



**NORTH CAROLINA  
PUBLIC STAFF  
UTILITIES COMMISSION**

May 26, 2020

Ms. Kimberley A. Campbell, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4300

Re: Docket No. W-218, Sub 526 – Application for General Rate Increase

Dear Ms. Campbell:

In connection with the above-referenced dockets, I transmit herewith for filing on behalf of the Public Staff the testimony and exhibits of Charles M. Junis, Utilities Engineer, Water, Sewer, and Telephone Division.

By copy of this letter, we are forwarding copies to all parties of record.

Sincerely,

/s/ Megan Jost  
Staff Attorney  
[megan.jost@psncuc.nc.gov](mailto:megan.jost@psncuc.nc.gov)

MJ/cla

Attachment(s)

<b>Executive Director</b> (919) 733-2435	<b>Communications</b> (919) 733-5610	<b>Economic Research</b> (919) 733-2267	<b>Legal</b> (919) 733-6110	<b>Transportation</b> (919) 733-7766
<b>Accounting</b> (919) 733-4279	<b>Consumer Services</b> (919) 733-9277	<b>Electric</b> (919) 733-2267	<b>Natural Gas</b> (919) 733-4326	<b>Water</b> (919) 733-5610

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May 26 2020

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. W-218, SUB 526

In the Matter of  
Application of 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 )

TESTIMONY OF  
CHARLES M. JUNIS  
PUBLIC STAFF – NORTH  
CAROLINA UTILITIES  
COMMISSION

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**

**DOCKET NO. W-218, SUB 526**

**Testimony of Charles M. Junis**

**On Behalf of the Public Staff**

**North Carolina Utilities Commission**

**May 26, 2020**

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**  
2 **PRESENT POSITION.**

3 A. My name is Charles M. Junis. My business address is 430 North  
4 Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am an  
5 engineer with the Water, Sewer, and Telephone Division of the  
6 Public Staff – North Carolina Utilities Commission.

7 **Q. BRIEFLY STATE YOUR EDUCATION AND EXPERIENCE.**

8 A. My education and experience are summarized in Appendix A.

9 **Q. WHAT IS THE NATURE OF THE COMPANY’S APPLICATION IN**  
10 **THIS RATE CASE?**

11 A. Aqua North Carolina, Inc. (Aqua or Company), filed an application  
12 with the Commission on December 31, 2019, in Docket No. W-218,

1 Sub 526, seeking authority to increase rates for water and sewer  
2 utility service in all of its service areas in North Carolina.

3 **Q. BRIEFLY EXPLAIN THE SCOPE OF YOUR INVESTIGATION**  
4 **REGARDING THIS RATE INCREASE APPLICATION.**

5 A. My areas of investigation in this proceeding have been the review of  
6 company records; customer complaints and associated reports since  
7 Aqua's last rate case; expenses and plant in service in coordination  
8 with the Public Staff Accounting Division; the consumption  
9 adjustment mechanism (CAM); the proposed conservation pilot  
10 program; billing analysis, including the proposed conservation  
11 normalization factor; water and sewer system improvements  
12 charges; and North Carolina Department of Environmental Quality  
13 (DEQ) records.

14 I analyzed the Company's billing data for the test year ended  
15 September 30, 2019, and also updated data through March 31, 2020,  
16 which was provided at my request. I performed a billing analysis to  
17 determine the level of revenues produced at present and proposed  
18 rates utilizing the data updated through March 31, 2020. I normalized  
19 the billing determinants for end of period customer counts and  
20 applied a three-year average for consumption. I developed a  
21 recommended rate design to recover the revenue requirement set  
22 forth in the pre-filed testimony of Public Staff witness Windley Henry,

1 Accounting Manager, Water/Communications Section. The rate  
2 design includes specific usage rates for water systems that purchase  
3 and resell bulk water from a third party provider. Depending on the  
4 status of the Company's applied for CAM and the Commission's  
5 recent order in the rulemaking proceeding,<sup>1</sup> revisions may be  
6 necessary to design rates based on the structure and  
7 implementation of a CAM.

8 The following table of contents serves as a convenient reference to  
9 the areas of my investigation presented in detail with my findings and  
10 accompanying recommendations:

11 Junis Table 1

Topic	Beginning Page No.
Plant Conditions and Operations	Page 5
Excess Capacity	Page 6
Conservation Pilot Program	Page 10
Consumption Adjustment Mechanism	Page 15
Billing Analysis	Page 18
Rate Design	Page 32
Liability Insurance Rider	Page 44

12 **Q. ARE YOU FILING ANY ADDITIONAL TESTIMONY IN THIS RATE**  
13 **CASE?**

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<sup>1</sup> Order Adopting Commission Rule R7-40 and Commission Rule R10-27, *Petition for Rulemaking to Implement N.C. Gen. Sta. § 62-133.12A, North Carolina Session Law 2019-88 (House Bill 529)*, Docket No. W-100, Sub 61 (N.C.U.C. May 12, 2020).

1 A. Yes. I am filing joint testimony with Public Staff witness Henry to  
2 present to the Commission the Public Staff's recommendations with  
3 regard to Aqua's requested: (1) utility plant in service, (2) deferred  
4 accounting treatment for post-test year period capital projects,<sup>2</sup> (3)  
5 prospective deferred accounting treatment for post-rate case capital  
6 projects,<sup>3</sup> and (4) retroactive regulatory asset treatment for the  
7 transmission fee paid to Johnston County in 2018.<sup>4</sup>

8 **PLANT CONDITIONS AND OPERATIONS**

9 **Q. HAVE YOU INSPECTED AQUA'S WATER AND SEWER**  
10 **SYSTEMS?**

11 A. No, due to the COVID-19 outbreak and the "stay at home" order  
12 issued by North Carolina Governor, Roy Cooper, the Public Staff was  
13 unable to conduct site visits prior to the filing of its testimony. If  
14 necessary, the Public Staff will conduct site visits when the public  
15 witness hearings are rescheduled. Those hearings were originally  
16 scheduled to take place in April 2020, but were postponed until  
17 further order of the Commission in response to the COVID-19  
18 outbreak and Governor Cooper's "stay at home" order.

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<sup>2</sup> The Company's request for deferred accounting treatment is presented on page 28, line 15, through page 39, line 16, of the direct testimony of Company witness Edward Thill, filed in Docket No, W-218, Sub 526, on December 31, 2019.

<sup>3</sup> Id. at 36.

<sup>4</sup> Id. at 39.



1           The Public Staff does not recommend excess capacity adjustments  
2           be made against all overbuilt plant. Commonly, the developer of a  
3           system bears a majority of the initial cost and risk associated with  
4           plant infrastructure to serve future projected customer growth. For  
5           example, the Cannonsgate 250,000-gpd wastewater treatment plant  
6           (WWTP) has a calculated excess capacity of 88.80% but an  
7           overbuilt-plant adjustment is not recommended because the initial  
8           construction was fully contributed to Aqua by the developer.  
9           However, there are systems for which Aqua assumed avoidable cost  
10          and risk from developers. Without an excess capacity adjustment in  
11          such circumstances, present customers would pay for an unfair and  
12          disproportionally large amount for plant to serve potential future  
13          customers.

14          The Commission's previous orders regarding excess capacity have  
15          conveyed an openness to consideration of other methods of  
16          calculating excess capacity. Specifically, in the W-218, Sub 497,  
17          Order the Commission "request[ed] that more evidence be presented  
18          by the parties regarding other formulas or methods for making  
19          excess capacity adjustments such that the Commission could  
20          determine by the weight of the evidence presented whether future  
21          growth projections or any other additional factors should be included

1 in the approved methodology.”<sup>6</sup> While I have considered utilizing  
2 90% of the capacity<sup>7</sup> as the denominator and end of period  
3 residential equivalent units (REUs) multiplied by 360 gallons per day<sup>8</sup>  
4 as the numerator to be more consistent with DEQ regulations, these  
5 adjustments would net the exact same excess capacity adjustment  
6 percentages.

7 Regarding growth projections, the REUs have been updated through  
8 March 2020 consistent with the billing data and rate base. The  
9 application of future growth projections would, as explained above,  
10 assign risk to ratepayers that the excess capacity adjustment is  
11 intended to address. Therefore, I recommend the continued  
12 utilization of the calculation methodology established by the  
13 Commission in Docket No. W-218, Sub 319, for evaluating the used  
14 and useful portion of WWTPs as determined in Docket No. W-354,  
15 Sub 128. This calculation methodology has been used in Aqua’s  
16 previous three general rate cases. I have calculated the excess  
17 capacity for the Carolina Meadows, The Legacy at Jordan Lake, and  
18 Westfall (aka Booth Mountain) WWTPs as follows:

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<sup>6</sup> Order Approving Partial Settlement Agreement and Stipulation, Granting Partial Rate Increase, and Requiring Customer Notice, Docket No. W-218, Sub 497, at 48.

<sup>7</sup> 15A NCAC 02T .0118(2)

<sup>8</sup> 15A NCAC 02T .0114(b)

1 Junis Table 2

A	B	C	D	E
Plant Name	Constructed Capacity (gpd)	EOP <sup>9</sup> REUs	Flow (EOP x 400 gpd)	Excess Capacity (1 – D/B)
Carolina Meadows	350,000	586	234,400	33.03%
The Legacy at Jordan Lake	120,000	241	96,400	19.67%
Westfall	90,000	183.5	73,400	18.44%

2 The Public Staff believes that the Company has failed to meet its  
 3 burden of persuasion because it did not provide evidence to justify  
 4 the omission of excess capacity adjustments from its Application.  
 5 Specifically regarding capital expenditures for upgrades,  
 6 modifications, and/or rehabilitations, the Company has not presented  
 7 evidence describing any specific improvements to the overbuilt  
 8 WWTPs, including the applicable costs and how each improvement  
 9 is, or is not, related to the size of the existing WWTP. Based on the  
 10 longstanding utilization of the excess capacity adjustment and the  
 11 lack of persuasive evidence to the contrary, I recommend that the  
 12 entire balance of plant be subjected to the excess capacity  
 13 percentages set out in Junis Table 2 above.<sup>10</sup>

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<sup>9</sup> The end of period is March 2020.

<sup>10</sup> Including the Carolina Meadows WWTP upgrade project, the cost of which was approximately \$1.7 million.

1 Public Staff witness Henry has implemented the updated excess  
2 capacity percentages and plant, net of accumulated depreciation and  
3 contributions in aid of construction (CIAC), to calculate the excess  
4 capacity adjustment.

5 **CONSERVATION PILOT PROGRAM**

6 **Q. HAS THE COMPANY PROPOSED TO IMPLEMENT A PILOT**  
7 **PROGRAM?**

8 A. Yes, in its application and as detailed in the direct testimony of Aqua  
9 witness Edward Thill,<sup>11</sup> the Company has proposed a “Conservation  
10 Pilot Program” to implement tiered inclining block volumetric rates,  
11 including separate irrigation rates, to be charged to residential water  
12 customers in the Arbor Run, Merion, Pebble Bay, and Bayleaf-  
13 Leesville service areas (ANC Water rate entity) and The Cape  
14 service area (Fairways Water rate entity). As part of the proposed  
15 Conservation Pilot Program, the Company incorporates a projective  
16 repression of usage levels below the three-year average already  
17 subjected to the Company’s proposed Conservation Normalization  
18 Factor. In addition, the Company requests a revenue reconciliation  
19 to be computed within the pilot program that would guarantee that  
20 the revenue requirement per bill be recovered in rates.

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<sup>11</sup> Page 15, line 2, through page 28, line 14, Direct Testimony of Company witness Edward Thill filed in Docket No. W-218, Sub 526, on December 31, 2019.

1 Q. WHAT IS THE PUBLIC STAFF'S POSITION ON AQUA'S  
2 PROPOSED PILOT PROGRAM?

3 A. The Public Staff has concerns about the practicability, fairness, and  
4 value of the proposed pilot program. While well-designed inclining  
5 block rates can effectively promote conservation, the Public Staff has  
6 identified the following concerns with the Company's proposed pilot  
7 program: 1) the pilot is a limited and unrepresentative sample of  
8 residential customers, 2) would not "provide meaningful results that  
9 we might extrapolate across the Company's full customer base in  
10 future rate design considerations"<sup>12</sup> as the Company claims, 3)  
11 reverts to ratemaking with system-specific rates as opposed to  
12 uniform rates, 4) ignores the overlapping purpose of House Bill 529  
13 and Commission Rules R7-40 and R10-27, 5) the potential benefit(s)  
14 of the program may be outweighed by the valuable personnel  
15 resources of the Company, Public Staff, and Commission required  
16 to implement and track the pilot, and 6) nearly guarantees service  
17 revenues, thus reducing risk. In addition, singling out groups of  
18 customers would be discriminatory and potentially prejudicial if those  
19 customers' bills increased significantly under the inclining block rates  
20 in comparison to other customers charged uniform usage rates, or  
21 vice versa for low usage customers.

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<sup>12</sup> Id. at 17.

1 Company witness Thill states the following regarding the sample of  
2 customers chosen for the pilot program:

3 The use of a pilot---actually two pilots, one for the four  
4 water system customers included in the ANC Water  
5 rate design pilot and one for the Fairways Water  
6 system customers rate design pilot---will better allow  
7 us to analyze the results each pilot will have on a  
8 smaller scale before designing and applying any one  
9 or more final rate designs to the larger population of  
10 Aqua customers. The Company believes it would be  
11 imprudent to subject the entire customer base to such  
12 a dramatic structural change without first determining  
13 the effects of that change on a smaller representative  
14 sample of customers.

15 Id. at 16.

16 Thill Revised Exhibit 3 provides statistics for the systems proposed  
17 for the pilot program. From this table, it is clear that these are above  
18 average or high-usage systems that are not representative of  
19 uniform water residential customers. Company witness Thill states,  
20 “I focused our program on systems that had the greatest opportunity  
21 for both conservation and operational relief. . . .” and “Each of these  
22 systems is experiencing stress to meet peak demand and could  
23 require (potentially near-term) capital investment if conservation is  
24 not realized.”<sup>13</sup> In response to a Public Staff data request regarding  
25 operational relief, expense savings, and avoided costs, the Company  
26 stated that it relied on subjective input from operations staff, “cost

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<sup>13</sup> Id. at 16-17.

1 savings associated with the reduced volume [repression] flows  
2 through variable expenses such as power and chemicals in the  
3 consumption adjustment factor,” and because “[p]rojected future  
4 capital spend is not a direct consideration in a general rate case”  
5 then “avoidance of any such potential future capital costs was  
6 similarly excluded from the rate case considerations.”<sup>14</sup> The potential  
7 benefits are subjective based on the limited supporting  
8 documentation referred to above. The Company appears to describe  
9 operations in crises due to high volume users on one hand, yet on  
10 the other hand, fails to meet its burden to describe how the pilot may  
11 result in relief to these systems or an avoidance of capital  
12 expenditures.

13 The Company proposes the use of a price elasticity constant that is  
14 described in two sources referenced on page 22 of the direct  
15 testimony of Company witness Thill and is not specific to Aqua’s  
16 customer base, to prospectively reduce consumption based on the  
17 proposed price increase to the volumetric rate within the inclining  
18 block rate structure. While a price elasticity of -0.3 may be expected  
19 on average, the projective repression applied to the customer  
20 consumption data is in addition to the Company’s Conservation  
21 Normalization Factor. The Company’s proposed factor most certainly

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<sup>14</sup> Aqua response to Public Staff Data Request No. 120-1 in Docket No. W-218, Sub 526.

1 includes some degree of price elasticity impact as Aqua has  
2 increased its rates three times during the analysis period of three-  
3 year averages from October 1, 2008, to September 30, 2019,  
4 (updated to April 1, 2009, to March 31, 2020). In addition, the  
5 regression ignores the socio-economic demographics of the systems  
6 that may make them less sensitive to price signals. The Company's  
7 combination of the price elasticity, Conservation Normalization  
8 Factor, and failure to take into account socio-economic  
9 demographics is likely to result in the overestimation of the expected  
10 consumption reduction.

11 While limited in scope to the pilot program, the proposed revenue  
12 reconciliation is materially the same as the proposed CAM. Similar  
13 to the Company's reservation of the right to withdraw its request for  
14 a CAM, Company witness Thill states, "If Aqua is not afforded an  
15 ability to true-up its revenue periodically throughout the pilot  
16 program, the Company reserves the right to withdraw its request to  
17 implement the proposed pilot rates and, instead, requests that the  
18 consolidated rate design be applied to all customers within their  
19 applicable rate entities."<sup>15</sup> This creates a scenario rife with  
20 uncertainty in which any variation to the Company's proposed  
21 revenue reconciliation and/or the CAM could prompt the Company

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<sup>15</sup> Page 28, lines 10-14, Direct Testimony of Company witness Edward Thill filed in Docket No. W-218, Sub 526, on December 31, 2019.

1 to withdraw the request and it is unclear when that might happen.  
2 This uncertainty could drastically impact interrelated issues such as  
3 the pilot program, CAM, rate design, and rate of return. Therefore, in  
4 order that the pilot request and its potential impact on other issues  
5 may be properly investigated and evaluated, the Company should  
6 not be permitted to alter its request indefinitely.

7 For the reasons stated above and in the discussion of the revenue  
8 reconciliation and CAM below, the Public Staff recommends that the  
9 Commission deny the Company's proposal for a pilot program.

10 **CONSUMPTION ADJUSTMENT MECHANISM**

11 **Q. HAS THE COMPANY PROPOSED TO IMPLEMENT A CAM?**

12 A. Yes. Aqua has requested authority to implement a CAM within each  
13 of the Company's five Rate Divisions, pursuant to N.C. Gen. Stat. §  
14 62-133.12A and subject to the final rules to be defined under Docket  
15 No. W-100, Sub 61. On page 18 of its Application, Aqua asserts that  
16 the mechanism, if approved for use, is intended to provide a true-up  
17 of the average per-customer consumption levels used to calculate  
18 rates necessary to achieve an approved revenue requirement. Aqua  
19 further asserts that the mechanism provides the Company and its  
20 customers rate protections during periods of fluctuating consumption  
21 - high or low - that could otherwise result in over- or under-collection  
22 of approved revenue levels. Aqua also reserves the right to withdraw

1 the CAM if the rules to be adopted in Docket No. W-100, Sub 61,  
2 render the use of a CAM infeasible for the Company. The direct  
3 testimony of Company witness Becker regarding the proposed CAM  
4 generally mirrors the application language above, with the exception  
5 that Aqua supported the legislation under House Bill 529 and he  
6 makes no mention of infeasibility but rather states, “Aqua reserves  
7 the right to withdraw the Company’s request to implement a CAM in  
8 this rate case docket, subject to the final terms and conditions that  
9 may be ordered.”<sup>16</sup> This is essentially the totality of the Company’s  
10 testimony and evidence in support of its CAM request in the rate  
11 case.

12 **Q. WHAT IS THE PUBLIC STAFF’S POSITION ON AQUA’S**  
13 **REQUESTED CONSUMPTION ADJUSTMENT MECHANISM?**

14 A. The Public Staff does not believe the CAM<sup>17</sup>, as proposed by Aqua  
15 jointly with CWSNC, is in the public interest and recommends that  
16 the Commission deny the request to implement the mechanism. The  
17 Commission’s Order in the rulemaking proceeding states, “the  
18 Commission is not persuaded that the Companies’ proposal is a

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<sup>16</sup> Page 33, line 7, through page 34, line 6, Direct Testimony of Company witness Shannon Becker filed in Docket No. W-218, Sub 526, on December 31, 2019.

<sup>17</sup> Initial Comments Regarding Rulemaking Proceeding filed on January 31, 2020, jointly by Aqua and CWSNC in response to the Commission’s Order Establishing Rulemaking Proceeding and Granting Petitions to Intervene in Docket No. W-100, Sub 61.

1 reasonable or appropriate means of implementing the CAM  
2 Statute.”<sup>18</sup> The revenue reconciliation in the pilot program and the  
3 CAM proposed by Aqua are nearly identical calculations and  
4 procedures. Due to these similarities, the Public Staff interprets the  
5 Commission’s Order quoted above to be applicable to both the  
6 revenue reconciliation and the CAM. Said another way, the  
7 Company’s revenue reconciliation and CAM requests are effectively  
8 denied by the Commission’s order in the rulemaking proceeding.  
9 Until the Company either withdraws or amends its request, it would  
10 be premature for the Public Staff to evaluate the request or proffer  
11 any recommendation.

