailing address. Ms. Greene e-mailed Mr. and Mrs. Hough on this same day, providing the 2017

Annual Drinking Water Quality Report for The Cape/Beau Rivage service areas and the customer rate notice issued April 6, 2018, for Fairways and Beau Rivage (The Cape) service areas.

Ms. Greene spoke with Mr. Hough again on Monday, July 2, 2018, and he confirmed he had received the email sent to him on June 28, 2018, which attached the rate notice. Aqua's records showed the mailing address for the Houghs as being 411 Walnut Street, Apartment 2034, Green Cove Springs, FL 32043. Mr. Hough corrected the address by requesting a change from "Apartment 2034" to "Box 2034", and Aqua has updated the account. The Company will follow up with the Houghs after their next bill to confirm receipt. Ms. Greene also provided her direct telephone number to Mr. Hough for future contact, if needed.

4. **Ronald Hess, 7205 Grouper Court, Wilmington, NC - Dolphin Bay Subdivision (part of The Cape) - *Tr. Vol. 4, pp. 27 – 33.***

Mr. Hess is a sewer-only customer of Aqua, having moved to this address in March 2009, and is the president of the HOA. Generally, he objects to the magnitude of the percentage rate increase, compares the Aqua rates to those of other providers, and suggests that his failure to see either Aqua trucks or visible signs of infrastructure improvements in his neighborhood should be some indication that no rate increase should be required.

Aqua has addressed the issue of comparing rates for any individual providers to the rates charged by another, given the core differences both in the actual, audited cost to serve and the relative obligations---or lack thereof---to charge audited, judicially determined, cost-based rates. Additionally, the fact that the prudent expenditures required to maintain and update facilities in an

environmentally sound, cost-effective manner are not readily visible to the public—particularly in the context of utility infrastructure that is primarily underground—cannot be a determining factor in the setting of rates.

The Company understands the objections to an increase in rates and will continue to find ways to educate customers about the need for infrastructure replacement and related rate increases.

5. **Michael Smith, 7101 Grouper Court, Wilmington, NC - Dolphin Bay Subdivision - *Tr. Vol. 4, pp. 34 – 38.***

Mr. Smith has been a sewer-only customer of Aqua since September 2009, is shocked at the amount of the increase, spoke to his understanding of the Commission's rate-setting process, offered an exhibit that posed a financial summary of the rate case, and had no service complaints. He stated, in response to a question from Mr. Grantmyre, that he had been supplied information by the Public Staff which indicated that Aqua had made significant capital investments.

6. **Dan Graney, 814 Tarpon Drive, Wilmington, NC, Dolphin Bay Subdivision - *Tr. Vol. 4, pp. 39 – 42.***

A sewer-only customer since 2009, Mr. Graney questioned why he has received three letters which he believed were from Aqua, attempting to sell him insurance for his water lines. He had never given permission to Aqua to use his mailing information for solicitation purposes, and he did not have a copy of the mailing.

Aqua does not provide customer-specific information to any outside entities for solicitation purposes. Entities like HomeServe—for example—that provide various line, pipe and wire protections and solutions, secure by commercial means

the customer-specific information for purposes of marketing. When Aqua selectively partners with such entities, it takes care to incorporate strict constraints against use of customer-specific information and it is careful to notify and discuss the partnership with regulatory authorities in its service territories. As a follow up to Mr. Graney's testimony, Aqua is contacting HomeServe directly to have him removed from their solicitation list.

CONCLUSION

Aqua appreciates and takes seriously this opportunity to respond to the complaints and concerns expressed by the Company's customers at the public hearings. While customers may not see visible signs of any improvements or repairs being made to their water and sewer systems, Aqua notes that investments made by the Company in its water and sewer utility systems throughout the State of North Carolina are not always obvious to customers, given the nature of some of the work. Additionally, should there be a need for major investment for upgrades or repairs—as there will inevitably be for every system—Aqua has an obligation arising from its status as a regulated public utility to make necessary capital investments to ensure that consumers receive reliable and adequate utility service

Respectfully submitted, this the 16th day of July 2018.

SANFORD LAW OFFICE, PLLC

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ATTORNEYS FOR AQUA NORTH CAROLINA, INC.

VERIFICATION

Shannon V. Becker, being duly sworn, deposes and says:

That he is the President of Aqua North Carolina, Inc.; that he is familiar with the facts set out in this **REPORT ON CUSTOMER COMMENTS FROM PUBLIC HEARING HELD IN WILMINGTON, NORTH CAROLINA ON JUNE 26, 2018**, filed in Docket No. W-218, Sub 497; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

Shannon V. Becker

Shannon V. Becker

Sworn to and subscribed before me this

the 16th day of July 2018.

ROBYN E. LAMBETH
NOTARY PUBLIC
WAKE COUNTY, NC

Robyn E. Lambeth

Wake County

Notary Public

My commission expires: May 13, 2021

CERTIFICATE OF SERVICE

I hereby certify that on this the 16th day of July 2018, a copy of the foregoing **REPORT ON CUSTOMER COMMENTS FROM PUBLIC HEARING HELD IN WILMINGTON, NORTH CAROLINA ON JUNE 26, 2018**, has been duly served upon all parties of record by electronic service.

Electronically Submitted

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