

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

October 6, 2021

Via Electronic Filing

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

Re: Docket No. W-218, Sub 526A
REPORTING REQUIREMENT DOCKET
Third Quarter 2021 Notice of Deficiency Reports Provided to the
North Carolina Department of Environmental Quality

Dear Ms. Dunston:

Attached for filing please find Aqua North Carolina, Inc.'s Third Quarter 2021 Notice of Deficiency Reports; these were provided to the North Carolina Department of Environmental Quality and the Public Staff on October 4, 2021.

I hereby certify that I have served a copy of this filing on all parties of record in the docket.

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

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



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration

Dear Mr. Guyer:

Attached you will find Aqua's Q3- 2021 responses and updates for the current notice of deficiency water systems. We have developed this cover letter to supply you with a summary of our current and ongoing efforts.

There are 3 wells that have Public Staff and North Carolina Utilities Commission approval which are currently in the engineering/installation/startup phase of the project and planned to be operational in 2020/2021.

- Branston well #2 (TP1)
- Wakefield well #6 (P06)
- Eagle Creek well #3 (P03)

There are 3 wells that continue to require additional in-depth investigation to determine appropriate measures to prudently address heightened iron and/or manganese levels due to inconsistent sample results, interconnection possibilities and/or the possibility of taking the well offline based on limited current capacity.

- Barton Creek Bluffs well #10 (P67)
- High Grove well #1 (P01)
- Hawthorne well #1 and #2 (P76)

There are 2 wells that Aqua respectfully requests to be removed from quarterly NOD reporting.

- Enclave at Barton Creek Bluffs well #18 (P75)
- High Meadows well #2 (TM1)

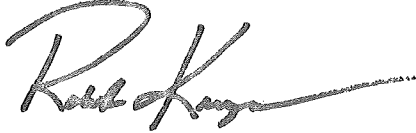
Mr. Shawn F. Guyer, P.E.
October 5, 2021
Q2 2021 Final NOD Cover Letter

The annexation agreement and settlement agreement related to the Northgate system have been executed. Aqua is currently working on regulatory approval to transfer the system and terminate the permit.

- Northgate well #1 (P01)

If you have any questions, please feel free to contact me at 1-919-653-6982.

Sincerely,



Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office
NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency
Iron and Manganese Concentration
Bayleaf Master System
Wake County
WSF ID Nos: P67, P75, P76
Water System No: NC039373

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Bayleaf Master System, P67, P75, P76, P4B. The Bayleaf Master water system is comprised of 122 active wells and 117 points of entry (POE). The current number of customers served is 6,112 and the system is approved to serve 6,356 connections.

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

- Table 1 provides a summary of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected at WSF ID Nos. P67, P75, P76, P3B, P4B as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

<u>Table 1 – Well Information, Completed Activities and Planned Activities</u>		
<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Enclave at Barton Creek Bluffs Well #18 (P75)	<ul style="list-style-type: none"> • October 2015 - Started using SeaQuest • Jan - Apr 2016 - Flushed system • February 2017 - Flushed system • June 2017 - Installed cartridge filter • September 2017 – Started Distribution and POE total and soluble sampling • December 2017- Added raw sample data • Q2-2018 System flushed • September 2018 – Submitted executive summary to Public Staff of the North Carolina Utilities Commission for approval of iron and manganese filtration • Q4- 2018 performed jar testing at this well and adjusted sequestration feeds based on results. • Q2-2019 – Well #18 was cleaned and re-drilled • Q3-2019 – Draw down test performed and re-sampled. • 9-28-2020 - Public Staff gave pre-approval for filtration 	<ul style="list-style-type: none"> • Continue operation of the new filtration
Approved GPM (75)		
Avg. Quarterly Runtime (11.01)		
<p><u>Comments:</u> Aqua has submitted the executive summary for manganese dioxide filtration at well #18 as part of the Aqua water quality plan. Public Staff requested that Aqua perform a cleaning and drawdown test of this well prior to approval. The drawdown and cleaning were completed in Q2 and Q3 of 2019. Public Staff gave pre-approval for filtration on September 28, 2020. Aqua completed the installation and startup of a manganese dioxide filtration system on August 19th, 2021. Aqua respectfully requests that this system be removed from the NOD quarterly reporting list.</p>		

UPDATED QUARTERLY STATUS REPORT

<u>Table 1 – Well Information, Completed Activities and Planned Activities</u>		
<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Hawthorne Well #1 & #2 (P76)	<ul style="list-style-type: none"> • February 2016 -Started Using SeaQuest • Jan - Apr 2016 - Flushed system • February 2017 - Flushed system • June 2017 - Installed cartridge filter • September 2017 – Started Distribution and POE total and soluble sampling • December 2017 - Added raw sample data • March 2018 - Storage tank was cleaned • Q2-2018 system flushed • July 2018 - Adjusted Seaquest feed rate • Q4- 2018 performed jar testing at well #1 and adjusted sequestration feeds 	<ul style="list-style-type: none"> • Continued investigation of well #1 and #2 production and water quality
Approved GPM (73)		
Avg. Quarterly Runtime (23.87)		
<p><u>Comments:</u></p> <p>Aqua attempts to keep these wells offline as much as possible. When peak demands exceed 14 hours, well #1 is utilized as it is the only source on a 5,000-gallon ground storage tank. Aqua is currently investigating multiple options to address the source water quality issues. Well #1 is currently only producing an average of 7 gpm which does not warrant filter installation. Aqua is evaluating well #2 water quality and the possibility of putting it back in-service.</p>		

UPDATED QUARTERLY STATUS REPORT

<u>Table 1 – Well Information, Completed Activities and Planned Activities</u>		
<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Barton Creek Bluffs Well #10 (P67)	<ul style="list-style-type: none"> • March 2016 – Started using SeaQuest • February 2017 – Flushed system • September 2017 – Took soluble and insoluble well head and distribution samples • December 2017 – Added raw sample data distribution soluble and insoluble iron • Q2 – 2018 Flushed system • Q4- 2018 performed jar testing at this well and adjusted sequestration feeds. 	<ul style="list-style-type: none"> • Continue to monitor the effectiveness of sequestration
Approved GPM (15)		
Avg. Quarterly Runtime (10.92)		
<p><u>Comments:</u></p> <p>Aqua will continue to monitor the effectiveness of sequestration and determine if filtration is required/prudent.</p>		