12 In recognition of this pending rate case and the Company’s expressly  
13 reserved right to withdraw or modify the requested CAM, the  
14 Commission has allowed Aqua 30 days (to June 11, 2020) from its  
15 Order dated May 12, 2020, to amend its application with respect to  
16 the CAM. The Public Staff should be afforded time to review,  
17 investigate, and provide testimony regarding any modification to  
18 Aqua’s CAM request and the related issues of the pilot program, rate  
19 design, and rate of return. Furthermore, if the Company withdraws  
20 the CAM, the Public Staff reserves the right to file supplemental

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<sup>18</sup> Order Adopting Commission Rule R7-40 and Commission Rule R10-27, *Petition for Rulemaking to Implement N.C. Gen. Sta. § 62-133.12A, North Carolina Session Law 2019-88 (House Bill 529)*, No. W-100, Sub 61, at 11 (N.C.U.C. May 12, 2020).

1 testimony. Any amendment to the Company's request for a CAM  
2 should be provided in a notice to customers. This could be efficiently  
3 provided at the same time as the notice of rescheduled public  
4 hearings for customer testimony. Notice to customers of the request  
5 for CAM approval is explicitly required by section (c) of the newly  
6 adopted rules.

7 **BILLING ANALYSIS**

8 **Q. PLEASE BRIEFLY DESCRIBE THE BILLING ANALYSIS THAT**  
9 **YOU HAVE CONDUCTED.**

10 A. I have reviewed and analyzed the Company billing data for the test  
11 year ended September 2019 and the prior two years of data. In  
12 addition, the billing data updated through March 2020 was provided  
13 at my request. I have performed a billing analysis to determine the  
14 level of revenues produced at present and proposed rates utilizing  
15 the data updated through March 31, 2020. The billing determinants  
16 have been normalized for end of period customer counts and a three-  
17 year average has been applied for consumption. I have developed a  
18 recommended rate design to recover the revenue requirement set  
19 forth in the pre-filed testimony of Public Staff witness Henry. The rate  
20 design includes specific usage rates for water systems that purchase  
21 and resell bulk water from a third party provider.

1 **Q. WHAT CHANGES ARE REFLECTED IN YOUR UPDATED TEST**  
2 **YEAR BILLING ANALYSIS THAT ARE NOT REFLECTED IN THE**  
3 **ANALYSIS FILED BY THE COMPANY?**

4 A. Updating the test year billing data to the 12-month period ending  
5 March 31, 2020, resulted in a higher level of bills than reflected in the  
6 originally filed application for the 12-month test year period ending  
7 September 30, 2019. Customer counts, as opposed to bills, were  
8 requested and provided for the months of January, February, and  
9 March of 2020. A strict implementation of end of period customers  
10 multiplied by 12 months would have significantly underrepresented  
11 the number of irrigation accounts and associated usage when  
12 comparing September 2019 to March 2020, because some  
13 customers have their irrigation service shut off during the winter. For  
14 those rate codes, I typically manually adjusted the customer count to  
15 a whole number average or the bill count to the actual number for the  
16 updated test year.

17 I also adjusted the consumption for the updated data using a three-  
18 year average (April 2017 through March 2020) compared to the  
19 Company's application of its Conservation Normalization Factor to  
20 the three-year average (October 2016 through September 2019).  
21 The consumption adjustment resulted in a 0.65% increase for ANC  
22 Water, 5.22% decrease for ANC Sewer, 0.66% increase for  
23 Brookwood Water, 8.13% decrease for Fairways Water, and 11.52%

1 decrease for Fairways Sewer to reflect the difference between the  
2 test year ending September, 30, 2019, per customer usage and the  
3 three-year average for the period ended March 31, 2020.

4 **Q. PLEASE BRIEFLY DESCRIBE THE COMPANY'S CONTENTIONS**  
5 **REGARDING AVERAGE CONSUMPTION PER CUSTOMER**  
6 **TRENDS.**

7 A. The Company's testimony is largely duplicative of its contentions  
8 expressed in the last rate case regarding a downward trend in  
9 consumption that prevents the Company from earning its authorized  
10 return. This is made clear through the comparison of the Evidence  
11 and Conclusions for Findings of Fact Nos. 118-119 on page 117 of  
12 the Commission's W-218, Sub 497, Order and the Direct Testimony  
13 of Company witness Edward Thill, page 7, as follows:

14 Evidence and Conclusions for Findings of Fact Nos. 118-119

15 In his testimony, Aqua NC witness Becker asserted  
16 that, over the last several years, the average  
17 consumption per customer has varied widely due to  
18 environmental factors, conservation, and pricing  
19 impact. Witness Becker cited the "Studies of  
20 Volumetric Wastewater Rate Structures and a  
21 Consumption Adjustment Mechanism for Water Rates  
22 of Aqua North Carolina, Inc."<sup>[19]</sup> completed by the EFC  
23 at the UNC School of Government, which provides in  
24 pertinent part that, "[t]he analysis demonstrates that  
25 average water use has declined significantly among  
26 Aqua water customers, relative to test year average  
27 water use, although it has recently stabilized close to

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<sup>19</sup> The EFC Report was filed in Docket No. W-218, Sub 363A on March 31, 2016.

1 5,000 gallons/month average for ANC customers.” Tr.  
2 Vol. 5, at 43-44.

3 Witness Becker asserted that, though the trend is one  
4 of declining consumption, it should be noted that  
5 consumption can also increase significantly during  
6 periods of warm weather. He also asserted that  
7 declining consumption can be attributed to several  
8 factors including more efficient plumbing fixtures and  
9 household appliances, governmental programs  
10 encouraging greater efficiency in water use, changes  
11 in landscaping patterns, and consumer responses to  
12 these price signals. Id. at 44.

13 Direct Testimony of Company witness Edward Thill

14 Over the last several years, the average consumption  
15 per customer has varied widely due to environmental  
16 factors, conservation, and pricing. The fact is that  
17 Aqua’s customer habits are changing and, overall,  
18 consumption is declining due to a number of persistent  
19 factors, including more efficient plumbing fixtures and  
20 household appliances, governmental programs  
21 encouraging greater efficiency in water use, changes  
22 in landscaping patterns, and consumer response to  
23 conservation price signals.

24 The aforementioned EFC Study concluded, in pertinent  
25 part, that:

26 “The analysis demonstrates that average water  
27 use has declined significantly among Aqua  
28 water customers, relative to test year average  
29 water use, although has recently stabilized  
30 close to 5,000 gallons/month average for ANC  
31 customers. The drop in average consumption  
32 reduced the water revenues generated below  
33 the rate case revenue requirements for most  
34 years (despite a growth in customers).” EFC  
35 Report at p. 58.

36 Although the EFC Report assessed that consumption  
37 appeared to be stabilizing in 2015, Aqua’s experience  
38 has been a continued overall decline in customer  
39 consumption (Thill Direct Exhibit 1).

1 **Q. WHAT OBSERVATIONS HAVE YOU MADE REGARDING**  
2 **CONSUMPTION TRENDS OF AQUA CUSTOMERS?**

3 A. As noted in the EFC Study,<sup>20</sup> Aqua water customers' consumption  
4 has stabilized close to an average of 5,000 gallons per month. From  
5 Thill Direct Exhibit 1, I have converted the measurement units and  
6 graphically illustrated the active customer bills, billed consumption,  
7 average monthly consumption per bill, and the three-year average  
8 monthly consumption per bill for the 12-month period ending  
9 September 30 as shown in **Junis Exhibit 1**. On a consolidated basis,  
10 there has been a clear leveling out or stabilization of average monthly  
11 consumption since the dip in 2013. The average monthly  
12 consumption each year may fluctuate above or below the three-year  
13 average, however, the band of variation has narrowed significantly  
14 in recent years. On page two of Junis Exhibit 1, the graphs moving  
15 down the page illustrate this trend as the time period is limited to  
16 progressively recent data. The three-year average is a relatively  
17 accurate representation of expected consumption in the short-term.  
18 This is especially true in light of Aqua's plans to file rate cases every

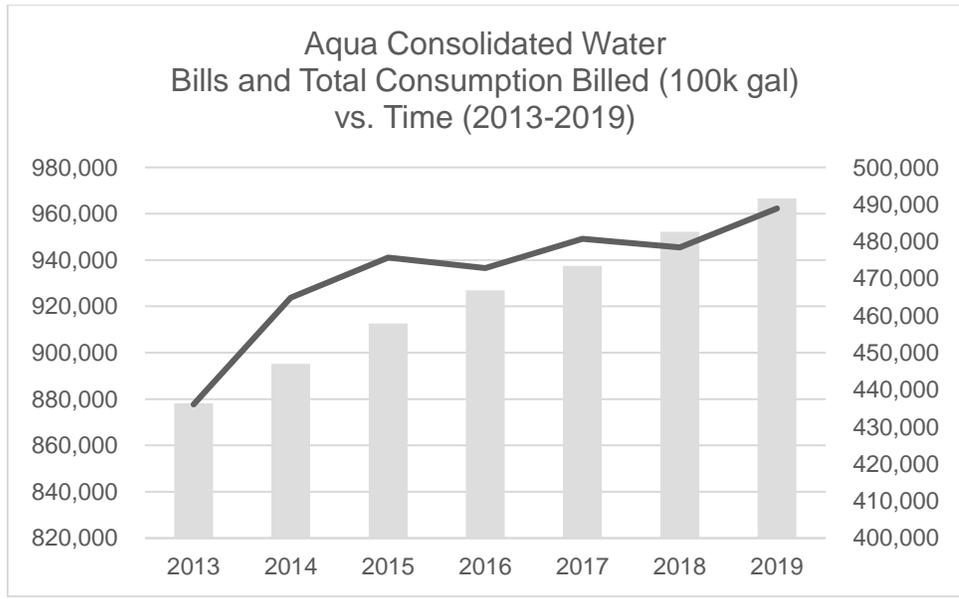
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<sup>20</sup> The Report to the Public Staff of the North Carolina Utilities Commission and Aqua North Carolina, Inc. on the Studies of Volumetric Wastewater Rate Structures and a Consumption Adjustment Mechanism for Water Rates of Aqua North Carolina, Inc. prepared by the Environmental Finance Center at the UNC School of Government was filed in Docket No. W-218, Sub 363A, on March 31, 2016.

<https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=a7fd9d58-46ed-425f-9298-c4419f319a1f>

1 15 months. In addition, as shown in Junis Figure 1 below, there has  
2 been a consistent gradual growth in customers and total  
3 consumption since 2013.<sup>21</sup> As a result of this growth, both revenues  
4 from base facilities charges and volumetric charges have increased  
5 from year to year. Therefore, Aqua's actual total revenues have  
6 increased from year to year and would exceed the revenue  
7 requirement approved by the Commission in the prior two rate cases.  
8 In Junis Figure 1, the left-hand axis is total bills and the right-hand  
9 axis is total consumption billed (in 100,000 gallons).

10 Junis Figure 1



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<sup>21</sup> Order Granting Partial Rate Increase, Approving Rate Adjustment mechanism, and Requiring Customer Notice, *Application by Aqua North Carolina, Inc. for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All of Its Service Areas in North Carolina*, No. W-218, Sub 363 (N.C.U.C. May 2, 2014).

1 Using the trend summary workpapers of Company witness Edward  
2 Thill that are part of his billing analysis and rate design, I have  
3 graphically illustrated the average monthly consumption per bill for  
4 the updated test year ending March 31, 2020, and the three-year  
5 average monthly consumption per bill for the 12-month periods  
6 ending March 31 as shown in **Junis Exhibit 2**. The first two pages  
7 of the exhibit are Company witness Thill's tables for calculating the  
8 Conservation Normalization Factor, which I address in greater detail  
9 below. The following pages of the exhibit are the graphs of the  
10 average monthly consumption per bill and the three-year average  
11 monthly consumption per bill over time for each water rate entity (i.e.,  
12 ANC Water, Brookwood Water, and Fairways Water) and the  
13 consolidated water entities. The observations are similar to those  
14 noted above with the exceptions that Brookwood Water has a  
15 consistent downward trend in average monthly consumption and  
16 Fairways Water average consumption spiked in the most recent 12-  
17 month period ending March 31, 2020. It would be reasonable to  
18 expect the Brookwood Water average monthly consumption to  
19 eventually flatten and stabilize and for the Fairways Water to return  
20 to equilibrium. From the updated data on a consolidated basis, there  
21 has been a clear leveling or stabilizing of average monthly  
22 consumption. On page five of Junis Exhibit 2, the third graph at the  
23 bottom of the page shows the most recent five years of average

1 monthly consumption per bill and the three-year average  
2 consumption. The three-year average of 5,087 gallons per monthly  
3 bill would have been within +/-4% of the subsequent years (or TY  
4 Avg in the graph), including higher in two years and lower in two  
5 years.

6 **Q. IS THERE AN EXPLANATION FOR THE UNUSUALLY LOW**  
7 **CONSUMPTION IN THE 12-MONTH PERIOD ENDING MARCH 31,**  
8 **2019?**

9 A. Yes. The simple answer is weather. More specifically, based on a  
10 review of climate data from the National Oceanic & Atmospheric  
11 Administration's station at the Raleigh-Durham International Airport,  
12 the representative area experienced above-average precipitation,  
13 both in quantity and frequency, in 2018 and early 2019. This  
14 conclusion is further supported by data from United States Drought  
15 Monitor (USDM).<sup>22</sup> The Commission's website provides a link to the  
16 website of the North Carolina Drought Management Advisory  
17 Council (DMAC), which collects, analyzes, and interprets information  
18 to determine the latest drought designations and maintains a website  
19 displaying the North Carolina portion of the United States Drought

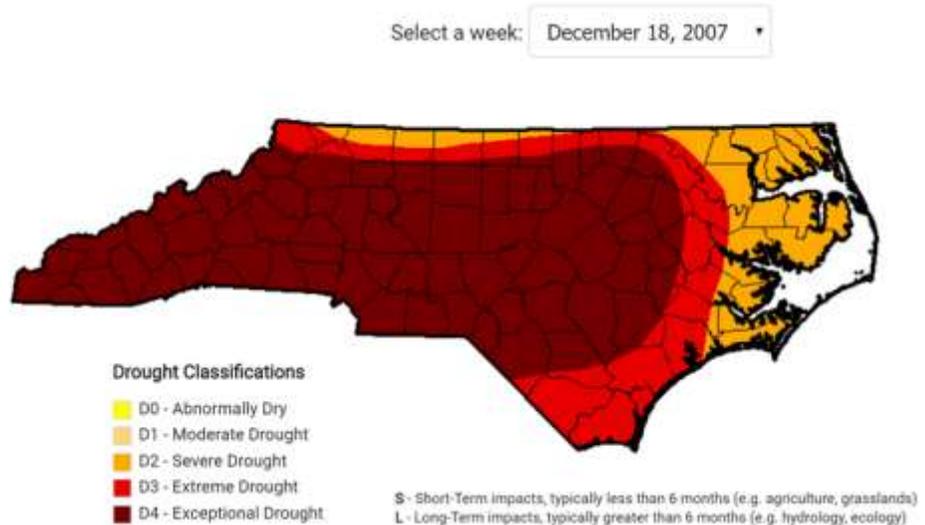
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<sup>22</sup> <https://droughtmonitor.unl.edu/> (Last visited May 20, 2020).

The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. Map courtesy of NDMC.

1 Monitor's drought severity map. I have downloaded USDM drought  
2 intensity data for North Carolina and Wake County from January 4,  
3 2000, through May 12, 2020. I reviewed and graphed this data for  
4 North Carolina and Wake County as shown in **Junis Exhibits 3** and  
5 **4**, respectively. North Carolina experienced a historic drought  
6 beginning in 2007. Areas of the State were designated as being  
7 under severe drought (D2) starting in April 2007 and did not  
8 completely return to below severe drought levels until April 2009. The  
9 peak of the drought in December 2007 is shown in the figure below.

10 Junis Figure 2



11 At the time, 71 counties were classified as experiencing exceptional  
12 drought conditions. This is in stark contrast to more recent years.  
13 Again, the graphs in **Junis Exhibits 3** and **4** progressively narrow  
14 the focus on the updated three-average consumption data period

1 ending March 31, 2020. The updated test year and the prior two  
2 years (i.e., TY, TY-1, and TY-2) experienced minimal moderate  
3 drought conditions, undesignated to minimal abnormally dry  
4 conditions, and moderate drought conditions, respectively. With the  
5 exception of the first two months, TY-1 or the 12-month period ending  
6 March 31, 2019, experienced minimal dry conditions. Therefore,  
7 consumption was unusually low.

8 **Q. PLEASE BRIEFLY DESCRIBE THE CONSERVATION**  
9 **NORMALIZATION FACTOR PROPOSED BY THE COMPANY.**

10 A. The Company contends that the three-year average consumption  
11 understates consumption and that the conservation normalization  
12 factor is a correction. This is despite the Company's  
13 acknowledgement that the three-average advocated by the Public  
14 Staff accomplishes a smoothing of year-to-year consumption  
15 patterns impacted by weather.

16 **Q. WHAT IS THE PUBLIC STAFF'S POSITION ON AQUA'S**  
17 **PROPOSED CONSERVATION NORMALIZATION FACTOR?**

18 A. The Public Staff recommends the Commission deny the utilization of  
19 the Conservation Normalization Factor. As shown in **Junis Exhibits**  
20 **1 and 2**, the average monthly consumption per bill has stabilized in  
21 the last five years and it would be unreasonable to further reduce  
22 average consumption based on historical data that is not

1 representative of current customer usage habits and conditions. The  
2 Conservation Normalization Factor in the Company's Application  
3 includes data from as far back as October 2008 and, even if updated,  
4 from April 2009. The average consumption during the years 2008  
5 through 2012 were higher and trended downward. However, that  
6 trend is no longer occurring and, therefore, using it to calculate the  
7 Conservation Normalization Factor would underestimate average  
8 monthly consumption per customer. This is especially important  
9 when the number of customers and the total consumption continues  
10 to increase and, as concluded by the EFC, that growth in revenues  
11 outpaces the associated variable expenses.

12 **Q. WHAT EXPENSES HAS THE COMPANY APPLIED ITS**  
13 **CONSUMPTION NORMALIZATION FACTOR TO?**

14 A. Company witness Thill states, "Also consistent with prior practice,  
15 the combined factor is used to adjust the revenue requirement  
16 associated with certain variable expenses (i.e., a reduction in the  
17 volumes assumed for revenue purposes would have a matching  
18 reduction in the expense recovery required for items such as  
19 chemicals and power)."<sup>23</sup> On the exhibits filed as part of the  
20 Company's application, the Company makes annualization and

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<sup>23</sup> Page 13, lines 4-8, Direct Testimony of Company witness Edward Thill filed in Docket No. W-218, Sub 526, on December 31, 2019.

1 consumption adjustments to purchased water, purchased sewer,  
2 sludge hauling, purchased power, fuel for power production,  
3 chemicals, materials and supplies, and some miscellaneous  
4 expenses. The consumption adjustment is not made to the sewer  
5 rate entities. The adjustments for purchased water, purchased  
6 sewer, materials and supplies, and miscellaneous expenses are  
7 inconsistent with the Commission's Order in the W-218, Sub 497,  
8 rate case.

9 **Q. DID YOU PROVIDE DATA NEEDED FOR PUBLIC STAFF**  
10 **WITNESS HENRY TO CALCULATE CUSTOMER GROWTH AND**  
11 **CONSUMPTION FACTORS TO APPLY TO THE TEST YEAR**  
12 **EXPENSES?**

13 A. Yes. Using the data in my billing analysis exhibit updated through  
14 March 31, 2020, Public Staff witness Henry was able to apply the  
15 growth and consumption factors referred to in his testimony.

1 Junis Table 3

Rate Entity	Test Year Ending Sep-19	PS Pro Forma Bills Ending Mar-20	Growth Factor
ANC Water	747,548	758,029	1.40%
ANC Sewer	198,960	208,076	4.58%
Brookwood Water	165,549	166,500	0.57%
Fairways Water	56,499	57,900	2.48%
Fairways Sewer	36,107	36,696	1.63%

2 Junis Table 4

Rate Entity	Test Year Ending Sep-19	Three-Year Average Ending Mar-20	Consumption Factor
ANC Water	4.840	4.871	0.65%
ANC Sewer	5.280	5.004	-5.22%
Brookwood Water	5.035	5.069	0.66%
Fairways Water	7.785	7.151	-8.13%
Fairways Sewer	6.972	6.169	-11.52%

3 In addition, I recommend that witness Henry apply the growth and  
 4 consumption factors to the water and sewer short-term variable  
 5 expenses, sludge hauling, purchased power, fuel for power, and  
 6 chemicals, identified by the EFC. (EFC Report at 6 and 11) The  
 7 growth and consumption factors should not be applied to purchased  
 8 water expenses or purchased wastewater treatment. Short-term

1 variability of the purchased water expenses and purchased  
 2 wastewater treatment are almost entirely matched by variability of  
 3 the commodity revenues of those systems. This is consistent with  
 4 the Commission's Order in the W-218, Sub 497, rate case. The other  
 5 change I recommend is that the consumption factor be applied to the  
 6 ANC Sewer and Fairways Sewer variable expenses. In this rate  
 7 case, I analyzed the metered water data for approximately 62% and  
 8 95% of the pro forma bills for ANC Sewer and Fairways Sewer,  
 9 respectively. Since this volumetric billing data represents a majority  
 10 of the customer bases for the sewer rate entities, it is appropriate to  
 11 apply the consumption factor to the ANC Sewer and Fairways Sewer  
 12 variable expenses.

