

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

June 17, 2019

Via Electronic Filing

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

Re: Aqua North Carolina, Inc.
Docket Nos. W-218, Subs 497 and 497A
Response to Ordering Paragraph No. 18 in the North Carolina
Utilities Commission's General Rate Case Order of December 18,
2018 -----Group 1 Site Flushing

Dear Ms. Jarvis:

Attached please find for filing Aqua North Carolina's Response to Ordering Paragraph No. 18 of the Commission's *Order Approving Partial Settlement Agreement and Stipulation, Granting Partial Rate Increase, and Requiring Customer Notice*. This order was entered in Docket No. W-218, Sub 497 on December 18, 2018 and the referenced paragraph directed development of a plan for flushing.

I hereby certify that a copy of this filing has been served on all parties of record.

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

Sincerely,

Electronically Submitted
/s/Jo Anne Sanford
Sanford Law Office, PLLC
State Bar No. 6831

Attorney for Aqua North Carolina, Inc.

c: Parties of Record

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

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

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of
Application by Aqua North Carolina, Inc.)
202 MacKenan Court, Cary, North)
Carolina 27511 for Authority to Adjust)
and Increase Rates for Water and)
Sewer Utility Service for all Areas in)
North Carolina)
RESPONSE TO ORDERING
PARAGRAPH NO. 18 OF
ORDER APPROVING PARTIAL
SETTLEMENT AGREEMENT
AND STIPULATION, GRANTING
PARTIAL RATE INCREASE,
AND REQUIRING CUSTOMER
NOTICE - DEVELOPMENT OF
A FLUSHING PLAN

NOW COMES Aqua North Carolina, Inc. (“Aqua” or “Company”), by and through the undersigned counsel, to file this Response to an order of the North Carolina Utilities Commission (“Commission” or “NCUC”), dealing with the requirement to develop a flushing plan.

On December 18, 2018, the Commission issued its *Order Approving Partial Settlement Agreement and Stipulation, Granting Partial Rate Increase, and Requiring Customer Notice* in Docket No. W-218, Sub 497 (“2018 Rate Case Order”). Ordering Paragraph No. 18, at page 185, provides as follows:

Aqua NC shall work with the Public Staff to develop an appropriate robust general flushing plan for each of its North Carolina systems affected by iron and manganese (or identified as a Group 1 site in the Three-Year WSIC/SSIC Plan Update dated April 20, 2018 (or the most recent version thereof)) and submit the plans for filing with the Commission within 180 days of the issuance of this Order.

In support of this Response to Ordering Paragraph No. 18 of the 2018 Rate Case Order, Aqua states the following:

Aqua began work on an improved flushing plan in late-2018. This work included developing a water quality control procedure for aged water testing, reviewing the phosphate vendor recommendation for flushing, developing system-specific flushing maps with flushing instructions, and modifying the flushing work orders to include water quality information.

Consistent with the Commission's directive that Aqua work with the Public Staff to develop an appropriate, robust flushing plan, Aqua representatives met with the Public Staff on June 3, 2019, to discuss the Company's plan. The Public Staff reviewed the plan and recommended that examples of the flushing maps be provided as part of this submission.

Aqua's flushing plan for each of its North Carolina systems affected by iron and manganese---or identified as a Group 1 site in the Three-Year WSIC/SSIC Plan Update dated April 20, 2018 (or the most recent version thereof)---is described below in four different phases:

1. The first phase of the flushing plan is a water quality control procedure for aged water testing. Aqua has established a procedure for testing potable water at the entry point and allowing the sample water to age for at least a week afterwards to ensure the phosphate sequestration is performing as desired. If iron or manganese precipitates form, the phosphate feed concentration is incrementally increased to optimize the sequestration. This process was used in the winter of 2018/2019 for 120 wells in Aqua's Bayleaf master system prior to starting the system-wide flushing campaign, and the process contributed to the

success of the campaign. Due to high iron and manganese concentrations, sequestration does not fully stop the precipitate formation; however, with this process, the water used for flushing was optimized to limit discoloration, so that Aqua would not be flushing using discolored water. Aged water testing will be implemented statewide for Aqua's systems using phosphate sequestration in 2019; however, no exact date has been determined as of the time of filing this report.

2. The second phase of the flushing plan is the review of the phosphate vendor recommendation for flushing. Attached as Appendix A is *A Detailed Outline for the Safe Use of SeaQuest* which was provided by the vendor. Aqua's initial setpoint for the SeaQuest feed rates is mathematically based on the concentrations of several water quality parameters, and a 0.15 ppm SeaQuest residual. This residual corresponds with the "Longer Slow Clean Out". Aqua notes that the SeaQuest outline states:

(NOTE: Hydrant flushing is not required in order for SeaQuest to clean out distribution piping. With or without hydrant flushings, there are no negative effects to water quality---see Sea Cliff report.) The hydrant flushings are recommended and helps [sic] clean out the distribution system quicker.

Based on Aqua's current general flushing knowledge, the Company intends to flush all systems using phosphates for iron and manganese sequestration annually, until flushing water quality data indicates that the flushing frequency should either be increased or decreased.