Mr. Shawn F. Guyer, P.E.
October 5, 2021
Bayleaf Quarterly Update

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

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Krueger". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff

Well Name	Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe-Diss	Fe Lab	Fe-Diss	Distribution System-Fe Lab	Distribution System-Fe-Diss	Raw-Mn Lab	Raw-Mn Diss	Mn Lab	Mn-Diss	Distribution System-Mn Lab	Distribution System-Mn-Diss
Enclave at Barton Creek Bluffs #18 P75	10/9/2013	8.1			1						0.29			
	10/12/2019	10.46			1.49						0.348			
	12/20/2016	12.8												
	3/23/2017	6.9												
	4/26/2017	6.4												
	6/8/2017	7.6												
	9/13/2017	7.6			1.03	0.151	<0.022	<0.022			0.256	0.241	0.0304	0.027
	9/27/2017	8.64			0.475	0.222	0.0229	<0.0220			0.377	0.404	0.0147	0.0104
	10/5/2017	18.67			0.753	0.165	0.0545	<0.220			0.393	0.375	0.0296	0.00747
	10/16/2017	12.66			2.94	0.173					0.625	0.584		
	10/23/2017	12.96			1.76	0.201	0.0643	0.0778			0.385	0.319	0.0449	0.00168
	11/8/2017	11.26			0.566	0.31	0.0437	<0.220			0.372	0.363	0.0493	0.0428
	12/12/2018	11.4	1.63	<0.0220	0.515	0.085	0.261	<0.220	0.295	0.264	0.328	0.282	0.118	<0.0011
	1/22/2018	11.3	1.25	<0.0220	4.01	0.115	0.433	<0.220	0.325	0.314	0.601	0.308	0.0673	0.0284
	2/26/2018	9	0.872	0.0275	0.53	0.317	<0.220	0.0378	0.268	0.271	0.288	0.279	0.0053	0.0395
	3/15/2018	7.29	0.233	0.2	0.683	0.0659	1.18	0.103	0.0186	0.012	0.49	0.442	0.51	0.499
	4/11/2018	10.24	0.334	0.232	0.41	0.1	0.125	0.0408	0.395	0.397	0.392	0.357	0.0506	0.00375
	5/10/2018	9.62	1.98	<0.0220	0.483	0.181	0.272	0.042	0.514	0.478	0.333	0.306	0.279	0.213
	6/21/2018	15.28	0.572	<0.0220	0.317	<0.0220	0.185	<0.0220	0.365	0.358	0.349	0.293	0.0208	0.00473
	7/12/2018	13.5	7.54	<0.0220	0.319	<0.0220	0.0371	<0.0220	0.386	0.246	0.257	0.215	0.0585	0.00439
	8/9/2018	8.11	0.449	0.0364	0.261	0.142	<0.0220	<0.0220	0.27	0.275	0.24	0.233	0.0247	<0.00150
	9/8/2018	10.7	1.46	<0.0220	0.307	0.0851	0.841	<0.0220	0.36	0.338	0.356	0.326	0.154	0.0533
	10/19/2018	13.85	0.739	<0.0220	0.333	<0.0220	0.0422	0.0422	0.323	0.332	0.323	0.235	0.108	0.00356
	11/16/2018	11.06	0.471	<0.0220	0.29	<0.0220	<0.0220	<0.0220	0.323	0.315	0.296	0.167	0.0419	<0.00150
	12/5/2018	9.16	3.46	<0.0220	0.414	0.159	0.0227	<0.0220	0.294	0.276	0.282	0.280	0.0220	<0.00150
	1/24/2019	9.45	0.670	<0.0220	0.660	0.114	0.0613	0.0489	0.401	0.457	0.390	0.346	0.0310	0.00170
	2/7/2019	8.27	3.81	<0.0220	1.03	0.195	0.0549	0.0393	0.241	0.205	0.247	0.222	0.0524	0.00173
	4/22/2020	8.53	10.30		0.03	<0.0220					0.317	0.320		

Well Name	Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe-Diss	Fe Lab	Fe-Diss	Distribution System-Fe Lab	Distribution System-Fe-Diss	Raw-Mn Lab	Raw-Mn Diss	Mn Lab	Mn-Diss	Distribution System-Mn Lab	Distribution System-Mn-Diss
Hawthorne # 1 & 2 P76	5/19/2016	10.7			1.01						0.53			
	9/20/2016	14.2												
	3/23/2017	10.3												
	6/8/2017	15.51												
	9/15/2017	16.9												
	9/28/2017	21.72			0.833	0.164	0.0585	<0.0220			0.531	0.184	0.0108	0.00122
	10/6/2017	23.6			0.882	0.309	<0.0220	<0.0220			0.417	0.343	0.00236	0.00161
	10/23/2017	18.38			0.892	0.0559	0.139	<0.0220			0.32	0.225	0.0308	0.00597
	11/7/2017	11.86			0.634	0.0331	0.0234	<0.0220			0.202	0.134	0.0029	0.00128
	11/16/2017	8.38			0.814	<0.0220	0.736	<0.0220			0.233	0.104	0.269	0.141
	12/14/2018	9.8	13.9	0.0298	2.38	0.171	<0.0220	<0.0220	0.391	0.362	0.423	0.181	0.00136	0.0011
	1/22/2018	10.1	6.96	<0.022	1.42	0.102	0.116	0.0572	0.54	0.5	0.478	0.102	0.0196	0.00319
	2/26/2018	12.2	1.24	0.15	1.07	0.0817	0.0482	<0.0220	0.693	0.489	0.693	0.276	0.144	0.304
	3/28/2018	6.7	1.08	0.0386	1.1	<0.0220	0.87	0.217	0.582	0.614	0.586	0.547	0.402	0.287
	4/5/2018	8.19	0.941	<0.022	0.775	0.0407	<0.0220	<0.0220	0.847	0.578	0.457	0.353	0.0852	0.507
	5/2/2018	7.56	0.828	<0.00600	0.952	0.0163	0.206	<0.00600	0.531	0.518	0.526	0.486	0.531	0.518
	6/21/2018	12.67	0.793	0.0871	0.477	<0.0220	0.354	<0.0220	0.504	0.492	0.266	0.184	0.00875	<0.0015
	7/12/2018	12.94	0.786	0.075	0.736	0.433	0.0445	<0.0220	0.476	0.48	0.445	0.433	0.00616	0.00237
	8/9/2018	5.21	0.707	0.0551	1.18	0.271	0.21	0.0286	0.234	0.312	0.239	0.162	0.0289	0.00614
	9/8/2018	8.97	1.53	<0.0220	0.118	0.0246	0.0462	<0.0220	0.372	0.343	0.0205	0.00665	0.0151	0.00675
	10/19/2018	8.92	1.10	<0.0220	0.667	<0.0220	0.0641	<0.0220	0.425	0.326	0.425	0.326	0.175	0.00599
	11/16/2018	10.33	6.73	<0.0220	0.433	<0.0220	0.0905	<0.0220	0.351	0.297	0.184	<0.00150	0.0121	<0.00150
	12/5/2018	7.18	1.27	<0.0220	0.594	0.0248	0.0477	<0.0220	0.485	0.496	0.294	0.206	0.00557	<0.00150
	1/24/2019	5.04	0.901	0.0608	0.595	<0.0220	0.104	<0.0220	0.501	0.501	0.315	0.188	0.0730	0.00325
	2/7/2019	3.21	0.915	<0.0220	0.504	<0.0220	0.272	0.102	0.494	0.499	0.238	0.108	0.0677	0.0549
	5/10/2019	6.47			0.584	0.0454					0.296	0.229		
	9/19/2019	9.46			5.25	<0.0220					0.635	0.616		
	1/31/2020	16.3			1.21	<0.0220					0.483	0.487		
	2/27/2020	0	1.38	0.336	7.49	0.25			0.485	0.486	0.613	0.479		
	4/20/2020	0		<0.0220	1.32	<0.0220			2.07	0.799	0.500	0.483		
	10/29/2020	23.67	0.884	<0.0220	0.719	<0.0220			0.524	0.525	0.503	0.420		