13 **Q. WHAT ARE THE PRO FORMA REVENUES AT EXISTING**  
 14 **PRESENT RATES AND AQUA'S PROPOSED RATES?**

15 A. The pro forma revenues for the 12 months ended March 31, 2020,  
 16 are as follows:

17 Junis Table 5

Rate Entity	Present Rates	Proposed Rates
Aqua Water	\$ 36,559,502	\$ 40,574,590
Aqua Sewer	\$ 15,607,641	\$ 17,152,079
Brookwood Water	\$ 5,777,200	\$ 6,803,249
Fairways Water	\$ 1,138,759	\$ 1,252,754
Fairways Sewer	\$ 2,189,589	\$ 2,271,487
Total	\$ 61,221,011	\$ 68,003,332

1 The more detailed data supporting these levels of revenues is  
2 attached as **Junis Exhibits 5, 6, 8, 10, 11, 12, 14, and 16.**

3 **RATE DESIGN**

4 **Q. PLEASE BRIEFLY DESCRIBE THE WATER RATE DESIGN**  
5 **PROPOSED BY THE COMPANY.**

6 A. With the exception of the proposed pilot program discussed above,  
7 the Company proposes to utilize the same ratio of base facilities  
8 charges to volumetric charges as approved by the Commission in  
9 the W-218, Sub 497, rate case. The Company did not request any  
10 changes to purchased water rates.

11 **Q. WHAT IS THE PUBLIC STAFF'S POSITION ON PURCHASED**  
12 **WATER RATES?**

13 A. The Public Staff believes the purchased water rates for systems that  
14 are charged a pass-through volumetric rate should closely match the  
15 volumetric expense incurred by the utility from the provider. Simply,  
16 the goal is for the incremental changes in revenue and expense due  
17 to volume to offset each other. The base facilities charges and a  
18 reasonable amount of water loss are typically included in the cost of  
19 service to determine the uniform base facilities charges. I have  
20 utilized the purchased water expense exhibit and workpapers of  
21 Public Staff witness Lindsay Darden to determine the present  
22 purchased water rate for each provider. For providers with a uniform

1 volumetric rate, the purchased water rate is set equal to the  
2 provider's rate, plus the Commission's regulatory fee of 0.13%. For  
3 providers with tiered rates, the purchased water rate is calculated as  
4 an average or set to the tiered rate that an overwhelming majority of  
5 the test year usage fell into, plus the Commission's regulatory fee of  
6 0.13%. Setting the purchased water rate based on these principles  
7 accomplishes the intended matching and allows for more transparent  
8 pass-through tariff revisions when providers change rates. In  
9 addition, the failure to update the purchased water rates in the rate  
10 case could have a negative effect on customers or the Company. For  
11 example, if Johnston County Public Utilities approved a rate increase  
12 and the incremental increase was captured in the requested  
13 expenses but not the purchased water rates set in the rate case, the  
14 expense would be included in the uniform rates cost of service. A  
15 future pass-through tariff revision request would then seek recovery  
16 of the same incremental increase in expense already captured in the  
17 uniform rate cost of service. For these reasons, the Public Staff  
18 recommends that the Commission approve the purchased water  
19 rates as detailed in **Junis Exhibits 7 and 9**.

20 **Q. WHAT IS THE PUBLIC STAFF'S POSITION ON WATER RATE**  
21 **DESIGN?**

22 A. The Public Staff agrees with the Commission that a balance should  
23 be struck between achieving revenue sufficiency and stability to

1 ensure quality, reliability, and long-term viability for properly operated  
2 and well-managed utilities on the one hand, and setting fair and  
3 reasonable rates that effectively promote efficiency and conservation  
4 on the other hand. Should the Company's request to implement a  
5 consumption adjustment mechanism be withdrawn or denied by the  
6 Commission, the Public Staff recommends an average bill service  
7 revenue ratio of 30:70 (base facilities charge:usage charge) for ANC  
8 Water, Brookwood Water, and Fairways Water customers. The  
9 incremental shift to higher volumetric charges sends a price signal  
10 that properly promotes efficiency and conservation. As discussed  
11 above, the Company's total service revenues continue to increase  
12 annually and are expected to outpace the associated variable  
13 expenses. In addition, average monthly consumption per customer  
14 been shown to be stabilizing. This combination of growth and  
15 stabilizing consumption makes it unlikely that the revenue instability  
16 and insufficiency the Company warns against will come to pass.

17 On March 20, 2019, the Commission issued an Order Establishing  
18 Generic Proceeding and Requiring Comments in Docket No. W-100,  
19 Sub 59 (W-100, Sub 59, Order). The Order made the Public Staff,  
20 CWSNC, and Aqua parties to the proceeding and required the  
21 parties to file initial comments to include "a discussion of rate design  
22 proposals that may better achieve revenue sufficiency and stability  
23 while also sending appropriate efficiency and conservation signals to

1 consumers.” The W-100, Sub 59, Order specifically instructed the  
2 parties to address in their initial comments (1) “specific objectives  
3 that could be achieved from various types of rate structures (for  
4 example, but without limitation, irrigation rates, seasonal rates,  
5 surcharges when supply is low or in a drought situation, increasing  
6 block rates, multiple rate schedules, etc.)”; (2) “the impact on  
7 customers’ monthly charges”; and (3) “the anticipated impact on  
8 efficiency and conservation.” On May 22, 2019, the parties filed their  
9 initial comments and on June 19, 2019, the parties filed their reply  
10 comments. The Public Staff incorporates by reference in this  
11 testimony and requests the Commission take judicial notice of these  
12 filings, specifically the Comments of the Public Staff<sup>24</sup> filed on May  
13 22, 2019, and the Reply Comments of the Pubic Staff<sup>25</sup> filed on June  
14 19, 2019, which are applicable to the subject matter at hand in this  
15 proceeding.

16 In its 2018 North Carolina Water & Wastewater Rates Report<sup>26</sup> (2018  
17 Report), the EFC stated, “[a]nother way to measure the strength of

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<sup>24</sup> <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=39673075-28db-4564-a916-322180eee462>

<sup>25</sup> <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=b5079c74-66a2-4ecb-b5d5-51ad570eb051>

<sup>26</sup> UNC School of Government Environmental Finance Center and North Carolina League of Municipalities. (2018). *2018 North Carolina Water & Wastewater Rates Report*, page 17.

1 the conservation pricing signal of water rates is to determine how  
2 much of a financial reward (decrease in water bill) a customer will  
3 receive by lowering their water consumption from a high volume  
4 (10,000 gallons) to an average level (5,000 gallons).<sup>27</sup> The EFC  
5 further stated that some utilities “reward customers substantially in  
6 terms of bill reduction percentage for cutting back (e.g., nearly  
7 halving the bill when customers halve their consumption) whereas  
8 other utilities provide relatively little incentive (e.g., only a 30 percent  
9 reduction in bill).”<sup>28</sup> For ANC Water, the present uniform water rate  
10 structure provides relatively little incentive, a bill reduction of 37.6%,  
11 for customers to significantly reduce their usage by 50%. The middle  
12 80% of EFC-surveyed North Carolina water utilities utilizing a uniform  
13 rate provide a bill reduction ranging between approximately 32% and  
14 48% and the median bill reduction is 40%.<sup>29</sup>

15 If Uniform Water residential rates had been implemented at the 30:70  
16 ratio in the W-218, Sub 497, rate case utilizing the billing data and  
17 average monthly usage per customer from that proceeding, then the  
18 bill reduction percentage would have increased from 37.6% to 41.2%

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[https://efc.sog.unc.edu/sites/default/files/2018/NCLM\\_EFC\\_Annual\\_Rates\\_Report\\_2018.pdf](https://efc.sog.unc.edu/sites/default/files/2018/NCLM_EFC_Annual_Rates_Report_2018.pdf)

The document is an appendix to the Comments of the Public Staff filed on May 22, 2019, in Docket No. W-100, Sub 59.

<sup>27</sup> *Id.* at 20.

<sup>28</sup> *Id.* at 20-21.

<sup>29</sup> *Id.* at 21.

1 as illustrated in Junis Table 6 below. The hypothetical 30:70 rates  
2 result in higher bill amounts because the average consumption per  
3 bill was below 5,000 gallons.

4 Junis Table 6

ANC Water W-218, Sub 497	40:60	30:70
Base facility charge	\$19.25	\$14.62
Uniform usage charge, per 1,000 gallons	\$ 5.83	\$ 6.87
Bill amount, 10,000 gallons	\$77.55	\$83.32
Bill amount, 5,000 gallons	\$48.40	\$48.97
Bill reduction percentage	37.6%	41.2%

5 A lower base facilities charge reduces the cost burden on customers  
6 for access to utility service before they use any service. It allows  
7 customers to have greater control over their total bills by changing  
8 their usage through improved efficiency and conservation.

9 The rate design ratio of 30:70, as discussed above, has been  
10 implemented in my testimony below and in exhibits detailing the  
11 Public Staff's billing analysis and proposed rates.

12 Comparing the Company's proposed rates and the Public Staff's  
13 recommended rates for ANC Water, the bill reduction percentages  
14 are 38.0% and 41.7%, respectively, as set out in Junis Table 7 below.

1 Junis Table 7

ANC Water W-218, Sub 526	Company Proposed	PS Recommended
Base facility charge	\$21.57	\$14.50
Uniform usage charge, per 1,000 gallons	\$ 6.80	\$ 7.33
Bill amount, 10,000 gallons	\$89.57	\$87.80
Bill amount, 5,000 gallons	\$55.57	\$51.15
Bill reduction percentage	38.0%	41.7%

2 A price signal measure can simply be the cost of the next 1,000  
 3 gallons. In Junis Table 7 above, the next 1,000 gallons at a rate of  
 4 \$7.33 (30:70 ratio) is 8% more costly than the Company's proposed  
 5 water usage rate, while the base facilities charge is 33% less costly.

6 The base facilities charge is a frequently discussed and highly  
 7 controversial issue in electric, natural gas, water, and wastewater  
 8 rate cases. There are advantages and disadvantages to the different  
 9 base to usage ratios for the Company, rate groups, and individual  
 10 customers. During my career, electric and natural gas residential  
 11 base facilities charges have remained in the \$10 to \$15 range, while  
 12 water base facilities charges have continued to increase and  
 13 wastewater rates have historically been a flat rate or a very high  
 14 percentage of the average residential bill.

15 In the 2020 North Carolina Water & Wastewater Rates Report, EFC  
 16 and NCLM conducted a survey with representation from 495 of 517

1 rate-charging water and wastewater utilities in North Carolina.<sup>30</sup> The  
2 median monthly base charge amount was \$17 for water utilities and  
3 \$19 for wastewater utilities.<sup>31</sup> In addition, the median uniform  
4 volumetric rate per 1,000 gallons was \$5.00 for water and \$6.11 for  
5 wastewater services.<sup>32</sup>

6 If water and wastewater rates were set as the Companies would like,  
7 the rates would be almost flat to guarantee revenues. On pages 10  
8 and 11 of the Joint Comments by Aqua and CWSNC<sup>33</sup>, the  
9 Companies stated the following:

10 From a purely financial perspective, a water utility may  
11 be best served by a flat-rate water charge, but the  
12 Companies acknowledge the danger such a message  
13 would send from a conservation perspective and  
14 emphatically do not endorse such a structure. Any shift  
15 to more fixed fees will lessen the revenue gap caused  
16 by further conservation efforts, but as long as there is  
17 any commodity charge, utilities incur some risk of  
18 under-recovery attributable to declining consumption  
19 and seasonal usage fluctuations. As such, the  
20 Companies recommended that any future rate design  
21 utilize a representative ratio of fixed (and semi-fixed)  
22 costs versus variable costs to determine the base  
23 facility charge and volumetric components.

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<sup>30</sup> This report is just one resource in a series on North Carolina water and wastewater rates, funded by the North Carolina Department of Environmental Quality's Division of Water Infrastructure (DWI) and compiled by the North Carolina League of Municipalities (NCLM) and the Environmental Finance Center (EFC) at the University of North Carolina at Chapel Hill.

[https://efc.sog.unc.edu/sites/default/files/2020/NC%202020\\_Final.pdf](https://efc.sog.unc.edu/sites/default/files/2020/NC%202020_Final.pdf) (Last visited May 23, 2020).

<sup>31</sup> *Id.* at 4.

<sup>32</sup> *Id.* at 5.

<sup>33</sup> <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=f0ef1134-a320-4a8a-a02f-5cfc523797a1>

1 Neither flat rates nor metered rates with moderate to high base  
2 facilities charges properly balance revenue sufficiency and stability  
3 with the promotion of efficiency and conservation. A strict straight  
4 fixed/variable rate design matching fixed costs to the base facilities  
5 charge disassociates the customer level cost of service burden  
6 generated by high users. Flat rates or low volumetric rates promote  
7 discretionary usage and wasteful practices. Under the current  
8 regulatory construct, the Companies profit from increasing usage  
9 between rate cases and earn an authorized return on capital  
10 investment. Increased usage is also an increase in demand that may  
11 accelerate and/or necessitate the costly expansion of existing plant  
12 capacity or filtration on formerly offline wells. Discretionary usage  
13 and wasteful usage can also cause service issues like air in the  
14 water, poor water quality, low pressure, and outages.

15 With metered rates, the price signals can be accentuated when  
16 ratepayers are both water and wastewater customers. Presently, the  
17 ANC Sewer and Fairways Sewer residential charges are flat rate.  
18 The ANC Sewer and Fairways Sewer commercial charges are  
19 approximately a 35:65 ratio. The present ANC Sewer volumetric  
20 commercial charges have a bill reduction percentage of 38.7%.

21 **Q. PLEASE BRIEFLY DESCRIBE THE WASTEWATER RATE**  
22 **DESIGN PROPOSED BY THE COMPANY.**

1 A. The Company proposes to utilize the same ratio of base facilities  
2 charges to volumetric charges, a majority of which are monthly flat  
3 rate, as approved by the Commission in the last rate case.

4 **Q. WHAT IS THE PUBLIC STAFF'S POSITION ON WASTEWATER**  
5 **RATE DESIGN?**

6 A. The Public Staff recommends that the service charges to ANC Sewer  
7 and Fairways Sewer customers, which are also ANC Water and  
8 Fairways Water customers, be converted from a flat rate to a  
9 volumetric rate based on their water usage. This has been  
10 considered in past Aqua rate cases dating back to the W-218, Sub  
11 274, rate case. During Aqua's general rate case filed on August 2,  
12 2013, in Docket No. W-218, Sub 363, the Public Staff and Aqua  
13 entered into a stipulation and settlement agreement wherein Aqua  
14 agreed to implement a study conducted by the EFC in lieu of  
15 implementing a CAM (Sub 363 Stipulation). Paragraph No. 13 of the  
16 Sub 363 Stipulation provides that:

17 Aqua and the Public Staff disagree regarding whether  
18 Aqua should be allowed to implement a "consumption  
19 adjustment mechanism," as described in the prefiled  
20 direct testimony of Aqua witnesses Szczygiel (pp. 10-  
21 11) and Roberts (pp. 20-22). Aqua agrees to withdraw  
22 this testimony and in lieu of pursuing that mechanism  
23 in this case, the Company agrees with the Public Staff  
24 that Aqua shall fund a study of mechanisms that  
25 address the rate impact to customers and the revenue  
26 impact to Aqua from significant changes in customer  
27 consumption patterns, such study to be conducted by  
28 the EFC at the same time as the volumetric sewer rate

1 study conducted pursuant to Paragraph 12 above. The  
2 Stipulating Parties shall work together with the EFC to  
3 determine the parameters of the study and shall jointly  
4 oversee the performance of the study. Upon  
5 completion of the study, a report setting forth the data,  
6 methodology, assumptions, and findings of the study  
7 shall be filed with the Commission by the Stipulating  
8 Parties. Aqua may defer the costs of this study on its  
9 books and request that such costs be amortized to the  
10 cost of providing utility service in the Company's next  
11 general rate case; provided, however, that the Public  
12 Staff reserves the right during the next rate case to  
13 contest the inclusion of such costs in the Company's  
14 cost of service.

15 In the Sub 363 Order, the Commission ordered:

16 15. That the Company shall fund a study of  
17 mechanisms that address the rate impact to customers  
18 and the revenue impact to Aqua from significant  
19 changes in customer consumption patterns, to be  
20 conducted by the EFC at the same time as the  
21 volumetric sewer rate study. Aqua and the Public Staff  
22 shall work together with the EFC to determine the  
23 parameters of the study and shall jointly oversee the  
24 performance of the study. A report setting forth the  
25 data, methodology, assumptions, and findings of the  
26 study shall be filed with the Commission within 12  
27 months after the date of this Order.

28 The EFC met with Aqua personnel and the Public Staff on multiple  
29 occasions to discuss the studies and feedback. On March 31, 2016,  
30 the final report titled Studies of Volumetric Wastewater Rate  
31 Structures and a Consumption Adjustment Mechanism for Water  
32 Rates of Aqua North Carolina, Inc. prepared by the EFC (EFC  
33 Report) was filed jointly by Aqua and the Public Staff in Docket No.  
34 W-218, Sub 363A. The stated main goal of the studies was to  
35 "assess the effect on customer bills and Aqua revenues by

1 implementing a volumetric wastewater rate structure or  
2 implementing a consumption adjustment mechanism water rate  
3 structures, relative to the status quo.”<sup>34</sup>

4 The Public Staff would prefer to uniformly move the ratio of base  
5 facilities charge to volumetric charge toward 30:70. However, the  
6 rate structure shift from flat to 30:70 would be anticipated to result in  
7 significant rate shock for customers. While the average bill remains  
8 nearly the same, low users’ bills would decrease and high users’ bills  
9 would increase. As a means of mitigating rate shock while still  
10 progressing toward an effective price signal, the Public Staff  
11 recommends an incremental approach to a 60:40 ratio for ANC  
12 Sewer and Fairways Sewer customers.

13 **Q. WHAT ARE THE PUBLIC STAFF RECOMMENDED RATES?**

14 A. The service revenue requirement reflected in Public Staff witness  
15 Henry’s testimony is as follows:

---

<sup>34</sup> EFC Report at 1.

1 Junis Table 8

Rate Entity	Revenue Requirement
Aqua Water	\$ 36,942,527
Aqua Sewer	\$ 16,071,967
Brookwood Water	\$ 5,817,171
Fairways Water	\$ 1,046,672
Fairways Sewer	\$ 2,043,995
Total	\$ 61,922,332

2 The rates reflected in **Junis Exhibits 7, 9, 13, 15, and 17** under  
3 Public Staff Recommended Rates will achieve these revenue levels.

4 **LIABILITY INSURANCE RIDER**

5 **Q. PLEASE BRIEFLY DESCRIBE THE COMPANY'S REQUEST**  
6 **REGARDING AN INSURANCE RIDER.**

7 A. In the direct testimony of Company witness Dean Gearhart on page  
8 11, lines 13-22, and page 12 lines 1 and 2, Aqua requests a deferred  
9 regulatory asset/liability for insurance claims paid in excess of (asset)  
10 or less than liability as compared to the Commission approved  
11 annual claim expense in this rate case. In the alternative, Aqua  
12 requests recovery for a zero deductible insurance policy for general  
13 liability, workers' compensation, and auto insurance.

14 **Q. WHAT IS THE PUBLIC STAFF'S POSITION ON THE LIABILITY**  
15 **INSURANCE RIDER?**

1 A. The Public Staff strongly opposes these two requests by Aqua as  
2 both disincentive Aqua's safety practices. The general liability and  
3 auto liability only pay claims when Aqua is at fault. Aqua should not  
4 be guaranteed recovery from customers' fees for claims payments.  
5 The guarantee also disincentives Aqua to minimize claims.  
6 In addition, Aqua's guaranteed recovery of all workers'  
7 compensation claims would disincentive Aqua's employee safety  
8 education and practices, including the provision of safe work places  
9 and personal protective equipment such as hard hats, safety  
10 glasses, and steel-toed boots. Again, the guarantee would be a  
11 disincentive Aqua to minimize workers' compensation claims.