3. The third phase of the flushing plan is the development of system-specific flushing maps with flushing instructions. Attached as CONFIDENTIAL Appendix B and CONFIDENTIAL Appendix C are examples of two maps for system-specific flushing. Aqua is currently developing maps for the Group 1 sites, listed in the most recent version of Aqua's Ongoing Three-Year WSIC/SSIC Plan (filed March 1, 2019), and for the Notice of Deficiency ("NOD") sites. This work is in progress and the maps are expected to be complete by the end of 2019. Aqua recognizes that field experience with these maps may result in future system-specific flushing program design improvements.
4. The fourth phase of Aqua's flushing plan is a quality control function; specifically, to determine if the flushing is effective. The flushing operators will record a visual description of the water quality at the onset of flushing, using terms such as *rusty, brown, or clear*. Based on the time duration at each flushing outlet and the water quality at the conclusion of flushing, Aqua can determine if the flushing frequency needs to be reassessed or the treatment system revised.

Aqua has developed this flushing plan to minimize the customer impact of iron and manganese precipitates which settle in the distribution system piping. Consideration must be given to flushing timing and frequency due to the potential for disruption of existing mineral deposition. The flushing process itself is potentially disruptive to Aqua's customers and---as experience has shown---may cause an increase in water quality complaints during the flushing period.

For smaller systems where flushing of the entire system can be completed in a day or less, Aqua will attempt to provide a date-specific advance notice to the customers; however, flushing campaigns may be delayed due to weather or other unexpected operational or mechanical issues.

CONCLUSION

Aqua respectfully requests Commission approval of the flushing plan described in this Response and a finding by the Commission that the plan described herein complies with the requirements of Ordering Paragraph No. 18 of the 2018 Rate Case Order. The Public Staff has reviewed this Response prior to its filing and has authorized Aqua to state that the Public Staff agrees with and supports the flushing plan described herein. Aqua appreciates the Public Staff's participation in the development of the protocol.

Respectfully Submitted, this the 17th day of June 2019.

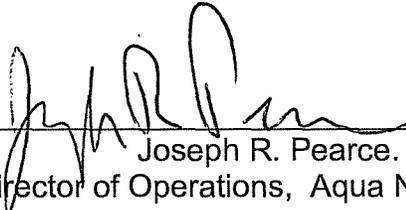
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VERIFICATION

Joseph R. Pearce, being duly sworn, deposes and says that he is the Director of Operations, Aqua North Carolina, Inc.; that he is familiar with the facts set out in this **RESPONSE TO ORDERING PARAGRAPH NO. 18 OF THE 2018 RATE CASE ORDER** entered by the NCUC in Docket No. W-218, Sub 497 on December 18, 2018; that he has read the foregoing Response and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.



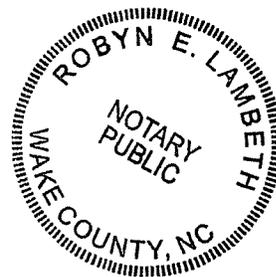
Joseph R. Pearce.
Director of Operations, Aqua North Carolina, Inc.

Sworn to and subscribed before me this
the 17th day of June 2019.



Robyn E. Lambeth
Notary Public

My Commission expires: May 13, 2021



A Detailed Outline For The Safe Use of SeaQuest

Longer Slow Clean Out

For longer slow clean out over a period of 12 to 18 months, use a 0.15 ppm residual of SeaQuest over that calculated for total hardness + divalent metals with hydrant flushings once per year.

(NOTE: Hydrant flushing is not required in order for SeaQuest to clean out distribution piping. With or without hydrant flushings, there are no negative effects to water quality—see Sea Cliff report.) The hydrant flushings are recommended and helps clean out the distribution system quicker.

Quicker Clean Out

As an example, if the total required calculation determined from page 37 (or 38) is 0.5 ppm SeaQuest, start treatment as follows:

Step 1. Initiate treatment into the distribution system from a point such as the Chlorine Contact Chamber at the water treatment plant at 0.35 ppm. This will enable the SEAQUEST to begin the softening process of all rust, corrosion, scale, and heavy build up due to current (or lack of) treatment.

Step 2. Continue this treatment at 0.35 ppm for a period of 30 days. After the first 30 days, the first flushing procedure begins. (See flushing procedure on page 41.)

Step 3. After the first 30 days and first flushing, the level of SeaQuest is raised to 0.45 ppm for 30 days. After 30 days, the flushing procedure is repeated.

Step 4. After 60 days and the second flushing, the level of SeaQuest is raised to 0.50 ppm for the third period of 30 days. After the third 30 days, the flushing procedure is repeated again.

(NOTE: On large systems, it is our suggestion that the system be divided into quadrants and the flushing cycles extended to 60 days—in place of 30 days—to make the flushing procedure easier to handle.)

Step 5. After 90 days and the third flushing, maintain the treatment level at 0.45-0.50 ppm to treat any remaining rust and corrosion, and to provide corrosion protection by creating a monomolecular non-building protective coating on metal pipe surfaces. This coating also will stop lead and copper leaching into the drinking water keeping it safe to drink all the way to the tap.

As long as SeaQuest continually remains infused into the distribution system, the system will remain clean and protected.

CERTIFICATE OF SERVICE

I hereby certify that on this 17th day of June 2019, a copy of the foregoing **RESPONSE TO ORDERING PARAGRAPH NO. 18 OF THE 2018 RATE CASE ORDER** entered by the NCUC in Docket No. W-218, Sub 497 on December 18, 2018, has been duly served upon all parties of record in Docket Nos. W-218, Subs 497 and 497A by electronic service, addressed as shown below:

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