Well Name	Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe-Diss	Fe Lab	Fe-Diss	Distributio n System- Fe Lab	Distributio n System- Fe-Diss	Raw-Mn Lab	Raw-Mn Diss	Mn Lab	Mn-Diss	Distributio n System- Mn Lab	Distributio n System- Mn-Diss
Barton Creek Bluffs #10	6/1/2013	9.4									0.2			
P67	5/31/2016	9.8									0.232			
	5/9/2018	9.57	0.409	<0.0220	0.784	<0.0220	0.0505	<0.0220	0.232	0.221	0.241	0.178	0.203	0.0934
	6/21/2018	13.39	0.0373	<0.0220	0.0354	0.0335	0.0516	<0.0220	0.223	0.218	0.221	0.218	0.0142	0.00973
	7/12/2018	13.01	0.0353	<0.0220	0.0428	0.0368	0.501	<0.0220	0.208	0.207	0.207	0.205	0.0595	0.00983
	9/8/2018	10.98	<0.0220	<0.0220	<0.0220	<0.0220	0.253	0.0681	0.148	0.153	0.151	0.079	0.0546	0.0352
	10/19/2018	20.74	<0.0220	0.0388	0.0227	<0.0220	0.287	<0.0220	0.14	0.00318	0.141	0.00316	0.0771	0.00245
	11/16/2018	11.48	0.0580	<0.0220	0.213	<0.0220	0.0452	<0.0220	0.138	0.142	0.760	0.626	0.0124	0.0112
	12/5/2018	9.29	0.311	<0.0220	0.125	<0.0220	0.0829	<0.0220	0.145	0.0151	0.106	0.0759	0.0134	0.00617
	1/24/2019	8.82	0.336	<0.0220	0.414	<0.0220	0.0904	<0.0220	0.213	0.112	0.303	0.120	0.0423	0.0357
	2/7/2019	6.8	0.668	<0.0220	0.338	<0.0220	0.271	<0.0220	0.489	0.0170	0.151	0.0368	0.0712	0.0513
	3/15/2019	7.97	0.605	<0.0220	0.262	<0.0220	0.0615	<0.0220	0.160	0.0505	0.150	0.115	0.0187	0.0176
	4/25/2019	10.67	0.0360	<0.0220	0.0300	0.0220	0.0455	<0.0220	0.149	0.0145	0.141	0.138	0.0304	0.0157
	5/10/2019	10.06	0.248	<0.0220	0.329	0.0234			0.127	0.0847	0.122	0.110		
	6/14/2019	15.17	0.161	<0.0220	0.185	<0.0220			0.162	0.125	0.140	0.121		
	7/12/2019	14.26	0.0403		0.0351				0.139		0.138	0.126		
	8/15/2019	12.8	0.0303	<0.0220	0.0316	<0.0220			0.128	0.124	0.131	0.128		
	12/31/2019	8.86	0.0582	<0.0220	0.0709	<0.0220			0.118	0.112	0.109	0.107		
	2/14/2020	7.02	0.0408	<0.0220	0.0375	<0.0220			0.0589	0.059	0.0651	0.054		
	4/22/2020	8.53	0.0521	<0.0220	0.0484	<0.0220			0.096	0.090	0.0974	0.106		
	5/28/2020	8.56	0.0308	<0.0220	0.0327	<0.0220			0.185	0.151	0.1530	0.124		
	6/9/2020	8.53	0.0657	<0.0220	0.201	<0.0220			0.0162	0.012	0.0384	0.004		
	8/31/2020	10.5	0.0252	<0.0220	0.0475	<0.0220			0.0251	0.022	0.0262	0.026		
	10/22/2020	9.6	0.0283	<0.0220	0.0323	<0.0220			0.0765	0.070	0.0767	0.075		
	11/19/2020	7.5	0.0292	<0.0220	0.0247	<0.0220			0.141	0.144	0.1410	0.135		

Table 3 - Bayleaf Customer Complaints										
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes	FSR Comments
Aqua Received Zero customer complaints for Q3 - 2021										



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration
Branston Subdivision, Wake County
WSF ID No.: Well #2, TP1
Water System No: NC4092076

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Branston Well #2, TP1. The Branston water system is comprised of one active well and one point of entry (POE). The current number of customers served is 44 and the system is approved to serve 44 connections.