12 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

13 A. Yes, it does.

**QUALIFICATIONS AND EXPERIENCE**

CHARLES M. JUNIS

I graduated from North Carolina State University in 2011, earning a Bachelor of Science Degree in Civil Engineering. I have 9 years of engineering experience, and since joining the Public Staff in April 2013, have worked on utility rate case proceedings, new franchise and transfer applications, emergency operations, customer complaints, general rate cases, and other aspects of utility regulation. Prior to joining the Public Staff, I worked for Farnsworth Group, an engineering and architectural consulting firm. I am a licensed Professional Engineer in North Carolina.

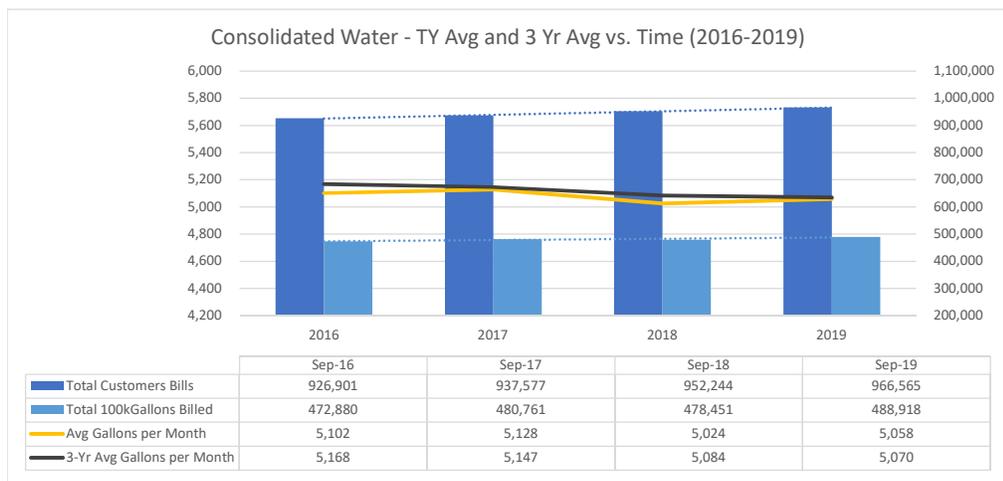
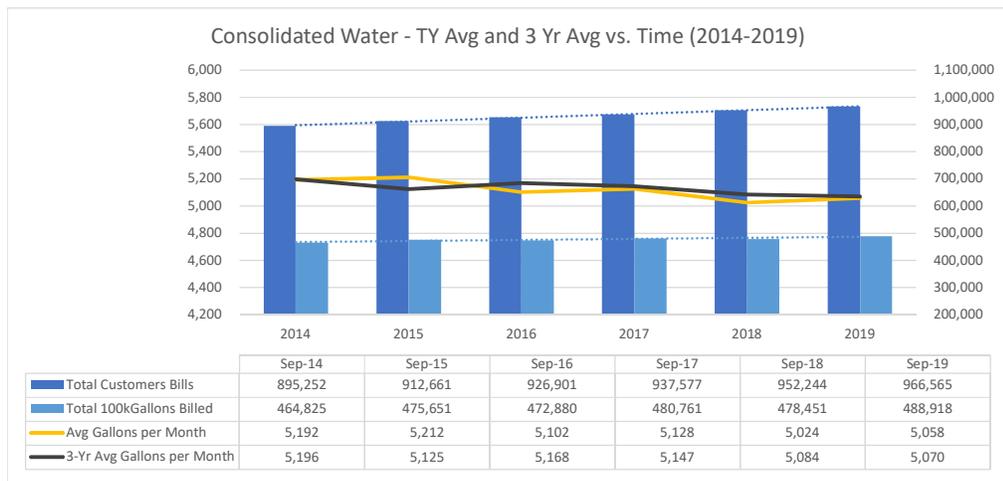
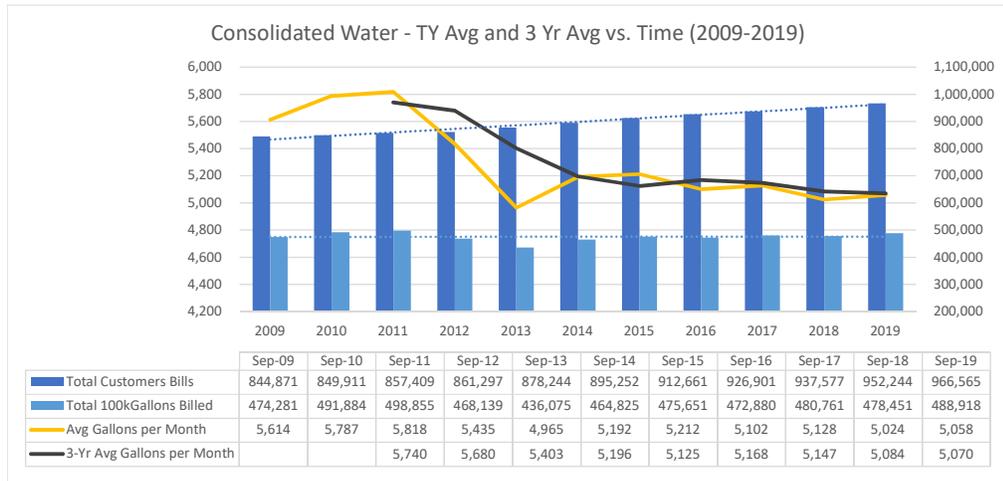


**Aqua North Carolina, Inc.**  
**Docket No. W-218, Sub 526**

Thill Direct Exhibit 1

**Historical Conservation Experience**

Test Year Ended	Total Customers Bills	Total kGallons Billed	Total 100kGallons Billed	Avg Gallons per Month	3-Yr Avg Gallons per Month	Change in 3-Yr Avg	Compounded Annual Growth Rate
<b>Consolidated</b>							
Sep-09	844,871	47,428,082	474,281	5,614			
Sep-10	849,911	49,188,432	491,884	5,787			
Sep-11	857,409	49,885,466	498,855	5,818	5,740		
Sep-12	861,297	46,813,921	468,139	5,435	5,680	-1.06%	
Sep-13	878,244	43,607,549	436,075	4,965	5,403	-4.87%	
Sep-14	895,252	46,482,452	464,825	5,192	5,196	-3.83%	
Sep-15	912,661	47,565,124	475,651	5,212	5,125	-1.37%	
Sep-16	926,901	47,287,963	472,880	5,102	5,168	0.85%	
Sep-17	937,577	48,076,057	480,761	5,128	5,147	-0.41%	
Sep-18	952,244	47,845,083	478,451	5,024	5,084	-1.21%	
Sep-19	966,565	48,891,837	488,918	5,058	5,070	-0.28%	-1.54%
<b>Aqua NC</b>							
Sep-09	639,606	34,171,851	341,719	5,343			
Sep-10	643,070	35,433,430	354,334	5,510			
Sep-11	649,629	36,092,568	360,926	5,556	5,470		
Sep-12	654,306	33,950,878	339,509	5,189	5,417	-0.96%	
Sep-13	670,955	31,553,318	315,533	4,703	5,144	-5.04%	
Sep-14	687,071	33,766,698	337,667	4,915	4,933	-4.11%	
Sep-15	702,835	35,297,154	352,972	5,022	4,882	-1.03%	
Sep-16	714,272	35,083,286	350,833	4,912	4,950	1.38%	
Sep-17	724,037	36,060,305	360,603	4,980	4,971	0.44%	
Sep-18	734,818	35,757,333	357,573	4,866	4,919	-1.05%	
Sep-19	745,135	36,044,481	360,445	4,837	4,894	-0.51%	-1.38%
<b>Brookwood</b>							
Sep-09	165,505	10,141,652	101,417	6,128			
Sep-10	166,045	10,461,136	104,611	6,300			
Sep-11	166,461	10,249,282	102,493	6,157	6,195		
Sep-12	164,677	9,521,052	95,211	5,782	6,081	-1.85%	
Sep-13	164,018	9,163,475	91,635	5,587	5,843	-3.90%	
Sep-14	162,951	9,523,561	95,236	5,844	5,737	-1.81%	
Sep-15	163,099	8,993,485	89,935	5,514	5,648	-1.55%	
Sep-16	164,015	8,760,644	87,606	5,341	5,566	-1.45%	
Sep-17	162,897	8,564,599	85,646	5,258	5,371	-3.50%	
Sep-18	163,535	8,497,683	84,977	5,196	5,265	-1.97%	
Sep-19	164,873	8,332,197	83,322	5,054	5,169	-1.83%	-2.24%
<b>Fairways</b>							
Sep-09	39,760	3,114,579	31,146	7,833			
Sep-10	40,817	3,293,866	32,939	8,070			
Sep-11	41,361	3,543,616	35,436	8,568	8,162		
Sep-12	42,185	3,341,991	33,420	7,922	8,185	0.29%	
Sep-13	43,277	2,890,756	28,908	6,680	7,709	-5.82%	
Sep-14	45,230	3,192,193	31,922	7,058	7,212	-6.45%	
Sep-15	46,727	3,274,485	32,745	7,008	6,919	-4.05%	
Sep-16	48,614	3,444,033	34,440	7,084	7,050	1.89%	
Sep-17	50,643	3,451,153	34,512	6,815	6,966	-1.19%	
Sep-18	53,891	3,590,067	35,901	6,662	6,846	-1.72%	
Sep-19	56,557	4,515,159	45,152	7,983	7,174	4.78%	-1.60%





Entity	Year	TY Ended	TY Avg	3 Yr Avg	3Yr Ch	Pct Ch	Values
ANC	0	9/30/2011	5,556	5,470			
	1	9/30/2012	5,189	5,417	(53)	-0.96%	
	2	9/30/2013	4,703	5,144	(273)	-5.04%	
	3	9/30/2014	4,915	4,933	(211)	-4.11%	
	4	9/30/2015	5,022	4,882	(51)	-1.03%	
	5	9/30/2016	4,912	4,950	67	1.38%	
	6	9/30/2017	4,980	4,971	22	0.44%	
	7	9/30/2018	4,866	4,919	(52)	-1.05%	
	8	9/30/2019	4,837	4,894	(25)	-0.51% CAGR	-1.38%
BW	0	9/30/2011	6,157	6,195			
	1	9/30/2012	5,782	6,081	(115)	-1.8%	
	2	9/30/2013	5,587	5,843	(237)	-3.9%	
	3	9/30/2014	5,844	5,737	(106)	-1.8%	
	4	9/30/2015	5,514	5,648	(89)	-1.6%	
	5	9/30/2016	5,341	5,566	(82)	-1.5%	
	6	9/30/2017	5,258	5,371	(195)	-3.5%	
	7	9/30/2018	5,196	5,265	(106)	-2.0%	
	8	9/30/2019	5,054	5,169	(96)	-1.8% CAGR	-2.24%
FW	0	9/30/2011	8,568	8,162			
	1	9/30/2012	7,922	8,185	24	0.3%	
	2	9/30/2013	6,680	7,709	(477)	-5.8%	
	3	9/30/2014	7,058	7,212	(497)	-6.4%	
	4	9/30/2015	7,008	6,919	(292)	-4.1%	
	5	9/30/2016	7,084	7,050	131	1.9%	
	6	9/30/2017	6,815	6,966	(84)	-1.2%	
	7	9/30/2018	6,662	6,846	(120)	-1.7%	
	8	9/30/2019	7,983	7,174	327	4.8% CAGR	-1.60%

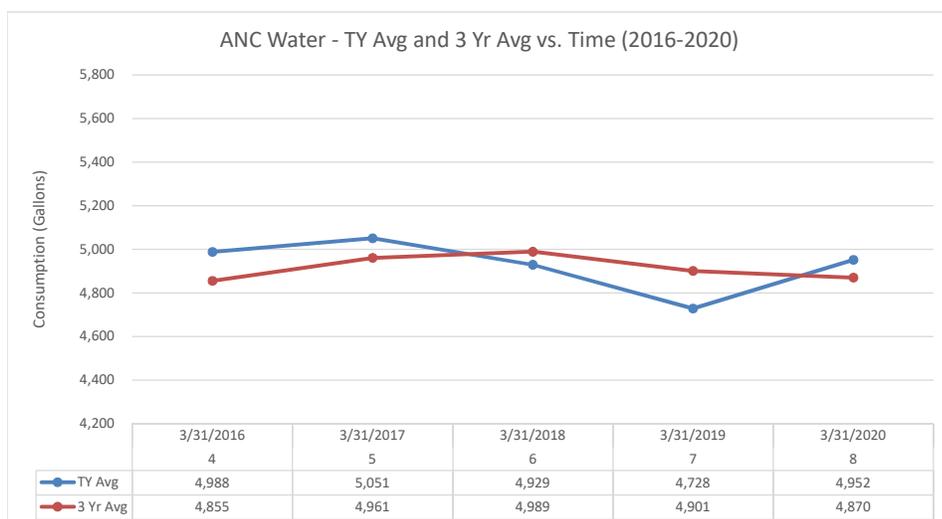
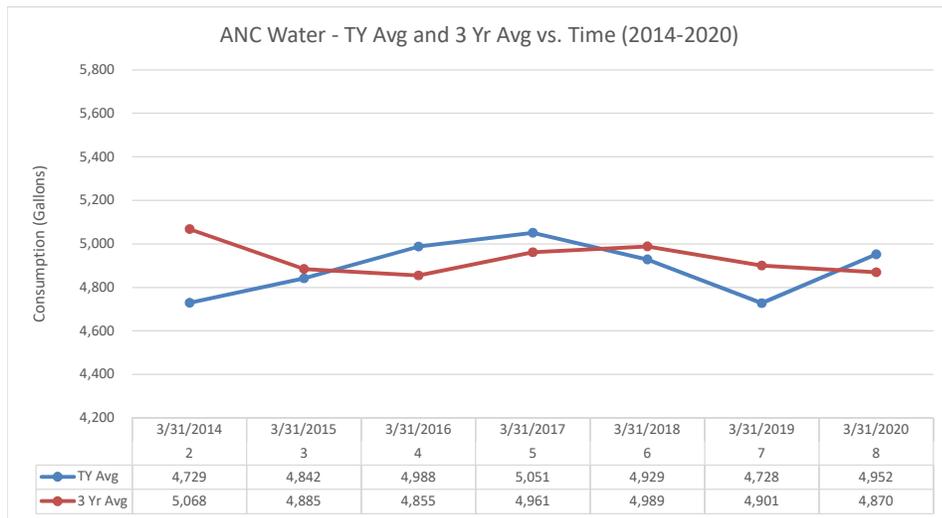
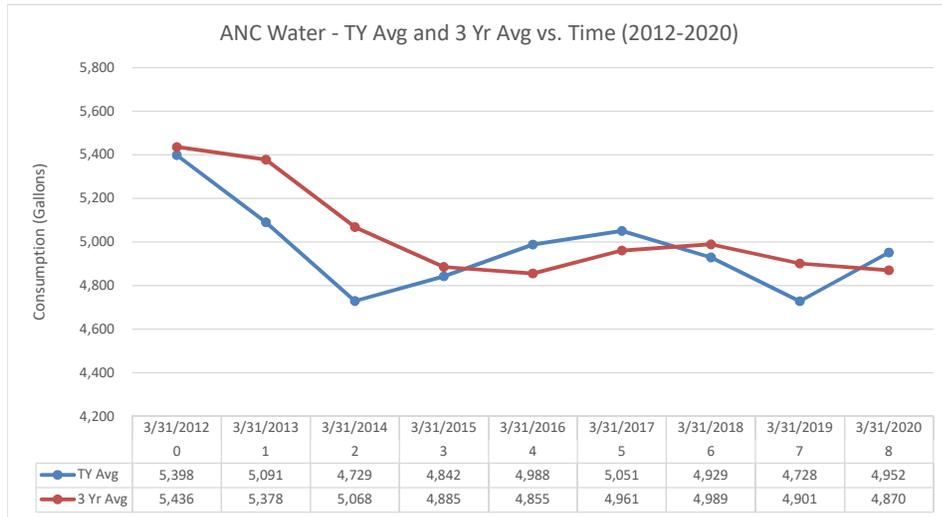
		TY Ended	TY Avg	3 Yr Avg	3Yr Ch	Pct Ch	
CONSOL	0	9/30/2011	5,818	5,740			
	1	9/30/2012	5,435	5,680	(61)	-1.1%	
	2	9/30/2013	4,965	5,403	(277)	-4.9%	
	3	9/30/2014	5,192	5,196	(207)	-3.8%	
	4	9/30/2015	5,212	5,125	(71)	-1.4%	
	5	9/30/2016	5,102	5,168	43	0.8%	
	6	9/30/2017	5,128	5,147	(21)	-0.4%	
	7	9/30/2018	5,024	5,084	(62)	-1.2%	
	8	9/30/2019	5,058	5,070	(14)	-0.3% CAGR	-1.54%

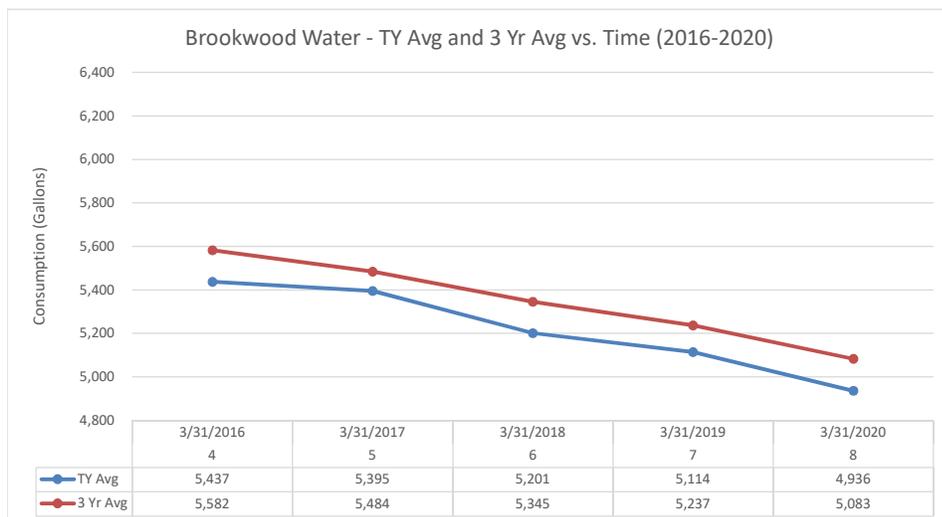
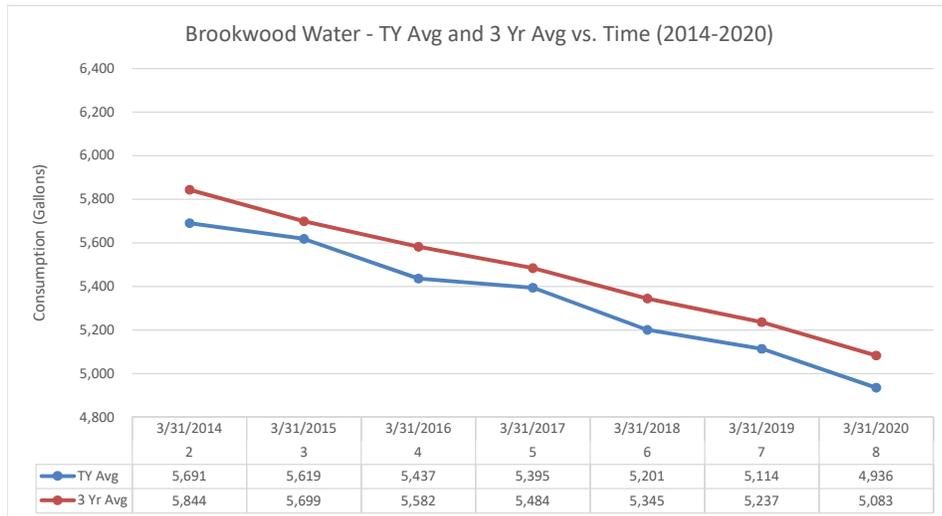
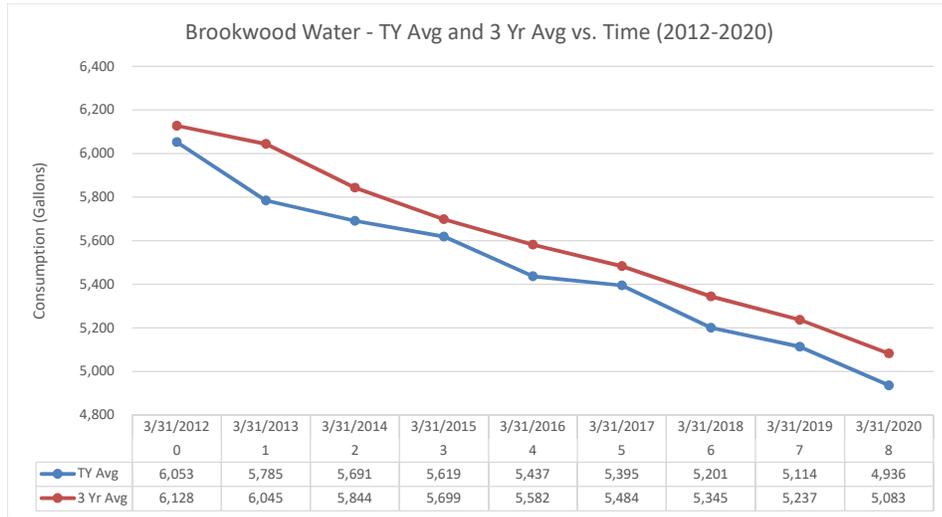
	Actual Conservation Trend (8 Yr)	Years (3 Yr Avg to TYE)	Conservation Normalization Factor
ANC Water	-1.38%	1.5	-2.07%
Brookwood	-2.24%	1.5	-3.36%
Fairways Water	-1.60%	1.5	-2.40%

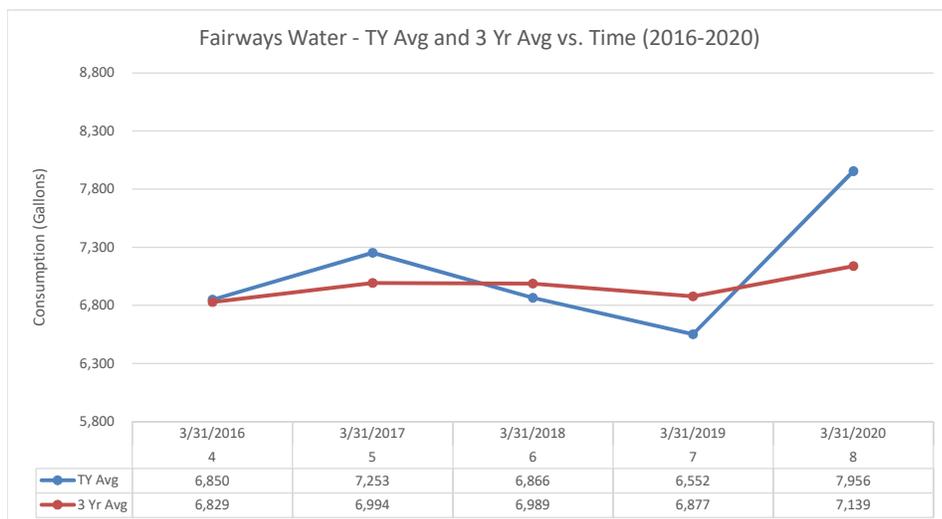
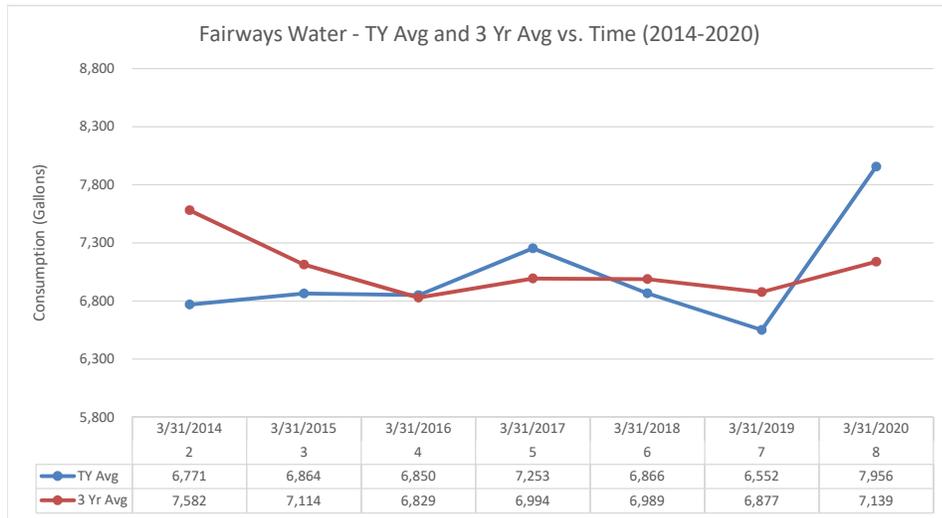
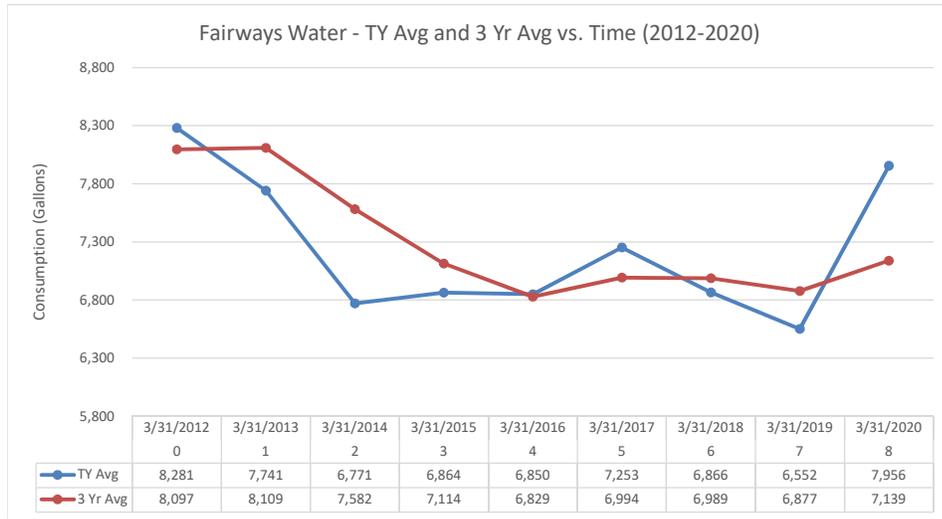
Entity	Year	TY Ended	TY Avg	3 Yr Avg	3Yr Ch	Pct Ch	Values
ANC	0	3/31/2012	5,398	5,436			
	1	3/31/2013	5,091	5,378	(58)	-1.07%	
	2	3/31/2014	4,729	5,068	(310)	-5.76%	
	3	3/31/2015	4,842	4,885	(183)	-3.61%	
	4	3/31/2016	4,988	4,855	(30)	-0.61%	
	5	3/31/2017	5,051	4,961	106	2.18%	
	6	3/31/2018	4,929	4,989	28	0.56%	
	7	3/31/2019	4,728	4,901	(88)	-1.76%	
8	3/31/2020	4,952	4,870	(31)	-0.63% CAGR	-1.36%	
BW	0	3/31/2012	6,053	6,128			
	1	3/31/2013	5,785	6,045	(83)	-1.4%	
	2	3/31/2014	5,691	5,844	(201)	-3.3%	
	3	3/31/2015	5,619	5,699	(145)	-2.5%	
	4	3/31/2016	5,437	5,582	(117)	-2.1%	
	5	3/31/2017	5,395	5,484	(98)	-1.8%	
	6	3/31/2018	5,201	5,345	(139)	-2.5%	
	7	3/31/2019	5,114	5,237	(108)	-2.0%	
8	3/31/2020	4,936	5,083	(154)	-2.9% CAGR	-2.31%	
FW	0	3/31/2012	8,281	8,097			
	1	3/31/2013	7,741	8,109	12	0.1%	
	2	3/31/2014	6,771	7,582	(527)	-6.5%	
	3	3/31/2015	6,864	7,114	(468)	-6.2%	
	4	3/31/2016	6,850	6,829	(285)	-4.0%	
	5	3/31/2017	7,253	6,994	165	2.4%	
	6	3/31/2018	6,866	6,989	(5)	-0.1%	
	7	3/31/2019	6,552	6,877	(112)	-1.6%	
8	3/31/2020	7,956	7,139	262	3.8% CAGR	-1.56%	

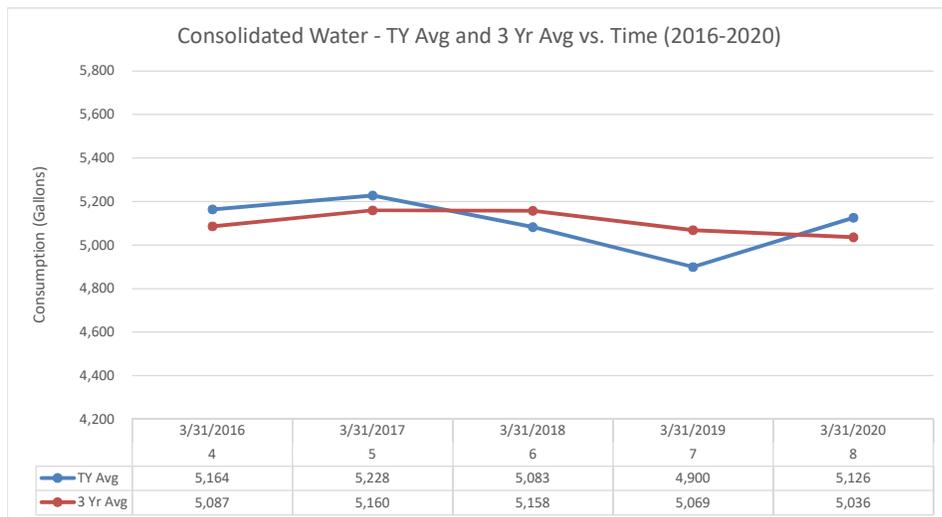
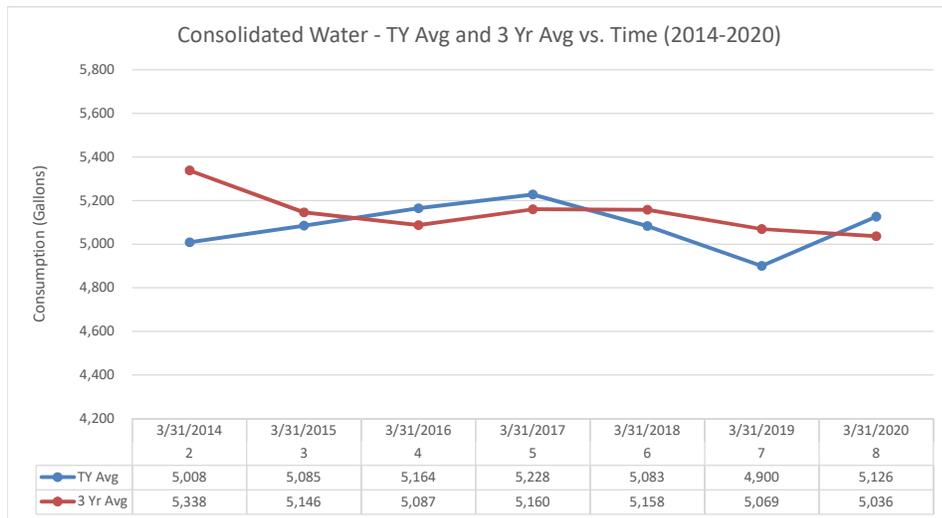
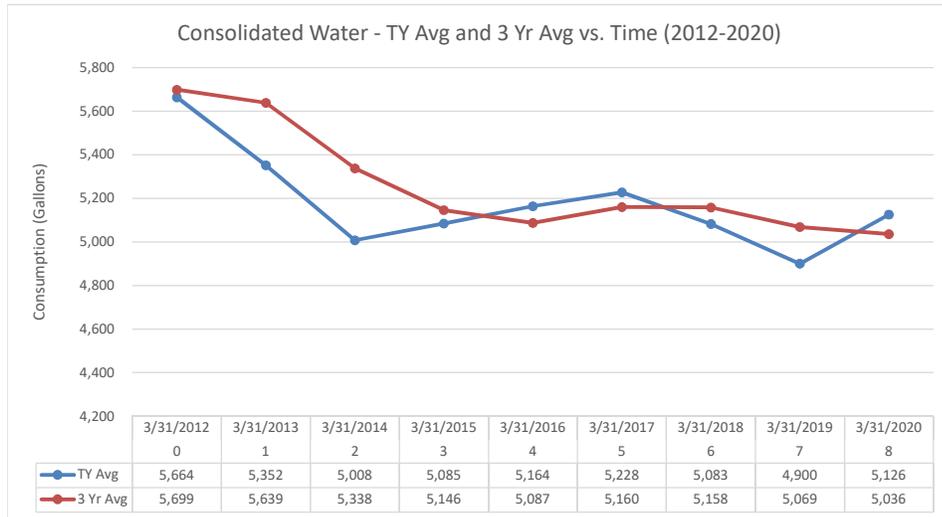
		TY Ended	TY Avg	3 Yr Avg	3Yr Ch	Pct Ch	
CONSOL	0	3/31/2012	5,664	5,699			
	1	3/31/2013	5,352	5,639	(60)	-1.1%	
	2	3/31/2014	5,008	5,338	(301)	-5.3%	
	3	3/31/2015	5,085	5,146	(192)	-3.6%	
	4	3/31/2016	5,164	5,087	(59)	-1.1%	
	5	3/31/2017	5,228	5,160	73	1.4%	
	6	3/31/2018	5,083	5,158	(2)	0.0%	
	7	3/31/2019	4,900	5,069	(89)	-1.7%	
8	3/31/2020	5,126	5,036	(33)	-0.7% CAGR	-1.53%	

	Actual Conservation Trend (8 Yr)	Years (3 Yr Avg to TYE)	Conservation Normalization Factor
ANC Water	-1.36%	1.5	-2.05%
Brookwood	-2.31%	1.5	-3.46%
Fairways Water	-1.56%	1.5	-2.34%