Aqua has compiled the requested information in a table format as follows:

- Table 1 provides a summary of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Branston, Well #2 (TP1)	<ul style="list-style-type: none"> • July 2013 – Started using SeaQuest • September 2016 – Flushed system • March 2017 – Flushed system • July 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • Continue distribution and POE soluble and insoluble sampling • December 2017 – Added raw sample data • December 2017 – Cleaned hydropneumatic storage tank • July 2018 - Flushed system • December 9, 2018 - Submitted executive summary to the Public Staff of the North Carolina Utilities Commission for manganese dioxide filtration • Q4 2019 – Met with Public Staff to discuss interconnection location. • Q4 2019 – Flushed System • Q1 2021 – Flushed System 	<ul style="list-style-type: none"> • Aqua is still responding to Public Staff additional information requests for the approval of manganese dioxide filtration • Annual flushing of the distribution system. • Interconnection with the Royal Senter Ridge Water system is scheduled to be completed by 10-31-2021. • Upon completion of the interconnection, the Branston well will be placed in back up mode and the water system will be flushed.
Approved GPM (49)		
Avg. Quarterly Runtime (5.9 hours per day)		

Comments:

Based on the results from previous sampling events, it is apparent that sequestration will not fully address the iron and manganese issues at Branston Well #2. Aqua submitted an executive summary to Public Staff of the North Carolina Utilities Commission for manganese dioxide filtration at well #2 on December 9, 2018 as part of the Aqua water quality plan. Aqua recently proposed to Public Staff an interconnection of the distribution systems of Branston and Royal Senter Ridge, filter the Royal Senter Ridge wells individually, and keep the Branston well in backup mode. April 30th 2021, Public Staff agreed to recommend to the North Carolina Utilities Commission the approval to install greensand type (i.e. manganese dioxide) filtration at Royal Senter Ridge Well No. 1. Greensand filtration has been

Mr. Shawn F. Guyer, P.E.
October 5, 2021
Branston Subdivision Quarterly Update

installed at all the wells in Royal Senter Ridge. The interconnection with Branston is scheduled to be completed by 10-31-2021. Upon completion of the interconnection the Branston water system will be flushed and the well will be placed in back up mode. At that time, the customers in Branston will become part of the Royal Senter Ridge water system and supplied with the filtered water from Royal Senter Ridge Wells. Aqua completed the installation and startup of a manganese dioxide filtration system for Royal Senter Ridge Wells 2 and 3 in Q3 - 2021.

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

Sincerely,



Robert Krueger
Area Manager
Aqua North Carolina, Inc.

Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff

BRANSTON - NC4092076 - Well #2													
Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe-Diss	Fe Lab	Fe-Diss	Distribution System-Fe Lab	Distribution System-Fe-Diss	Raw Mn Lab	Raw Mn Diss	Mn Lab	Mn Diss	Distribution System-Mn Lab	Distribution System-Mn-Diss
4/20/2016				0.421						0.382			
10/13/2017				0.441		0.311	0.152			0.412		0.39	0.379
10/17/2017				3.2		0.351	0.204			0.623		0.413	0.44
11/1/2017				0.387		0.289	0.16			0.388		0.359	0.34
11/15/2017				0.383		0.245	0.0718			0.198		0.269	0.214
12/14/2017		0.371	0.0292	0.321		2.2	0.0815	0.328	0.312	0.314		1.21	0.279
1/5/2018		1.82	1.33	0.877		0.534	0.0794	0.256	0.254	0.25		0.0839	0.172
2/2/2018		0.548	< 0.022	0.234		0.247	< 0.022	0.324	0.268	0.234		0.25	0.213
3/8/2018		0.436	< 0.022	0.421		0.435	0.0382	0.326	0.317	0.341		0.288	0.246
4/11/2018		0.402	< 0.022	0.404		0.369	0.0739	0.357	0.349	0.347		0.329	0.296
5/7/2018		0.545	< 0.006	0.481	0.0348	0.516	0.0166	0.436	0.401	0.392	0.362	0.449	0.275
7/12/2018		0.423	<0.0220	0.326	<0.0220	0.309	<0.0220	0.431	0.442	0.392	0.377	0.368	0.305
8/3/2018	5.24	0.383	0.0377	0.374	0.0879	0.356	0.0774	0.404	0.395	0.392	0.329	0.328	0.283
9/6/2018	6.1	0.331	0.0548	0.243	0.0564	0.32	0.0707	0.421	0.436	0.256	0.262	0.369	0.332
10/12/2018	5	0.644	<0.0220	0.329	<0.0220	0.356	< 0.022	0.368	0.37	0.343	0.322	0.356	0.301
11/16/2018	4.29	0.433	< 0.022	0.222	<0.0220	0.295	< 0.022	0.303	0.302	0.222	0.221	0.275	0.231
12/13/2018	2.13	0.338	<0.0220	0.244	0.0260	0.280	0.0317	0.306	0.299	0.228	0.249	0.264	0.150
1/18/2019	2.29	0.620	<0.0220	0.265	<0.0220	0.264	0.0245	0.312	0.297	0.237	0.226	0.246	0.200
2/15/2019	2.14	0.384	0.0293	0.250	0.0445	0.290	0.0434	0.302	0.297	0.245	0.206	0.254	0.214
5/17/2019	5			0.382	0.0859					0.290	0.282		
7/23/2019	6			0.276	0.0686					0.337	0.285		
10/17/2019	5.4			0.408	0.087					0.413	0.366		
1/10/2020	2.43			0.379	0.0241					0.259	0.214		
4/13/2020	3.71			0.483	0.0415					0.347	0.282		
8/4/2020	3.43			0.57	0.0278					0.480	0.060		
8/26/2020	4.57			0.524	0.0962					0.407	0.357		
10/9/2020	5.29			0.373	0.192					0.441	0.389		
1/13/2021	2.43			0.421	0.0392					0.334	0.280		
4/21/2021	4			0.835	0.0317					0.404	0.356		
8/3/2021	6.71			0.399	0.0494					0.491	0.424		

* All units are in mg/L

Table 3 - Branston Well #2 Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
13562431	LABD-S	JACQUELINE SAYS WATER IS STILL BROWN, PLUMBER SUGGESTED IT MAY BE THE METER, PLS INVESTIGATE	9/21/2021	9/21/2021	705857	2609 BRANSTON WAY	APEX, NC 27539	BRANSTON	customer would like something done about the water , he has to change his filter one a month (pays a plumber to do it) he want someone to check the water quality coming into his house



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration
Eagle Creek Subdivision, Wake County
WSF ID No.: Well #3, P03
Water System No: NC4392128

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Eagle Creek Well #3, P03. The Eagle Creek water system is comprised of four active wells and four points of entry (POE). The current number of customers served is 119 and the system is approved to serve 134 connections.