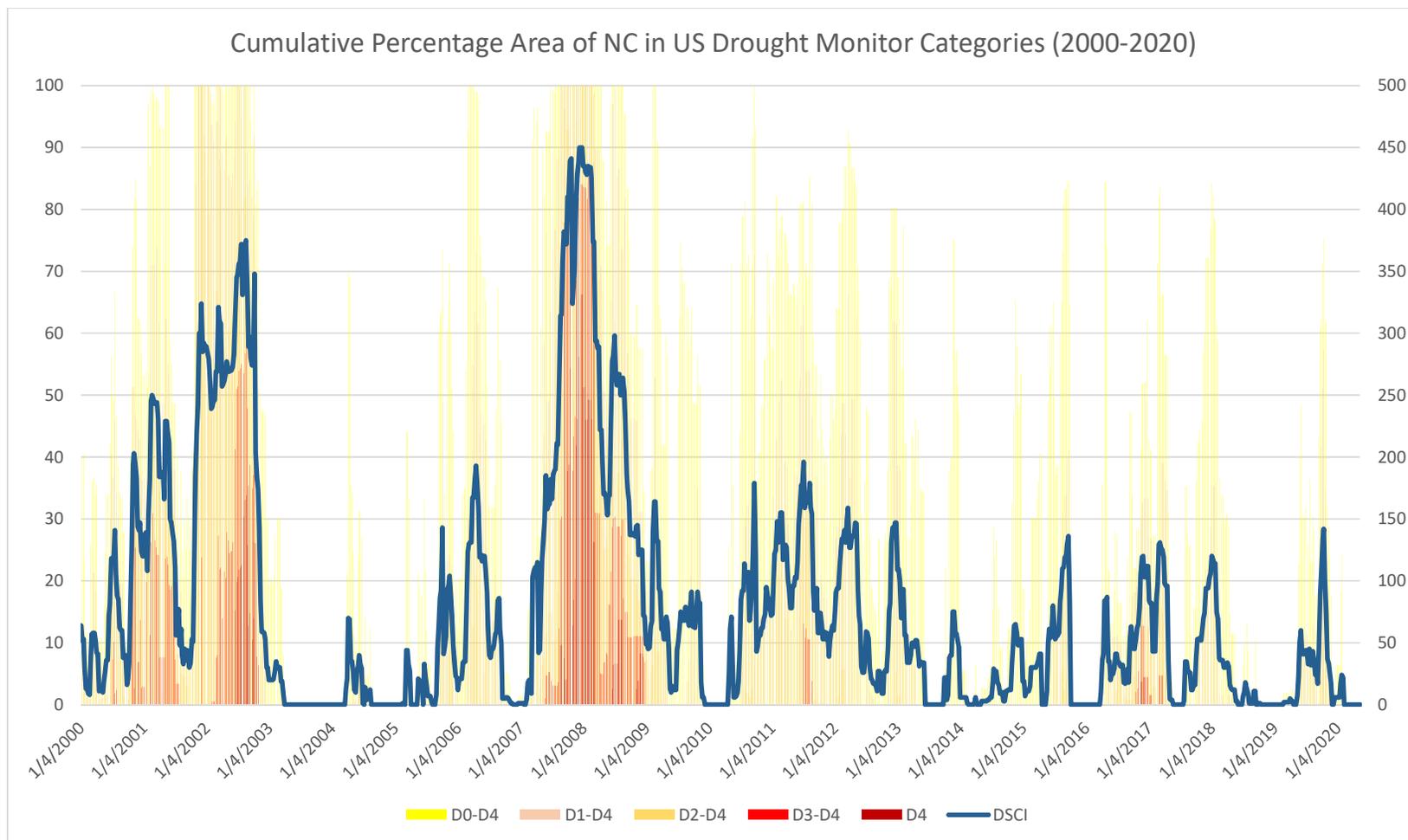


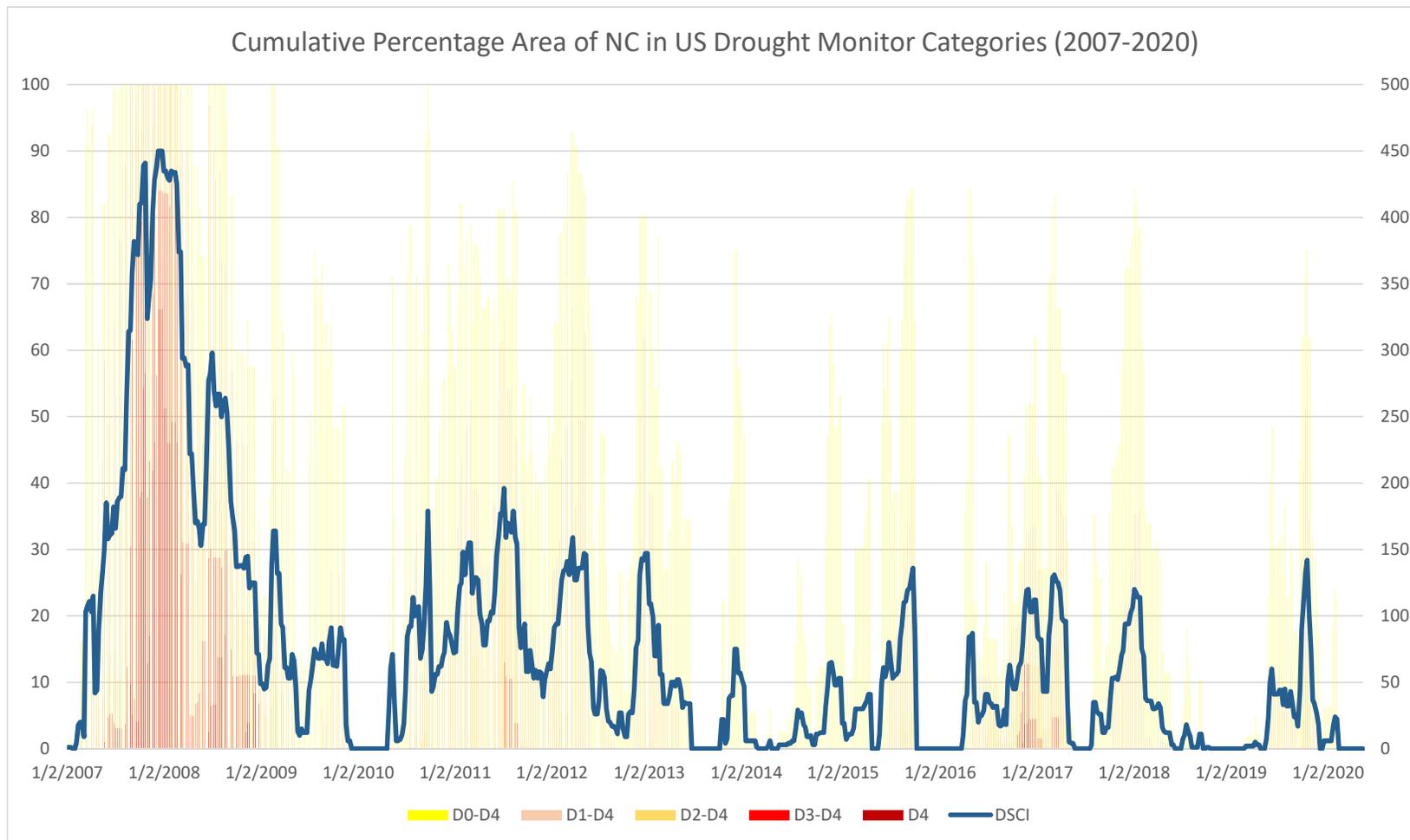


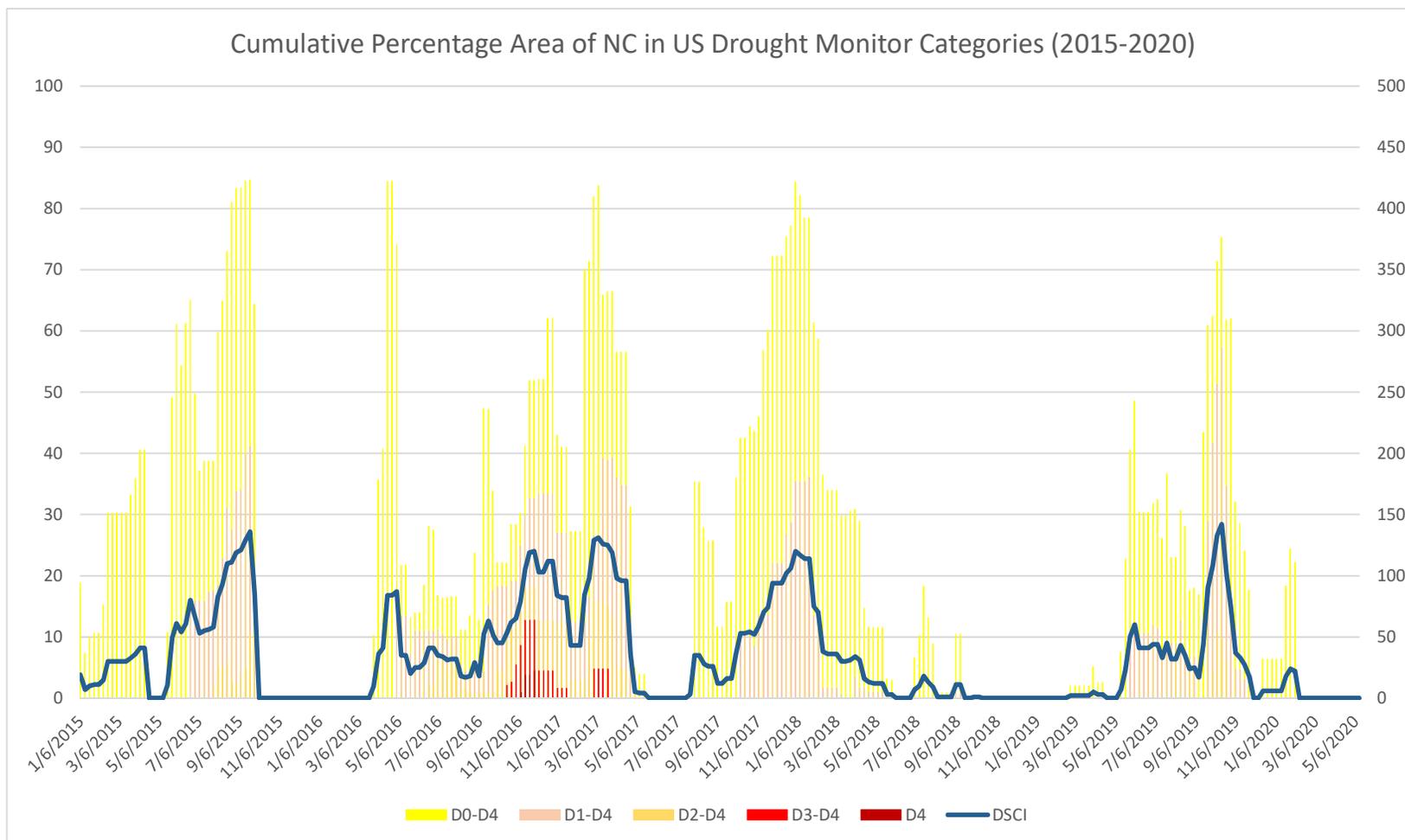




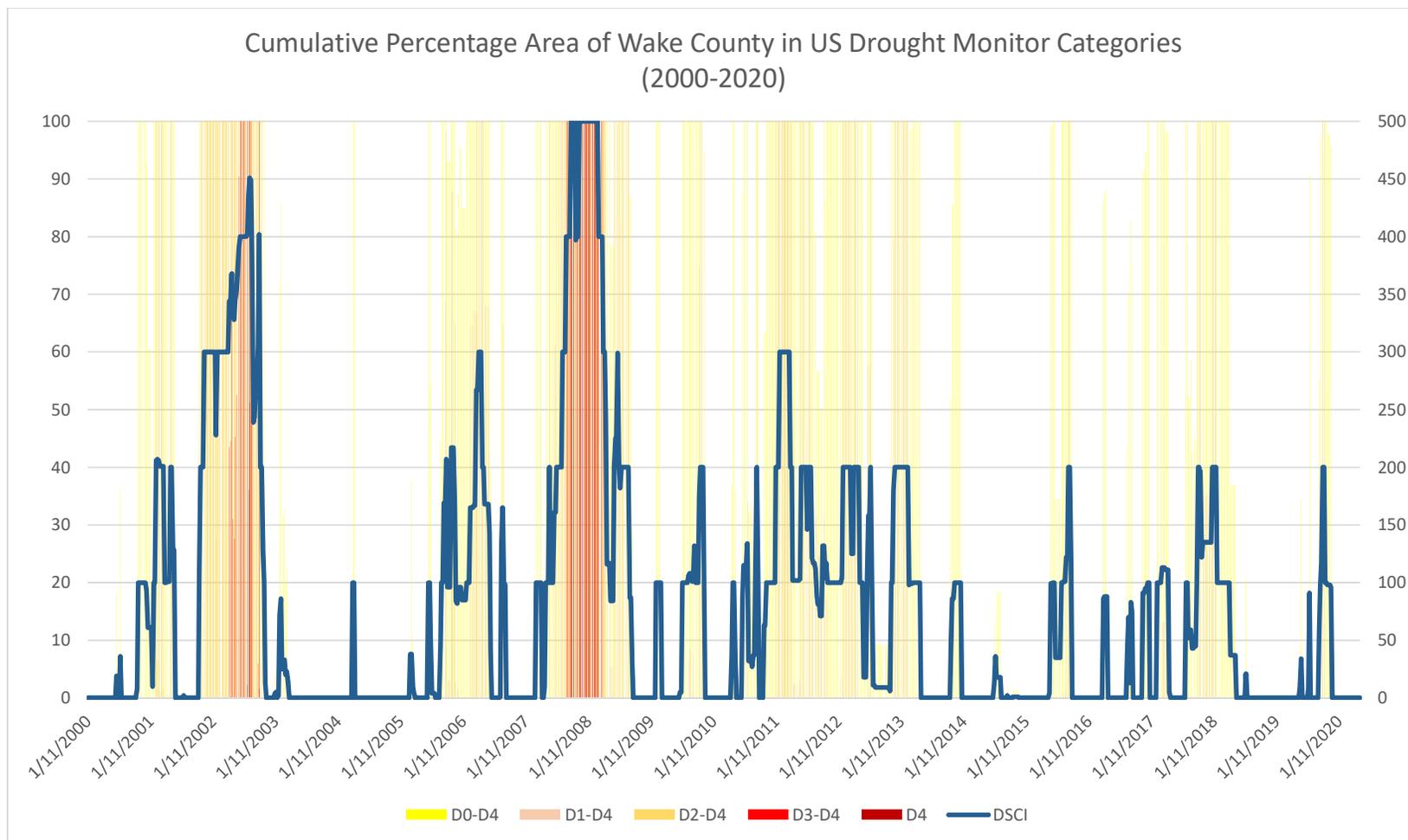


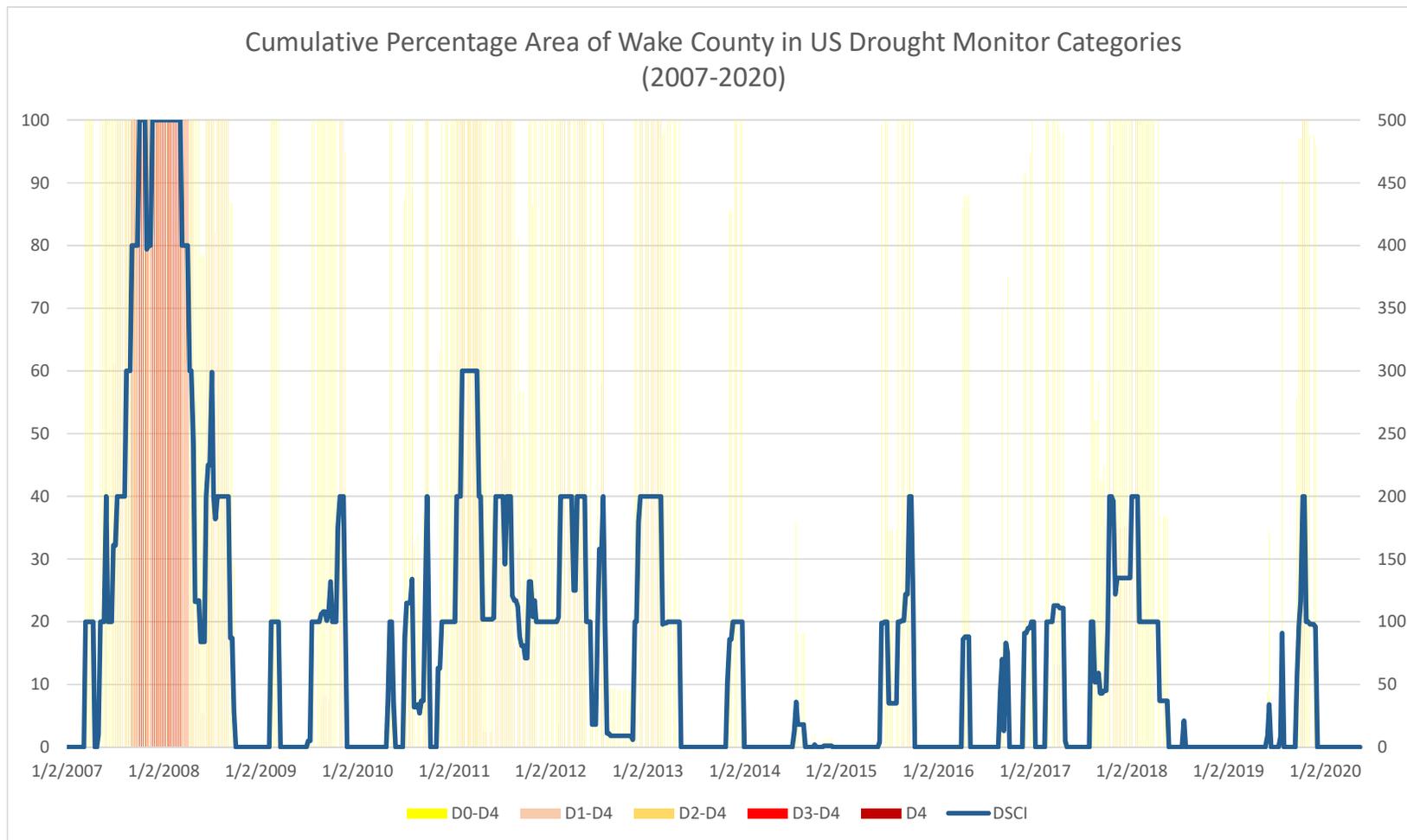


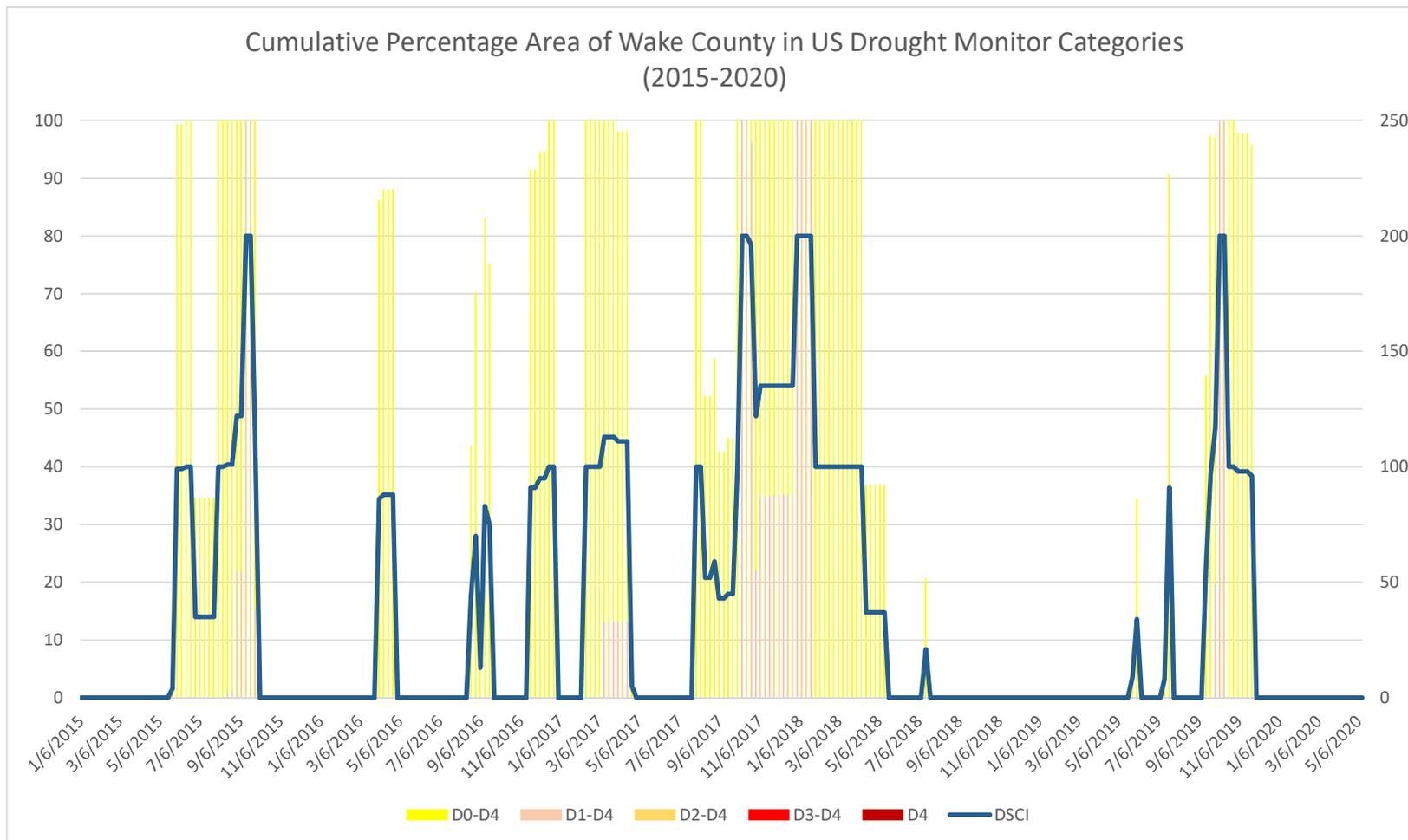














Aqua North Carolina, Inc.  
 Docket W-218 Sub 526  
 Aqua North Carolina, Inc. Water  
 Billing Analysis - Revenue, Water  
 Test Year Revenue at Present Rates, Total Period Volumes  
 Test Year Ending Mar 31, 2020

EXHIBIT Hw  
 Test Year updated 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Pro Forma at Present Rates				Intermediate Calcs Before Repression			After Repression		
					Normlzd TY Units	ProFrma Prsnt Units	Rate Prior to Filing	PF Rev at Rate Prior	ProFrma Intrmt Prpsd Units	Intrm Prpsd Rate	PF Rev at Intrm Rate	ProFrma Prpsd Units	Proposed Rate	PF Rev at Proposed
1	<b>All Measured Bills</b>													
2	ANC Main Non-Tier													
3	<1"	655,706	\$ 19.32	\$ 12,668,117	661,004	661,004	\$ 19.25	\$ 12,724,327	661,004	\$ 21.57	\$ 14,257,856	661,004	\$ 21.57	\$ 14,257,856
4	1"	3,801	51.65	196,322	3,816	3,816	48.13	183,664	3,816	53.93	205,797	3,816	53.93	205,797
5	1.5"	220	128.63	28,298	228	228	96.25	21,945	228	107.85	24,590	228	107.85	24,590
6	2"	551	170.77	94,094	552	552	154.00	85,008	552	172.56	95,253	552	172.56	95,253
7	3"	24	288.75	6,930	24	24	288.75	6,930	24	323.55	7,765	24	323.55	7,765
8	4"	72	481.25	34,650	72	72	481.25	34,650	72	539.25	38,826	72	539.25	38,826
9	6"	12	962.50	11,550	12	12	962.50	11,550	12	1,078.50	12,942	12	1,078.50	12,942
10	Prpsd Tier <1"	81,173	19.25	1,562,580	81,504	81,504	19.25	1,568,952	81,504	21.57	1,758,041	81,504	21.57	1,758,041
11	Prpsd Tier 1"	464	48.13	22,332	468	468	48.13	22,525	468	53.93	25,239	468	53.93	25,239
12	Clear Meadow <1"	734	19.25	14,130	720	720	19.25	13,860	720	21.57	15,530	720	21.57	15,530
13	Timberlake etc <1"	1,361	19.25	26,199	1,368	1,368	19.25	26,334	1,368	21.57	29,508	1,368	21.57	29,508
14	Wimbledon, etc <1"	1,020	19.25	19,635	1,020	1,020	19.25	19,635	1,020	21.57	22,001	1,020	21.57	22,001
15		745,138		\$ 14,684,837	750,788	750,788		\$ 14,719,380	750,788		\$ 16,493,349	750,788		\$ 16,493,349
16														
17	<b>Residential &amp; Commercial Unmeasured Bills</b>													
18	Flat Rate Res	2,313	\$ 39.66	\$ 91,734	2,304	2,304	\$ 39.66	\$ 91,377	2,304	\$ 48.77	\$ 112,366	2,304	\$ 48.77	\$ 112,366
19	FR Com billed Res	84	39.66	3,331	84	84	39.66	3,331	84	48.77	4,097	84	48.77	4,097
20	Flat Rate Com	48	67.42	3,236	48	48	67.42	3,236	48	74.37	3,570	48	74.37	3,570
21	Flat Rate Total	2,445		\$ 98,301	2,436	2,436		\$ 97,944	2,436		\$ 120,033	2,436		\$ 120,033
22														
23	<b>Gallonge (kGals)</b>													
24	<b>Aqua Provided Water</b>													
25	Main Non-Tier	2,726,574	\$ 5.83	\$ 15,895,925	2,738,082	2,691,809	\$ 5.83	\$ 15,693,244	2,691,809	\$ 6.80	\$ 18,304,299	2,691,809	\$ 6.80	\$ 18,304,299
26	Tier Block 1	602,584	5.83	3,513,065	605,294	595,065	5.83	3,469,228	268,587	4.65	1,248,929	268,587	4.65	1,248,929
27	Tier Block 2	(all Tier area data at Present Rates are shown in Block 1)												
28	Tier Block 3								113,500	6.98	792,230	113,500	6.98	792,230
29	Tier Block 4								84,852	10.46	887,554	83,706	10.46	875,563
30	Clear Meadow	2,718	5.83	15,844	2,666	2,621	5.83	15,279	118,664	13.95	1,655,368	79,352	13.95	1,106,956
31	Timberlake, etc	4,812	5.83	28,052	4,836	4,755	5.83	27,720	2,621	6.80	17,822	2,621	6.80	17,822
32	Wimbledon, etc	3,983	5.83	23,221	3,983	3,916	5.83	22,828	4,755	6.80	32,332	4,755	6.80	32,332
33	Aqua Subtot	3,340,670	\$ 5.83	\$ 19,476,107	3,354,862	3,298,165	\$ 5.83	\$ 19,228,300	3,288,703	6.98	\$ 22,965,160	3,248,244	\$ 6.79	\$ 22,404,757

**Aqua North Carolina, Inc.**  
**Docket W-218 Sub 526**  
**Aqua North Carolina, Inc. Water**  
**Billing Analysis - Revenue, Water**  
**Test Year Revenue at Present Rates, Total Period Volumes**  
**Test Year Ending Mar 31, 2020**

EXHIBIT Hw  
 Test Year updated 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Pro Forma at Present Rates				Intermediate Calcs Before Repression			After Repression		
					Normlzd TY Units	ProFrma Prsnt Units	Rate Prior to Filing	PF Rev at Rate Prior	ProFrma Intrmt Prpsd Units	Intrm Prpsd Rate	PF Rev at Intrm Rate	ProFrma Prpsd Units	Proposed Rate	PF Rev at Proposed
34	<b>Purchased Water</b>													
35	<b>Provider</b>													
36	ChthmCnty-	10,514	\$ 7.04	\$ 74,016	10,551	10,373	\$ 7.04	\$ 73,026	10,373	\$ 7.04	\$ 73,026	10,373	\$ 7.04	\$ 73,026
37	ChthmCntyCPP	8,441	10.01	84,496	8,380	8,238	10.01	82,465	8,238	10.01	82,465	8,238	10.01	82,465
38	CtyAshvll	999	4.26	4,256	1,012	994	4.26	4,237	994	4.26	4,237	994	4.26	4,237
39	CtyBlmnt	3,911	14.40	56,316	3,911	3,845	14.40	55,364	3,845	14.40	55,364	3,845	14.40	55,364
40	CtyChrltt	32,013	2.00	64,119	32,021	31,480	1.81	56,979	31,480	1.81	56,979	31,480	1.81	56,979
41	CtyCncrd	1,927	5.11	9,845	1,923	1,891	5.11	9,662	1,891	5.11	9,662	1,891	5.11	9,662
42	CtyHckry(in)	3,225	2.83	9,127	3,290	3,235	2.83	9,154	3,235	2.83	9,154	3,235	2.83	9,154
43	CtyHckry(out)	583	5.04	2,939	592	582	5.04	2,933	582	5.04	2,933	582	5.04	2,933
44	CtyHndrsnv	9,187	3.06	28,113	9,399	9,240	3.06	28,274	9,240	3.06	28,274	9,240	3.06	28,274
45	CtyLnclntn	5,759	7.70	44,340	5,744	5,647	7.70	43,482	5,647	7.70	43,482	5,647	7.70	43,482
46	CtyMrgntn	5,347	2.52	13,475	5,351	5,260	2.52	13,256	5,260	2.52	13,256	5,260	2.52	13,256
47	CtyMtAiry	4,108	7.15	29,371	4,097	4,028	7.15	28,797	4,028	7.15	28,797	4,028	7.15	28,797
48	CtyNwtn	779	2.85	2,219	779	765	2.85	2,182	765	2.85	2,182	765	2.85	2,182
49	DvdsnWtr	6,019	5.30	31,899	6,073	5,971	5.30	31,645	5,971	5.30	31,645	5,971	5.30	31,645
50	HrnttCnty	37,288	2.84	105,887	37,784	37,145	2.77	102,893	37,145	2.77	102,893	37,145	2.77	102,893
51	IredllWtr	1,114	2.72	3,030	1,141	1,122	2.72	3,052	1,122	2.72	3,052	1,122	2.72	3,052
52	JhnstnCnty	191,705	2.60	497,569	204,765	201,304	2.70	543,522	201,304	2.70	543,522	201,304	2.70	543,522
53	TwnFqy-Vrna	3,038	4.35	13,217	3,086	3,034	4.35	13,198	3,034	4.35	13,198	3,034	4.35	13,198
54	TwnFrstCty	1,917	5.95	11,407	1,917	1,885	5.95	11,214	1,885	5.95	11,214	1,885	5.95	11,214
55	TwnPttbro	30,455	13.69	416,923	31,345	30,815	13.69	421,859	30,815	13.69	421,859	30,815	13.69	421,859
56	TwnSprcPn	1,919	4.93	9,459	1,906	1,874	4.93	9,240	1,874	4.93	9,240	1,874	4.93	9,240
57	Purchased Subtot	360,246	\$ 4.20	\$ 1,512,025	375,067	368,729	\$ 4.19	\$ 1,546,431	368,729	\$ 4.19	\$ 1,546,431	368,729	\$ 4.19	\$ 1,546,431
58	Billed Usage Total	3,700,916	\$ 5.67	\$ 20,988,132	3,729,929	3,666,893	\$ 5.67	\$ 20,774,731	3,657,432	\$ 6.70	\$ 24,511,591	3,616,973	\$ 6.53	\$ 23,951,188
59														
60														
61	<b>Total Service Revenue</b>			<b>\$ 35,771,270</b>				<b>\$ 35,592,056</b>			<b>\$ 41,124,973</b>			<b>\$ 40,564,570</b>
62	<b>Availability</b>	2,024	\$ 5.00	10,120	2,004	2,004	\$ 5.00	10,020	2,004	\$ 5.00	10,020	2,004	\$ 5.00	10,020
63	<b>SIC Revenue</b>			416,602				957,426			0			0
64														
65														
66	<b>Total Billed Revenue Calc'd</b>			<b>\$ 36,197,993</b>				<b>\$ 36,559,502</b>			<b>\$ 41,134,993</b>			<b>\$ 40,574,590</b>
67	Public Staff distributed the pro forma consumption based on an average of the Company's calculated tiered usage ending September 2019 and March 2020. See Junis Exhibit 6.													

kGals Repressed @ 3.0%



ANC Water Tiered Consumption  
 3YE 2019 09

	ProFrma	ProFrma Intrm	% of	ProFrma	% of
	Prsnt Units	Prpsd Units	Prsnt Units	Prpsd Units	Intrm Prpsd Units
Main Non-Tier	2,688,939	2,688,939		2,688,939	
Tier Block 1	562,364	260,924	46.4%	260,924	46.4%
Tier Block 2		111,167	19.8%	111,167	19.8%
Tier Block 3		79,220	14.1%	78,158	13.9%
Tier Block 4		110,668	19.7%	73,774	13.1%
Tier Total		561,979		524,022	
Grand Total	3,251,303	3,250,918	100%	3,212,961	93%
Difference		(385)		(37,956)	

3YE 2020 03

	ProFrma	ProFrma Intrm	% of	ProFrma	% of
	Prsnt Units	Prpsd Units	Prsnt Units	Prpsd Units	Intrm Prpsd Units
Main Non-Tier	2,635,774	2,635,774		2,635,774	
Tier Block 1	582,898	255,740	43.9%	255,740	43.9%
Tier Block 2		107,133	18.4%	107,133	18.4%
Tier Block 3		84,122	14.4%	82,977	14.2%
Tier Block 4		117,767	20.2%	78,991	13.6%
Tier Total		564,762		524,841	
Grand Total	3,218,672	3,200,535	97%	3,160,614	90%
Difference		(18,137)		(39,921)	

Public Staff Pro Forma

3YE 2020 03

	ProFrma	ProFrma Intrm	% of	ProFrma	% of
	Prsnt Units	Prpsd Units	Prsnt Units	Prpsd Units	Intrm Prpsd Units
Main Non-Tier	2,691,809	2,691,809		2,691,809	
Tier Block 1	595,065	268,587	45.1%	268,587	45.1%
Tier Block 2		113,500	19.1%	113,500	19.1%
Tier Block 3		84,852	14.3%	83,706	14.1%
Tier Block 4		118,664	19.9%	79,352	13.3%
Tier Total		585,603		545,144	
Grand Total	3,286,873	3,277,412	98%	3,236,953	92%
Difference		(9,461)		(40,459)	



Aqua North Carolina, Inc.  
 Docket W-218 Sub 526  
 Aqua North Carolina, Inc. Water  
 Billing Analysis - Revenue, Water  
 Test Year Revenue at Present Rates, Total Period Volumes  
 Test Year Ending Mar 31, 2020

EXHIBIT Hw  
 Test Year updated 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	Pro Forma at Present Rates			Pro Forma at PS Recommended Rates		
						ProFrma Prsnt Units	Rate Prior to Filing	PF Rev at Rate Prior	ProFrma Reco Units	PS Reco Rate	PF Rev at Reco Rate
1	<b>All Measured Bills</b>										
2	ANC Main Non-Tier										
3	<1"	655,706	\$ 19.32	\$ 12,668,117	661,004	661,004	\$ 19.25	\$ 12,724,327	661,004	\$ 14.50	\$ 9,584,558
4	1"	3,801	51.65	196,322	3,816	3,816	48.13	183,664	3,816	36.25	138,330
5	1.5"	220	128.63	28,298	228	228	96.25	21,945	228	72.50	16,530
6	2"	551	170.77	94,094	552	552	154.00	85,008	552	116.00	64,032
7	3"	24	288.75	6,930	24	24	288.75	6,930	24	217.50	5,220
8	4"	72	481.25	34,650	72	72	481.25	34,650	72	362.50	26,100
9	6"	12	962.50	11,550	12	12	962.50	11,550	12	725.00	8,700
10	Prpsd Tier <1"	81,173	19.25	1,562,580	81,504	81,504	19.25	1,568,952	81,504	14.50	1,181,808
11	Prpsd Tier 1"	464	48.13	22,332	468	468	48.13	22,525	468	36.25	16,965
12	Clear Meadow <1"	734	19.25	14,130	720	720	19.25	13,860	720	14.50	10,440
13	Timberlake etc <1"	1,361	19.25	26,199	1,368	1,368	19.25	26,334	1,368	14.50	19,836
14	Wimbledon, etc <1"	1,020	19.25	19,635	1,020	1,020	19.25	19,635	1,020	14.50	14,790
15		<u>745,138</u>		<u>\$ 14,684,837</u>	<u>750,788</u>	<u>750,788</u>		<u>\$ 14,719,380</u>	<u>750,788</u>		<u>\$ 11,087,309</u>
16											
17	<b>Residential &amp; Commercial Unmeasured Bills</b>										
18	Fiat Rate Res	2,313	\$ 39.66	\$ 91,734	2,304	2,304	\$ 39.66	\$ 91,377	2,304	\$ 43.82	\$ 100,961
19	FR Com billed Res	84	39.66	3,331	84	84	39.66	3,331	84	43.82	3,681
20	Fiat Rate Com	48	67.42	3,236	48	48	67.42	3,236	48	72.56	3,483
21	Fiat Rate Total	<u>2,445</u>		<u>\$ 98,301</u>	<u>2,436</u>	<u>2,436</u>		<u>\$ 97,944</u>	<u>2,436</u>		<u>\$ 108,125</u>
22											
23	<b>Gallonge (kGals)</b>										
24	<b>Aqua Provided Water</b>										
25	Main Non-Tier	2,726,574	\$ 5.83	\$ 15,895,925	2,738,082	2,691,809	\$ 5.83	\$ 15,693,244	2,691,809	\$ 7.33	\$ 19,730,957
26	Tier Block 1	602,584	5.83	3,513,065	605,294	595,065	5.83	3,469,228	595,065	7.33	4,361,825
27	Tier Block 2	(all Tier area data at Present Rates are shown in Block 1)									
28	Tier Block 3										
29	Tier Block 4										
30	Clear Meadow	2,718	5.83	15,844	2,666	2,621	5.83	15,279	2,621	7.33	19,211
31	Timberlake, etc	4,812	5.83	28,052	4,836	4,755	5.83	27,720	4,755	7.33	34,852
32	Wimbledon, etc	3,983	5.83	23,221	3,983	3,916	5.83	22,828	3,916	7.33	28,702
33	Aqua Subtot	<u>3,340,670</u>	<u>\$ 5.83</u>	<u>\$ 19,476,107</u>	<u>3,354,862</u>	<u>3,298,165</u>	<u>\$ 5.83</u>	<u>\$ 19,228,300</u>	<u>3,298,165</u>	<u>7.33</u>	<u>\$ 24,175,547</u>

Aqua North Carolina, Inc.  
 Docket W-218 Sub 526  
 Aqua North Carolina, Inc. Water  
 Billing Analysis - Revenue, Water  
 Test Year Revenue at Present Rates, Total Period Volumes  
 Test Year Ending Mar 31, 2020

EXHIBIT Hw  
 Test Year updated 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6) (7) (8) Pro Forma at Present Rates			(9) (10) (11) Pro Forma at PS Recommended Rates			
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFrma Prsnt Units	Rate Prior to Filing	PF Rev at Rate Prior	ProFrma Reco Units	PS Reco Rate	PF Rev at Reco Rate	
34	<b>Purchased Water</b>											
35	<b>Provider</b>											
36	ChthmCnty-	10,514	\$ 7.04	\$ 74,016	10,551	10,373	\$ 7.04	\$ 73,026	10,373	\$ 7.04	\$ 73,026	
37	ChthmCntyCPP	8,441	10.01	84,496	8,380	8,238	10.01	82,465	8,238	9.98	82,218	
38	CtyAshvll	999	4.26	4,256	1,012	994	4.26	4,237	994	4.96	4,933	
39	CtyBlmnt	3,911	14.40	56,316	3,911	3,845	14.40	55,364	3,845	14.40	55,364	
40	CtyChrltt	32,013	2.00	64,119	32,021	31,480	1.81	56,979	31,480	2.19	68,942	
41	CtyCncrd	1,927	5.11	9,845	1,923	1,891	5.11	9,662	1,891	5.42	10,248	
42	CtyHckry(in)	3,225	2.83	9,127	3,290	3,235	2.83	9,154	3,235	3.25	10,513	
43	CtyHckry(out)	583	5.04	2,939	592	582	5.04	2,933	582	3.25	1,891	
44	CtyHndrsnv	9,187	3.06	28,113	9,399	9,240	3.06	28,274	9,240	3.47	32,062	
45	CtyLnclntn	5,759	7.70	44,340	5,744	5,647	7.70	43,482	5,647	9.21	52,009	
46	CtyMrgntn	5,347	2.52	13,475	5,351	5,260	2.52	13,256	5,260	2.51	13,203	
47	CtyMtAiry	4,108	7.15	29,371	4,097	4,028	7.15	28,797	4,028	6.69	26,944	
48	CtyNwtn	779	2.85	2,219	779	765	2.85	2,182	765	3.29	2,518	
49	DvdsnWtr	6,019	5.30	31,899	6,073	5,971	5.30	31,645	5,971	4.76	28,421	
50	HrnttCnty	37,288	2.84	105,887	37,784	37,145	2.77	102,893	37,145	2.78	103,264	
51	IredllWtr	1,114	2.72	3,030	1,141	1,122	2.72	3,052	1,122	3.61	4,050	
52	JhnstnCnty	191,705	2.60	497,569	204,765	201,304	2.70	543,522	201,304	2.66	535,470	
53	TwnFqy-Vrna	3,038	4.35	13,217	3,086	3,034	4.35	13,198	3,034	5.18	15,716	
54	TwnFrstCty	1,917	5.95	11,407	1,917	1,885	5.95	11,214	1,885	5.63	10,611	
55	TwnPttbro	30,455	13.69	416,923	31,345	30,815	13.69	421,859	30,815	13.69	421,859	
56	TwnSprcPn	1,919	4.93	9,459	1,906	1,874	4.93	9,240	1,874	5.96	11,170	
57	Purchased Subtot	360,246	\$ 4.20	\$ 1,512,025	375,067	368,729	\$ 4.19	\$ 1,546,431	368,729	\$ 4.24	\$ 1,564,432	
58	Billed Usage Total	3,700,916	\$ 5.67	\$ 20,988,132	3,729,929	3,666,893	\$ 5.67	\$ 20,774,731	3,666,893	\$ 7.02	\$ 25,739,979	
59												
60												
61	<b>Total Service Revenue</b>			<b>\$ 35,771,270</b>				<b>\$ 35,592,056</b>			<b>\$ 36,935,413</b>	
62	<b>Availability</b>	2,024	\$ 5.00	10,120	2,004	2,004	\$ 5.00	10,020	2,004	\$ 5.00	\$ 10,020	
63	<b>SIC Revenue</b>			416,602				957,426			0	
64												
65												
66	<b>Total Billed Revenue Calc'd</b>			<b>\$ 36,197,993</b>				<b>\$ 36,559,502</b>			<b>\$ 36,945,433</b>	

Public Staff witness Junis determined/calculated an appropriate pass-through of purchased water rates based on the workpapers of witness Darden and grossed-up for the Commission's regulatory fee of 0.13%.



Aqua North Carolina, Inc.  
 Docket W-218 Sub 526

EXHIBIT Hw  
 Test Yr Updated 6 months

Brookwood Water  
 Billing Analysis - Revenue, Water  
 Test Year Revenue at Present Rates, Total Period Volumes  
 Test Year Ending Mar 31, 2020

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFрма Units	Rate Prior to Filing	PF Rev at Rate Prior	Proposed Rate	PF Rev at Proposed
1	<b>Residential &amp; Commercial Measured</b>									
2	<b>Bills</b>									
3	<1"	164,985	\$ 14.03	\$ 2,314,740	165,372	165,372	\$ 14.03	\$ 2,320,169	\$ 16.76	\$ 2,771,635
4	1"	650	35.08	22,802	684	684	35.08	23,995	41.90	28,660
5	1.5"	24	70.15	1,684	24	24	70.15	1,684	83.80	2,011
6	2"	348	112.24	39,060	348	348	112.24	39,060	134.08	46,660
7	3"	60	210.45	12,627	60	60	210.45	12,627	251.40	15,084
8	4"	12	350.75	4,209	12	12	350.75	4,209	419.00	5,028
9	6"	0	--	-	0	0	701.50	0	838.00	0
10	8"									
11	Base Total	166,079		\$ 2,395,121	166,500	166,500		\$ 2,401,743		\$ 2,869,077
12										
13										
14	<b>Residential &amp; Commercial Unmeasured</b>									
15	Flat Rate Res	0	--	\$ -	0	0	\$ 33.17	\$ -	\$ 39.95	\$ -
16	Flat Rate Com	0	--	-	0	0	56.39	-	56.69	-
17									1.419	
18	<b>Class/Meter Size</b>									
19	<b>Gallorage (kGals)</b>									
20	Aqua Water	720,200	\$ 3.76	\$ 2,707,953	722,329	743,927	\$ 3.76	\$ 2,797,166	\$ 4.89	\$ 3,637,804
21	<b>Purchased Water</b>									
22	Fayetteville PWC	95,384	2.92	278,522	95,448	98,301	2.92	287,040	2.92	287,040
23	Town of Linden	1,728	4.98	8,604	1,819	1,873	4.98	9,328	4.98	9,328
24	Purchased Subtot	97,112		\$ 287,126	97,266	100,174		\$ 296,368		\$ 296,368
25	Usage Total	817,312		\$ 2,995,078	819,596	844,102		\$ 3,093,534		\$ 3,934,171
26										
27										
28	Total Service Revenue			\$ 5,390,199				\$ 5,495,277		\$ 6,803,249
29	SIC Revenue		471100	92,638				281,924		0
30										
31										
32	Total Billed Revenue			\$ 5,482,837				\$ 5,777,200		\$ 6,803,249



**Aqua North Carolina, Inc.**  
**Docket W-218 Sub 526**

EXHIBIT Hw  
 Test Yr Updated 6 months

**Brookwood Water**  
**Billing Analysis - Revenue, Water**  
**Test Year Revenue at Present Rates, Total Period Volumes**  
**Test Year Ending Mar 31, 2020**