Aqua has compiled the requested information in a table format as follows:

- Table 1 provides a summary of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Eagle Creek Well #3 (P03)	<ul style="list-style-type: none"> • September 2015 – Started using SeaQuest • April 2017 – Flushed system • June 2017 – Installed automatic blow-off at the well. • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Cleaned hydropneumatic storage tank • December 2017 – Added raw sample data • Q2-2018 - Installed cartridge filter • Q3-2019 – Performed Jar Testing • January 2020 – Flushed system • Q1 – 2020 Aqua submitted an executive summary for manganese dioxide filtration for wells #2 and #3 in the system. • March 2021 – Flushed System 	<ul style="list-style-type: none"> • Continue investigation efforts • Q1 – 2022 Flush system • Continue cartridge filter replacement operations
Approved GPM (29)		
Avg. Quarterly Runtime (2.13 hrs. per day)		

Comments:

The field investigation in Q-2 of 2018 determined that treatment at this well was properly installed; however, the phosphate feed was not fully optimized. Recent sample results from Q3 – 2019 demonstrated no improvement in the optimization of the phosphate feed. Q1-2020 Aqua submitted the executive summary for filtration to the Public Staff of the North Carolina Utilities Commission for wells #2 and #3. Aqua responded to several rounds of public staff comments, but ultimately decided to install filtration. Filtration planned to come online Q4 – 2021.

Mr. Shawn F. Guyer, P.E.
October 5, 2021
Eagle Creek Subdivision Quarterly Update

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

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Krueger". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff

EAGLE CREEK-4392128

Date	Sample Week Run Time	Raw-Fe Lab	Raw-Fe-Diss	Fe Lab	Fe-Diss	Distribution System-Fe Lab	Distribution System-Fe-Diss	Raw-Mn Lab	Raw-Mn-Diss	Mn Lab	Mn-Diss	Distribution System-Mn Lab	Distribution System-Mn-Diss
10/16/2017	2.3			0.773	0.389	1.07	0.171			0.145	0.103	0.101	0.0305
11/3/2017	6			0.219	0.486	0.75	0.654			0.112	0.0931	0.151	0.128
11/16/2017	4			0.823	0.774	0.395	0.335			0.157	0.151	0.0196	0.0157
12/18/2017	4.5	0.82	0.704	0.785	0.71	0.334	0.525	0.153	0.158	0.139	0.141	0.0284	0.0442
1/11/2018	3.6	0.909	0.559	0.798	0.0394	0.799	0.107	0.146	0.142	0.145	0.0253	0.0883	0.0172
3/5/2018	2.97	0.896	0.809	0.751	0.532	0.642	0.129	0.143	0.145	0.112	0.0822	0.0521	0.0103
4/6/2018	2.16	0.91	0.771	0.856	0.83	0.678	0.487	0.16	0.159	0.153	0.153	0.0511	0.0361
5/2/2018	5.29	0.807	0.553	0.763	0.616	0.599	0.432	0.149	0.145	0.146	0.132	0.0475	0.0357
6/19/2018	3.03	0.756	0.679	0.773	0.262	0.92	0.23	0.144	0.142	0.144	0.105	0.235	0.0238
7/24/2018	2.575	0.643	0.373	0.705	0.389	0.146	0.125	0.187	0.182	0.123	0.0904	0.066	0.0654
8/2/2018	0.483	0.792	0.221	0.839	0.0859	1.04	0.36	0.175	0.17	0.135	0.0687	0.295	0.234
10/2/2018	9.48	0.773	0.616	0.625	0.261	0.411	0.15	0.141	0.14	0.124	0.0807	0.121	0.107
11/14/2018	4.25	0.847	0.0784	0.766	0.0796	1.58	0.204	0.126	0.125	0.125	0.0601	0.321	0.218
12/5/2018	6.77	0.865	0.659	0.631	0.102	0.661	0.0901	0.158	0.147	0.121	0.0584	0.0858	0.0216
1/10/2019	6.07	0.714	0.659	0.642	0.461	0.221	0.159	0.129	0.127	0.130	0.132	0.0818	0.0791
2/6/2019	5.07	0.795	0.719	0.722	0.0902	0.447	0.288	0.152	0.153	0.131	0.0464	0.0922	0.0735
3/27/2019	7	0.777	0.668	0.611	0.261	0.646	0.178	0.153	0.145	0.117	0.0687	0.0873	0.0242
4/11/2019	11	0.832	0.758	0.702	0.186	0.729	0.174	0.158	0.159	0.132	0.0643	0.0956	0.0360
5/15/2019	9	0.824	0.782	1.10	0.236			0.150	0.152	0.170	0.0686		
7/15/2019	9	0.76	0.376	0.82	0.732			0.148	0.158	0.152	0.116		
8/8/2019	9	0.882	0.648	0.713	0.149			0.882	0.648	0.153	0.149		
11/4/2019	3.5	0.924	0.93	0.689	0.108			0.153	0.154	0.127	0.0579		
12/16/2020	3	1.07	0.952	0.787	0.109			0.165	0.162	0.132	0.0618		
1/6/2020	3.68	1	0.934	0.721	0.0929			0.173	0.163	0.132	0.0644		
2/10/2020	2.05	0.433	0.272	0.319	0.0317			0.140	0.135	0.115	0.0675		
4/16/2020	3.27			0.651	0.0951					0.119	0.0516		
7/27/2020	1.77	0.783	0.638	0.617	0.0928			0.146	0.14	0.123	0.0623		
10/29/2020	1.5			0.698	0.108					0.137	0.0725		
10/29/2020	1.5			0.710	0.122					0.139	0.0748		
2/11/2021	1.16			0.504	<0.0220					0.117	0.0408		
2/11/2021	1.16			0.656	0.0896					0.127	0.0631		

* All units are in mg/L
 * Lab is Total Metals

Table 3 - Eagle Creek Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
Aqua Received Zero customer complaints for Q3 - 2021									



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration
High Grove Subdivision, Wake County
WSF ID No.: Well #1, P01
Water System No: NC4092096

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at High Grove Well #1, P01. The High Grove water system is comprised of three active wells and three points of entry (POE). The current number of customers served is 150 and the system is approved to serve 155 connections.

Aqua has compiled the requested information in a table format as follows:

- Table 1 provides a summary of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
High Grove, Well #1 (P01)	<ul style="list-style-type: none"> • September 2015 – Started using SeaQuest • May 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • November 2017 – Hydro pneumatic tank cleaned • December 2017 – added raw sample data • August 2018 - Installed cartridge filter • January 2019 – Instituted jar testing on the • Q4 2019 – Flushed System • Q1-2020 - Installed an auto blow off on the cartridge filter. • Q1-2020 Flushed system • Q1-2021 Flushed system 	<ul style="list-style-type: none"> • Manganese dioxide filtration is being evaluated • Continue to monitor sequestration and cartridge filter operation. • Annual flushing of the distribution system.
Approved GPM (48)		
Avg. Quarterly Runtime (10.0 hours per day)		
<p>Comments:</p> <p>Aqua is evaluating filtration and will continue to monitor sequestration and cartridge filter operations.</p>		

Mr. Shawn F. Guyer, P.E.
October 5, 2021
High Grove Subdivision Quarterly Update

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

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Krueger". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

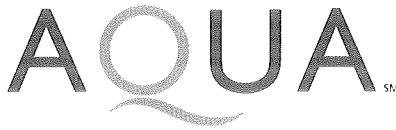
Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff

HIGH GROVE-NC4092096 - Well #1													
Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe-Diss	Fe Lab	Fe-Diss	Distribution System-Fe Lab	Distribution System-Fe-Diss	Raw-Mn Lab	Raw-Mn-Diss	Mn Lab	Mn-Diss	Distribution System-Mn Lab	Distribution System-Mn-Diss
10/2/2017				0.168	0.0758	0.266	0.123			0.106	0.0931	0.127	0.0425
10/19/2017	0.267			0.131	0.0378	1.73	0.0357			0.0515	0.0357	0.326	0.0352
11/9/2017	0.54			0.138	0.0418	0.132	0.0973			0.0376	0.018	0.0383	0.0324
11/17/2017	0.45			0.18	0.0892	0.179	0.0916			0.0261	0.0192	0.0259	0.0196
12/12/2017	0.5	0.168	0.135	0.183	0.173	0.18	0.172	0.128	0.136	0.144	0.144	0.138	0.134
1/8/2018	0.035	0.264	0.225	0.171	0.157	0.176	0.168	0.166	0.168	0.126	0.123	0.131	0.131
3/5/2018	0.512	0.171	0.12	1.22	0.137	0.182	0.162	0.117	0.123	0.22	0.126	0.141	0.137
4/2/2018	3.5	0.305	0.167	0.373	0.0416	1.28	< 0.022	0.127	0.132	0.136	0.0931	0.214	0.0368
5/10/2018	5.27	0.403	0.0843	0.266	<0.0220	2.1	<0.0220	0.108	0.0843	0.12	0.108	0.165	0.035
6/11/2018	4.35	0.248	0.169	0.27	0.221	0.221	<0.0220	0.104	0.105	0.119	0.112	0.0933	0.0802
7/30/2018	3.97	2.82	0.0431	1.4	<0.0220	0.304	0.0565	0.207	0.195	0.198	0.195	0.198	0.171
8/7/2018	8.8	1.01	0.0373	0.434	0.103	0.265	<0.0220	0.206	0.198	0.2	0.197	0.172	0.142
10/3/2018	12.1	0.577	0.124	0.0959	0.0324	0.127	0.0446	0.0775	0.0661	0.0752	0.0715	0.0726	0.0691
11/1/2018	8	2.33	0.183	0.0798	0.0235	0.202	<0.220	0.266	0.0804	0.122	0.118	0.0988	0.0788
12/6/2018	7.43	3.70	0.284	1.08	0.130	0.0687	0.0328	0.116	0.0843	0.110	0.102	0.110	0.106
1/14/2019	5.23	0.471	0.0780	<0.0220	<0.0220	0.0529	0.0334	0.130	0.108	0.0816	0.0838	0.0796	0.0755
2/11/2019	7.53	0.518	0.191	0.242	0.0982	0.282	0.113	0.119	0.106	0.133	0.133	0.116	0.111
4/8/2019	1.5	0.438	0.346	0.287	0.0484	0.262	<0.0220	0.188	0.192	0.174	0.137	0.159	0.115
5/16/2019	4	0.640	0.109	0.712	0.358			0.136	0.132	0.0979	0.0902		
6/4/2019	8	0.628	0.0650	0.470	0.201			0.137	0.128	0.0931	0.0873		
7/16/2019	6	9.73	0.1370	1.040	0.0585			0.472	0.0592	0.115	0.0893		
8/12/2019	8	12.4	0.355	0.27	0.199			0.339	0.0934	0.0874	0.0802		
9/19/2019	9	0.202	0.1000	0.095	0.0615			0.115	0.135	0.103	0.0986		
10/21/2019	8.5	0.791	0.1060	0.610	0.0854			0.107	0.0922	0.0784	0.0613		
12/9/2019	0.5	0.21	0.1290	0.077	0.0411			0.133	0.134	0.0659	0.0437		
1/13/2020	0.67	0.414	0.2460	0.303	0.239			0.159	0.16	0.123	0.123		
2/26/2020	2.25	0.394	0.1970	0.319	0.0485			0.168	0.175	0.141	0.0897		
3/3/2020	11.5	0.23	0.1950	0.146	0.118			0.134	0.136	0.104	0.0975		
5/13/2020	2	0.146	0.0353	0.170	<0.0220			0.102	0.0932	0.109	0.0765		
8/10/2020	2.5	1.22	0.0814	0.395	0.0496			0.139	0.132	0.118	0.106		
10/12/2020	3.25	0.282	0.1420	0.131	0.0872			0.169	0.164	0.133	0.126		
1/29/2021	5.33			0.444	0.0245					0.157	0.149		
3/4/2021	1.0	0.452	0.0592	0.476	0.0277	0.334	0.0248	0.129	0.131	0.131	0.102	0.0473	0.022
4/26/2021	4.25			1.100	0.0242					0.172	0.116		
8/16/2021	1/10/1900			0.559	<0.0220					0.133	0.0908		