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFrma Units	Rate Prior to Filing	PF Rev at Rate Prior	PS Reco Rate	PF Rev at Recommend
1	<b>Residential &amp; Commercial Measured</b>									
2	<b>Bills</b>									
3	<1"	164,985	\$ 14.03	\$ 2,314,740	165,372	165,372	\$ 14.03	\$ 2,320,169	\$ 10.18	\$ 1,683,487
4	1"	650	35.08	22,802	684	684	35.08	23,995	25.45	17,408
5	1.5"	24	70.15	1,684	24	24	70.15	1,684	50.90	1,222
6	2"	348	112.24	39,060	348	348	112.24	39,060	81.44	28,341
7	3"	60	210.45	12,627	60	60	210.45	12,627	152.70	9,162
8	4"	12	350.75	4,209	12	12	350.75	4,209	254.50	3,054
9	6"	0	--	-	0	0	701.50	0	509.00	0
10	8"									
11	<b>Base Total</b>	<b>166,079</b>		<b>\$ 2,395,121</b>	<b>166,500</b>	<b>166,500</b>		<b>\$ 2,401,743</b>		<b>\$ 1,742,673</b>
12										
13										
14	<b>Residential &amp; Commercial Unmeasured</b>									
15	Flat Rate Res	0	--	\$ -	0	0	\$ 33.17	\$ -	\$ 34.62	\$ -
16	Flat Rate Com	0	--	-	0	0	56.39	-	48.95	-
17									1.414	
18	<b>Class/Meter Size</b>									
19	<b>Gallorage (kGals)</b>									
20	Aqua Water	720,200	\$ 3.76	\$ 2,707,953	722,329	743,927	\$ 3.76	\$ 2,797,166	\$ 5.08	\$ 3,779,150
21	<b>Purchased Water</b>									
22	Fayetteville PWC	95,384	2.92	278,522	95,448	98,301	2.92	287,040	2.92	287,040
23	Town of Linden	1,728	4.98	8,604	1,819	1,873	4.98	9,328	5.23	9,796
24	<b>Purchased Subtot</b>	<b>97,112</b>		<b>\$ 287,126</b>	<b>97,266</b>	<b>100,174</b>		<b>\$ 296,368</b>		<b>\$ 296,836</b>
25	<b>Usage Total</b>	<b>817,312</b>		<b>\$ 2,995,078</b>	<b>819,596</b>	<b>844,102</b>		<b>\$ 3,093,534</b>		<b>\$ 4,075,986</b>
26										
27										
28	<b>Total Service Revenue</b>			<b>\$ 5,390,199</b>				<b>\$ 5,495,277</b>		<b>\$ 5,818,659</b>
29	<b>SIC Revenue</b>		471100	92,638				281,924		0
30										
31										
32	<b>Total Billed Revenue</b>			<b>\$ 5,482,837</b>				<b>\$ 5,777,200</b>		<b>\$ 5,818,659</b>



Aqua North Carolina, Inc.  
 Docket W-218 Sub 526  
 Fairways Water  
 Billing Analysis - Revenue, Water  
 Test Year Revenue at Present Rates, Total Period Volumes  
 Test Year Ending Mar 31, 2020

EXHIBIT Hw  
 Test Year updated 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6) Pro Forma at Present Rates			(9) Intermediate Calcs Before Repression			(13) After Repression		
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFrma Prsnt Units	Rate Prior to Filing	PF Rev at Rate Prior	ProFrma Intrmt Prpsd Units	Intrm Prpsd Rate	PF Rev at Intrm Rate	ProFrma Prpsd Units	Proposed Rate	PF Rev at Proposed
1	<b>All Measured Bills</b>													
2	<1"	56,535	\$ 8.37	\$ 472,950	57,156	57,156	\$ 8.36	\$ 477,824	57,156	\$ 9.10	\$ 520,120	57,156	\$ 9.10	\$ 520,120
3	1"	421	21.40	9,008	468	468	20.90	9,781	468	22.75	10,647	468	22.75	10,647
4	1.5"	45	44.59	2,006	48	48	41.80	2,006	48	45.50	2,184	48	45.50	2,184
5	2"	193	71.39	13,777	204	204	66.88	13,644	204	72.80	14,851	204	72.80	14,851
6	3"	22	136.80	3,010	24	24	125.40	3,010	24	136.50	3,276	24	136.50	3,276
7	4"	0	--	0	0	0	209.00	0	0	227.50	0	0	227.50	0
8	6"	0	--	0	0	0	418.00	0	0	455.00	0	0	455.00	0
9														
10	Base Subtotal	57,216		\$ 500,751	57,900	57,900		\$ 506,265	57,900		\$ 551,078	57,900		\$ 551,078
11														
12	<b>Residential &amp; Commercial Unmeasured</b>													
13	Flat Rate Res	0		\$ -	0	0	\$ -	\$ -	0	\$ 19.35	\$ -	0	\$ 19.12	\$ -
14	Flat Rate Com	0		-	0	0	-	-	0	25.54	-	0	29.34	0
15										1.320			1.535	
16														
17	<b>Gallonge (kGals)</b>													
18	Res Block 1	350,374	\$ 1.53	\$ 536,072	351,969	316,104	\$ 1.53	\$ 483,638	155,410	\$ 0.64	\$ 99,463	155,373	\$ 0.71	\$ 110,315
19	Res Block 2								52,210	1.28	66,829	52,205	1.42	74,131
20	Res Block 3								53,549	2.24	119,950	53,539	2.49	133,311
21	Res Block 4								54,830	3.20	175,456	43,617	3.55	154,840
22	Res SubTotal	350,374		\$ 536,072	351,969	316,104		\$ 483,638	315,999		\$ 461,697	304,734		\$ 472,597
23	Irr Block 3	89,764	\$ 1.53	\$ 137,339	91,518	82,192	\$ 1.53	\$ 125,754	47,339	2.24	106,039	45,847	2.49	114,160
24	Irr Block 4								34,850	3.20	111,521	24,425	3.55	86,710
25	Irr SubTotal	89,764		\$ 137,339	91,518	82,192		\$ 125,754	82,189		\$ 217,560	70,273		\$ 200,870
26	Com	15,980	1.53	24,450	18,586	16,692	1.53	25,538	16,692	1.19	19,863	16,692	1.69	28,209
27	Total	456,118		\$ 697,861	462,073	414,988		\$ 634,931	414,880		\$ 699,120	391,698		\$ 701,676
28														
29														
30	Total Service Revenue Calc'd			\$ 1,198,612				\$ 1,141,196			\$ 1,250,197			\$ 1,252,754
31	SIC Revenue			(1,856)				(2,437)			0			0
32														
33														
34	Total Billed Revenue Calc'd			\$ 1,196,756				\$ 1,138,759			\$ 1,250,197			\$ 1,252,754
35	Public Staff distributed the pro forma consumption based on an average of the Company's calculated tiered usage ending September 2019 and March 2020. See Junis Exhibits 11 and 12.													

kGals Repressed @ 3.0%  
 23,182



Fairways Water Tiered Consumption

3YE 2019 09

	ProFrma	ProFrma Intrm	% of	ProFrma	% of
	Prsnt Units	Prpsd Units	Prsnt Units	Prpsd Units	Intrm Prpsd Units
Tier Block 1	307,287	152,181	49.5%	152,181	49.5%
Tier Block 2		50,301	16.4%	50,301	16.4%
Tier Block 3		50,964	16.6%	50,964	16.6%
Tier Block 4		53,815	17.5%	42,752	13.9%
Tier Total		307,261		296,199	
Grand Total	307,287	307,261	100%	296,199	96%
Difference		(26)		(11,062)	

3YE 2020 03

	ProFrma	ProFrma Intrm	% of	ProFrma	% of
	Prsnt Units	Prpsd Units	Prsnt Units	Prpsd Units	Intrm Prpsd Units
Tier Block 1	308,552	150,588	48.8%	150,516	48.8%
Tier Block 2		51,417	16.7%	51,407	16.7%
Tier Block 3		53,365	17.3%	53,345	17.3%
Tier Block 4		53,004	17.2%	42,221	13.7%
Tier Total		308,374		297,489	
Grand Total	308,552	308,374	100%	297,489	96%
Difference		(178)		(10,885)	

PS Pro Forma

3YE 2020 03

	ProFrma	ProFrma Intrm	% of	ProFrma	% of
	Prsnt Units	Prpsd Units	Prsnt Units	Prpsd Units	Intrm Prpsd Units
Tier Block 1	316,104	155,410	49.2%	155,373	49.2%
Tier Block 2		52,210	16.5%	52,205	16.5%
Tier Block 3		53,549	16.9%	53,539	16.9%
Tier Block 4		54,830	17.3%	43,617	13.8%
Tier Total		315,999		304,734	
Grand Total	316,104	315,999	100%	304,734	96%
Difference		(105)		(11,265)	



Fairways Water Irrigation Tiered Usage

3YE 2019 09

	ProFrma Prsnt Units	ProFrma Intrm Prpsd Units	% of Prsnt Units	ProFrma Prpsd Units	% of Intrm Prpsd Units
Tier Block 3	81,838	46,783	57.2%	45,345	55.4%
Tier Block 4		35,065	42.8%	24,704	30.2%
<b>Tier Total</b>		<b>81,849</b>		<b>70,049</b>	
Grand Total	81,838	81,849	100%	70,049	86%
Difference		11		(11,800)	

3YE 2020 03

	ProFrma Prsnt Units	ProFrma Intrm Prpsd Units	% of Prsnt Units	ProFrma Prpsd Units	% of Intrm Prpsd Units
Tier Block 3	79,838	46,325	58.0%	44,831	56.2%
Tier Block 4		33,495	42.0%	23,352	29.2%
<b>Tier Total</b>		<b>79,821</b>		<b>68,183</b>	
Grand Total	79,838	79,821	100%	68,183	85%
Difference		(17)		(11,638)	

PS Pro Forma

3YE 2020 03

	ProFrma Prsnt Units	ProFrma Intrm Prpsd Units	% of Prsnt Units	ProFrma Prpsd Units	% of Intrm Prpsd Units
Tier Block 3	82,192	47,339	57.6%	45,847	55.8%
Tier Block 4		34,850	42.4%	24,425	29.7%
<b>Tier Total</b>		<b>82,189</b>		<b>70,273</b>	
Grand Total	82,192	82,189	100%	70,273	85%
Difference		(3)		(11,916)	









**Aqua North Carolina, Inc.**  
**Docket W-218 Sub 526**  
**Aqua North Carolina, Inc. Sewer**  
**Billing Analysis - Revenue, Sewer**  
**Test Year Revenue at Present Rates, Total Period Volumes**  
**Test Year Ending Mar 31, 2020**

EXHIBIT Hs  
 Test Yr moved 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(9)	(10)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFrma Prsnt Units	Rate Prior to Filing	PF Rev at Rate Prior	ProFrma Prpsd Units	Proposed Rate	PF Rev at Proposed
25	<b>from Charlotte (Purchased Sewer Treatment) , Park South &amp; Parkway Crossing (Res &amp; Com)</b>										
26	<1" Bills	11,841	\$ 26.11	309,169	11,844	11,844	\$ 26.11	\$ 309,247	11,844	\$ 27.48	\$ 325,473
27	2" Bills	84	208.88	17,546	84	84	208.88	17,546	84	219.84	18,467
28	4" Bills	12	652.75	7,833	12	12	652.75	7,833	12	687.00	8,244
29	Gallonage (kGals)	35,067	6.45	\$ 226,181	35,075	34,885	6.45	225,011	34,885	6.45	225,011
30											
31	<b>from Carolina (BFC passed to treatment provider) Hwthrn Grn, Bvr Frms, Wldnd Frms</b>										
32	<1"	0	--	0	0	0	\$ 47.94	\$ -	1,792	\$ 47.94	\$ 85,908
33	1"	12	119.85	1,438	12	12	119.85	\$ 1,438	12	119.85	1,438.20
33	1.5" (5 REUs)	12	239.70	2,876	12	12	239.70	\$ 2,876	12	239.70	2,876.40
34	8" (168.686 REUs)	12	8,086.81	97,042	12	12	8,086.81	97,042	12	8,086.81	97,042
35	Gallonage (kGals)	11,839	6.11	\$ 72,335	11,839	11,775	6.11	71,944	18,982	7.32	138,948
36											
37	<b>Total Service Revenue</b>			<b>\$ 15,064,966</b>				<b>\$ 15,370,565</b>			<b>\$ 17,101,924</b>
38											
39	<b>Availability (Billed Months)</b>										
40	Gov's Club (Mnthly)	2,138	\$ 20.00	\$ 42,753	2,112	2,112	\$ 20.00	\$ 42,240	2,112	\$ 20.00	\$ 42,240
41	Gov's Village (Yrly)	32	12.50	396	32	32	12.50	400	32	12.50	400
42	Woodlake (Mnthly)	2,024	3.75	7,590	2,004	2,004	3.75	7,515	2,004	3.75	7,515
43	AvailabilityTotal	4,193		<b>\$ 50,739</b>	<b>4,148</b>	<b>4,148</b>		<b>\$ 50,155</b>	<b>4,148</b>		<b>\$ 50,155</b>
44											
45	<b>SIC Revenue</b>			61,024				186,921			0
46											
47	<b>Total Billed Revenue</b>			<b>\$ 15,176,729</b>				<b>\$ 15,607,641</b>			<b>\$ 17,152,079</b>





**Aqua North Carolina, Inc.**  
**Docket W-218 Sub 526**  
**Aqua North Carolina, Inc. Sewer**  
**Billing Analysis - Revenue, Sewer**  
**Test Year Revenue at Present Rates, Total Period Volumes**  
**Test Year Ending Mar 31, 2020**

EXHIBIT Hs  
 Test Yr moved 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(9)	(10)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFrma Prsnt Units	Rate Prior to Filing	PF Rev at Present Rate	ProFrma Reco Units	PS Reco Rate	PF Rev at Recommend
25	<b>from Charlotte (Purchased Sewer Treatment) , Park South &amp; Parkway Crossing (Res &amp; Com)</b>										
26	<1" Bills	11,841	\$ 26.11	309,169	11,844	11,844	\$ 26.11	\$ 309,247	11,844	\$ 44.71	\$ 529,545
27	2" Bills	84	208.88	17,546	84	84	208.88	17,546	84	357.68	30,045
28	4" Bills	12	652.75	7,833	12	12	652.75	7,833	12	1,117.75	13,413
29	Gallorage (kGals)	35,067	6.45	\$ 226,181	35,075	34,885	6.45	225,011	34,885	6.45	225,011
30											
31	<b>from Carolina (BFC passed to treatment provider) Hwthrn Grn, Bvr Frms, Wldnd Frms</b>										
32	<1"	0	--	0	0	0	\$ 47.94	\$ -	1,792	\$ 47.94	\$ 85,908
33	1"	12	119.85	1,438	12	12	119.85	\$ 1,438	12	119.85	1,438.20
33	1.5" (5 REUs)	12	239.70	2,876	12	12	239.70	\$ 2,876	12	239.70	2,876.40
34	8" (168.686 REUs)	12	8,086.81	97,042	12	12	8,086.81	97,042	12	8,086.81	97,042
35	Gallorage (kGals)	11,839	6.11	\$ 72,335	11,839	11,775	6.11	71,944	18,982	6.47	122,881
36											
37	<b>Total Service Revenue</b>			<u>\$ 15,064,966</u>				<u>\$ 15,370,565</u>			<u>\$ 16,023,521</u>
38											
39	<b>Availability (Billed Months)</b>										
40	Gov's Club (Mnthly)	2,138	\$ 20.00	\$ 42,753	2,112	2,112	\$ 20.00	\$ 42,240	2,112	\$ 20.00	\$ 42,240
41	Gov's Village (Yrly)	32	12.50	396	32	32	12.50	400	32	12.50	400
42	Woodlake (Mnthly)	2,024	3.75	7,590	2,004	2,004	3.75	7,515	2,004	3.75	7,515
43	AvailabilityTotal	4,193		<u>\$ 50,739</u>	4,148	4,148		<u>\$ 50,155</u>	4,148		<u>\$ 50,155</u>
44											
45	<b>SIC Revenue</b>			61,024				186,921			0
46											
47	<b>Total Billed Revenue</b>			<u>\$ 15,176,729</u>				<u>\$ 15,607,641</u>			<u>\$ 16,073,676</u>
48	Public Staff recommends implementation of a metered sewer rate using the customers' ANC Water metered usage data through March 2020.										



**Aqua North Carolina, Inc.**  
**Docket W-218 Sub 526**  
**Fairways Sewer**  
**Billing Analysis - Revenue, Sewer**  
**Test Year Revenue at Present Rates, Total Period Volumes**  
**Test Year Ending Mar 31, 2020**

EXHIBIT Hs  
 Test Yr moved 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFrma Units	Rate Prior to Filing	PF Rev at Rate Prior	Proposed Rate	PF Rev at Proposed
1	<b>Residential &amp; Commercial Measured (Com)</b>									
2	<b>Bills</b>									
3	<1"	227	\$ 20.72	\$ 4,703	228	228	\$ 20.72	\$ 4,724	\$ 21.04	\$ 4,797
4	1"	60	51.80	3,108	60	60	51.80	3,108	52.60	3,156
5	1.5"	24	103.60	2,486	24	24	103.60	2,486	105.20	2,525
6	2"	48	165.76	7,956	48	48	165.76	7,956	168.32	8,079
7	3"	0	--	0	0	0	310.80	0	315.60	0
8	4"	0	--	0	0	0	518.00	0	526.00	0
9	6"	0	--	0	0	0	1,036.00	0	1,052.00	0
10										
11	Base Subtotal	<u>359</u>		<u>\$ 18,254</u>	<u>360</u>	<u>360</u>	<u>\$ 2,206.68</u>	<u>\$ 18,275</u>	<u>\$ 2,240.8</u>	<u>\$ 18,557</u>
12										
13	<b>Gallnage (kGals)</b>	4,523	\$ 9.46	<u>42,785</u>	4,527	4,457	\$ 9.46	<u>\$ 42,165</u>	\$ 9.56	<u>\$ 42,610</u>
14	Measured Base + Gllnge			<u>\$ 61,039</u>				<u>\$ 60,440</u>		<u>\$ 61,168</u>
15	<i>Avg Usq &lt;1" Bill</i>									
16										
17	<b>Residential &amp; Commercial Unmeasured</b>									
18	Flat Rate Res Bills	36,169	\$ 58.56	\$ 2,118,057	36,336	36,336	\$ 58.56	\$ 2,127,836	\$ 60.83	\$ 2,210,319
19	Flat Rate Com Bills	0	--	0	0	0	81.98	0	94.27	0
20	FR Imputed Usage (kGals)				151,230	151,230				
21										
22	<b>Total Service Revenue</b>			<u>\$ 2,179,096</u>				<u>\$ 2,188,276</u>		<u>\$ 2,271,487</u>
23	<b>SIC Revenue</b>			<u>1,042</u>				<u>1,313</u>		<u>0</u>
24										
25										
26	<b>Total Billed Revenue</b>			<u>\$ 2,180,138</u>				<u>\$ 2,189,589</u>		<u>\$ 2,271,487</u>



**Aqua North Carolina, Inc.**  
**Docket W-218 Sub 526**  
**Fairways Sewer**  
**Billing Analysis - Revenue, Sewer**  
**Test Year Revenue at Present Rates, Total Period Volumes**  
**Test Year Ending Mar 31, 2020**

EXHIBIT Hs  
 Test Yr moved 6 months

Col #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Line No.	Class/Meter Size	Test Yr Units	Wghtd Test Year Rate	Test Year Revenue	Normlzd TY Units	ProFrma Units	Rate Prior to Filing	PF Rev at Rate Prior	ProFrma Reco Units	PS Reco Rate	PF Rev at Recommend
1	<b>Residential &amp; Commercial Measured (Com)</b>										
2	<b>Bills</b>										
3	<1"	227	\$ 20.72	\$ 4,703	228	228	\$ 20.72	\$ 4,724	34,584	\$ 32.67	\$ 1,129,859
4	1"	60	51.80	3,108	60	60	51.80	3,108	216	81.68	17,643
5	1.5"	24	103.60	2,486	24	24	103.60	2,486	24	163.35	3,920
6	2"	48	165.76	7,956	48	48	165.76	7,956	60	261.36	15,682
7	3"	0 --		0	0	0	310.80	0	0	490.05	0
8	4"	0 --		0	0	0	518.00	0	0	816.75	0
9	6"	0 --		0	0	0	1,036.00	0	0	1,633.50	0
10											
11	Base Subtotal	359		\$ 18,254	360	360	\$ 2,206.68	\$ 18,275	34,884	\$ 3,479.4	\$ 1,167,104
12											
13	<b>Gallonge (kGals)</b>	4,523	\$ 9.46	42,785	4,527	4,457	\$ 9.46	\$ 42,165	215,280	\$ 3.67	\$ 790,078
14	Measured Base + Gllnge			\$ 61,039				\$ 60,440			\$ 1,957,183
15	<i>Avg Usg &lt;1" Bill</i>										
16											
17	<b>Residential &amp; Commercial Unmeasured</b>										
18	Flat Rate Res Bills	36,169	\$ 58.56	\$ 2,118,057	36,336	36,336	\$ 58.56	\$ 2,127,836	1,812	\$ 47.94	\$ 86,876
19	Flat Rate Com Bills	0 --		0	0	0	81.98	0	0	68.16	0
20	FR Imputed Usage (kGals)				7,542	7,542			7,542		
21											
22	<b>Total Service Revenue</b>			\$ 2,179,096				\$ 2,188,276			\$ 2,044,058
23	<b>SIC Revenue</b>			1,042				1,313			0
24											
25											
26	<b>Total Billed Revenue</b>			\$ 2,180,138				\$ 2,189,589			\$ 2,044,058
27	Public Staff recommends implementation of a metered sewer rate using the customers' Fairways Water metered usage data through March 2020.										