* All units are in mg/L

* Lab is Total Metals

SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
LABD-S	PER MARK IRON IN WTR ORANGE CLORORING PLEASE INVESTIGATE	9/27/2021	9/27/2021	1421413	3101 LEBRUN PATH DR	FUQUAY-VARINA, NC 27526	High Grove	Mostly was hot water issue Fe 2.0 Mn 0.800 (Raw@well Fe 0.45 Mn 0.052 FSR:taberj, EVT:Lab
LABD-S	WATER IS BROWN ,AND LEAVING ORANGE STAINS PLEASE CHECK WATER ANDWATER IN TUB COMES OUT BROWN AS WELL	9/15/2021	9/16/2021	1115178	5124 DOUGHTYMEWS LN	FUQUAY-VARINA, NC 27526	High Grove	Customer off and on seeing Fe and Mn.Customer house Fe 1.0 Mn 0.170 Cl2 .40 Po4 2.0Raw from well Fe .80 Mn 0.180 Cl2 .80 Po4 1.1
LABD-S	WILLIAM REPORTING BROWN WATER EMAIL RECEIVED	9/13/2021	9/13/2021	1191922	3309 PETTICOAT LN	FUQUAY-VARINA, NC 27526	High Grove	
LABD-S	PER WILLIAM DIRT IS COMING OUT OF FAUCETS , WATER IS VERY DIRTY STAINING CLOTHES	9/13/2021	9/13/2021	1191922	3309 PETTICOAT LN	FUQUAY-VARINA, NC 27526	High Grove	Water black clear after flush.(raw source) Fe0.30. Mn0.176 E.p. Fe0.33 Mn 0.177Water appears to be clear @ well e.p. and @ customers



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration
High Meadows Subdivision, Wake County
WSF ID No.: Well #2, TM1
Water System No: NC0392334

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at High Meadows Well #2, TM1. The High Meadows water system is comprised of two active wells and one point of entry (POE). The current number of customers served is 134 and the system is approved to serve 149 connections.

Aqua has compiled the requested information in a table format as follows:

- Table 1 provides a summary of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
High Meadows, Well #2 (TM1)	<ul style="list-style-type: none"> • October 2013 – Started using SeaQuest • September 2014 – Installed cartridge filter • April 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – added raw sample data • February 2018 - Hydropneumatic tank cleaned • June 2018 – Flushed system • December 9, 2018 – Submitted executive summary for iron and manganese filtration • July 2019 – Flushed System • January 2020 – Installed timed automatic blowoff on well. • March 2020 – Flushed System • September 2021 – Installed Manganese Dioxide Filtration 	<ul style="list-style-type: none"> • Continue filter operations
Approved GPM (64)		
Avg. Quarterly Runtime (9.43 hrs. per day)		
<p><u>Comments:</u></p> <p>Aqua submitted an executive summary to the Public Staff of the North Carolina Utilities Commission for manganese dioxide filtration on December 9, 2018. The new manganese dioxide filter came online on September 27th, 2021. Aqua respectfully requests that this system be removed from the NOD quarterly reporting list.</p>		

Mr. Shawn F. Guyer, P.E.
October 5, 2021
High Meadows Subdivision Quarterly Update

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

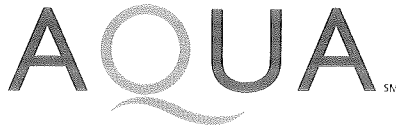
Sincerely,

A handwritten signature in black ink, appearing to read "Robert Krueger". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 3 - High Meadows Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
13554268	LABD-S	PER KAREN WATER IS COMING OUT BROWN PLEASE INVESTIGATE ISSUE	9/16/2021	9/16/2021	572341	3520 CASINE CT	WAKE FOREST, NC 27587	HIGH MEADOWS	9/16 CSTMR MOVE IN WK AGO. INTERMITTENT DSCLRD WATER. COMMODES CLEAR, KIT,BTH, LNDRY ISSUE. CSTMR WILL CONTACT LL FOR PLUMBER TO CHK HOT WATER HEATERTSS CLSD ORDER.



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration
Northgate Subdivision, Wake County
WSF ID No.: Well #1, P01
Water System No: NC0392217

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Northgate Well #1, P01. The Northgate water system is comprised of one active well and one point of entry (POE). The current number of customers served is 30 and the system is approved to serve 39 connections.

Aqua has compiled the requested information in a table format on the following tables:

- Table 1 provides a summary of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Northgate, Well #1 (P01)	<ul style="list-style-type: none"> • September 2015 – Started using SeaQuest • September 2016 – Flushed system • December 2016 – Filed for approval of iron and manganese filtration 	<ul style="list-style-type: none"> • Continue cartridge filter replacement operations • Continue investigation efforts. • Annual flushing of the distribution system.
Approved GPM (not specified)	<ul style="list-style-type: none"> • January 2017 – Approval received for iron and manganese filtration • January 2017 – Iron and manganese filtration project put on hold 	
Avg. Quarterly Runtime (1.7 hours per day)	<ul style="list-style-type: none"> • March 2017 – Installed cartridge filter • June 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • Q1-2019 - Installed a detention tank to afford more detention time for the chlorine to oxidize the manganese so that cartridge filter could remove the fine particulate. • 3Q – 2019 flushed system • 1Q – 2021 flushed system 	

Comments:

Aqua filed for approval from the North Carolina Utilities Commission (NCUC) for the installation of a iron and manganese filtration system at Northgate well #1 on December 30, 2016. This request was approved by the NCUC in the Order issued January 18, 2017; the project to install the iron and manganese filtration has been placed on hold.

This well is located near the Guilford Fibers Facility, which is subject to a Remedial Action Plan being formulated by the owner of the Facility with the Division of Waste Management of the North Carolina Department of Environmental Quality. The Facility’s owner contacted Aqua in 2017 to request the purchase and closing of Aqua’s well to limit any impact it may have on the remedial activities. The Facility owner also claims to have arranged for alternative water service to Aqua’s customers through the water system operated by the Town of Fuquay-Varina, which is within proximity of Aqua’s distribution system.

Q-2 2018 Update – Discussion to sell the system and close Aqua’s Northgate well are active. If the sale of the system is completed, well #1 would be abandoned and the system interconnected to Fuquay Varina’s distribution system to provide water service to customers in Northgate. Based on this, proceeding with the installation of a iron and manganese filter in this system is not appropriate, and therefore, the project continues to be on hold.

Q-3 2018 Update - Discussion to sell the system and close Aqua’s Northgate are still active.

Q-4 2018 Update – Discussion to sell the system and close Aqua’s Northgate are still active.

Q-1 2019 Update – Discussion to sell the system and close Aqua’s Northgate are still active. Aqua has also installed a detention tank to afford more detention time for the chlorine to oxidize the manganese so that cartridge filter could remove more of the fine particulate. Aqua is currently monitoring the effectiveness of the detention tank.

Q-2 2019 Update - Discussion to sell the system and close Aqua’s Northgate System are still active. The detention tank proved unsuccessful and Aqua is investigating alternatives to improve water quality in this system.

Q-3 2019 Update - Discussion to sell the system and close Aqua’s Northgate System are still active.

Q-4 2019 Update – Discussion to sell the system and close Aqua’s Northgate are still active.

Q-1 2020 Update – Discussion to sell the system and close Aqua’s Northgate are still active.

Q-2 2020 Update – Discussion to sell the system and close Aqua’s Northgate are still active.

Q-3 2020 Update – Discussion to sell the system and close Aqua’s Northgate are still active.

Q-4 2020 Update – Discussion to sell the system and close Aqua’s Northgate are still active.

Q-1 2021 Update – The annexation agreement and settlement agreement related to the Northgate system have been executed. Aqua is currently working on regulatory approval to transfer the system and terminate the permit.

Q-2 2021 Update – The annexation agreement and settlement agreement necessary to extend the Town of Fuquay's water service to the Northgate homeowners and residents have been executed. Aqua is currently working on regulatory approval to transfer the system and terminate the permit. Engineering work to complete construction necessary to transition water service to the Town is underway. The Construction will be completed in compliance with all federal, state and local laws, and with the Town’s requirements for acceptance of the Construction. The Construction is expected to be completed by March 31, 2022 and transition of the customers to be serviced by the Town shortly thereafter.

Q-3 2021 Update - The annexation agreement and settlement agreement necessary to extend the Town of Fuquay's water service to the Northgate homeowners and residents have been executed. Aqua is currently working on regulatory approval to transfer the system and terminate the permit. Engineering work to complete construction necessary to transition water service to the Town is underway. The Construction will be completed in compliance with all federal, state and local laws, and with the Town’s requirements for acceptance of the Construction. The Construction is expected to be completed by March 31, 2022 and transition of the customers to be serviced by the Town shortly thereafter.

Mr. Shawn F. Guyer, P.E.
October 5, 2021
Northgate Subdivision Quarterly Update

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

Sincerely,


Robert Krueger
Area Manager
Aqua North Carolina, Inc.

Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff

NORTHGATE - NC0392217 - Well #1													
Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe-Diss	Fe Lab	Fe-Diss	Distribution System-Fe Lab	Distribution System-Fe-Diss	Raw-Mn Lab	Raw-Mn-Diss	Mn Lab	Mn-Diss	Distribution System-Mn Lab	Distribution System-Mn-Diss
10/3/2017	1			0.145	< 0.022	0.148	0.0567			0.389	0.317	0.388	0.345
10/17/2017	1			0.649	0.177	0.596	0.0287			0.434	0.359	0.437	0.338
11/1/2017	1			1.11	0.265	1.04	0.747			0.389	0.351	0.399	0.38
11/15/2017	1			1.29	0.282	1.31	0.223			0.414	0.406	0.412	0.393
12/19/2017	0.768	1.34	1.26	1.31	0.0442	1.34	0.26	0.389	0.384	0.398	0.289	0.403	0.303
1/11/2018	0.112	1.29	1.17	1.27	0.0765	1.29	0.302	0.398	0.362	0.378	0.296	0.387	0.314
3/6/2018	0.868	1.82	1.28	1.36	0.0391	1.42	0.179	0.4	0.413	0.387	0.332	0.401	0.281
4/3/2018	1	1.38	1.31	1.49	0.147	1.47	0.0375	0.427	0.433	0.431	0.255	0.423	0.331
5/1/2018	0.67	1.33	1.29	1.62	0.017	1.35	0.014	0.41	0.402	0.415	0.132	0.364	0.096
6/15/2018	0.52	1.29	0.887	1.29	<0.0220	1.31	<0.0220	0.379	0.373	0.374	0.268	0.373	0.315
7/3/2018	1.08	1.5	0.628	1.51	<0.0220	1.49	<0.0220	0.43	0.425	0.422	0.33	0.417	0.378
8/1/2018	0.94	1.31	1.24	1.72	0.642	1.34	0.655	0.383	0.384	0.39	0.351	0.38	0.342
10/2/2018	1.25	1.37	1.26	1.32	0.0301	1.27	0.341	0.386	0.391	0.364	0.310	0.363	0.339
11/2/2018	1.29	1.28	1.10	1.36	0.110	1.37	0.133	0.378	0.370	0.374	0.331	0.376	0.322
12/13/2018	1.67	1.61	1.75	1.43	0.165	1.30	0.176	0.406	0.386	0.387	0.320	0.375	0.315
1/9/2019	0.67	1.86	2.17	1.59	0.151	1.49	0.138	0.419	0.405	0.445	0.299	0.415	0.303
2/13/2019	1.25	1.50	1.16	1.32	0.532	1.39	0.459	0.395	0.390	0.386	0.276	0.376	0.263
3/6/2019	1	1.38	1.36	1.67	0.435	1.36	0.703	0.417	0.418	0.421	0.307	0.385	0.320
4/2/2019	1	1.62	1.50	1.43	0.551	1.37	0.184	0.428	0.432	0.420	0.306	0.401	0.268
5/7/2019	1			0.529	0.0384					0.111	0.242		
7/9/2019	1			1.36	0.303					0.374	0.213		
10/3/2019	0.7			1.23	0.147					0.381	0.254		
1/9/2020	0.67			1.42	0.921					0.375	0.313		
4/16/2020	1			1.39	0.144					0.390	0.309		
10/2/2020	0.67			1.48	0.565					0.432	0.376		
1/27/2021	1.5			1.38	0.134					0.427	0.267		
6/9/2021	1.67			1.06	0.0594					0.305	0.131		
8/6/2021	1			1.11	0.0376					0.379	0.312		

* All units are in mg/L

* Lab is Total Metals

Table 3 - Northgate Well #1 Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
Aqua Received Zero customer complaints for Q3 - 2021									



October 5, 2021

Mr. Shawn F. Guyer, P.E.
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration
Wakefield Plantation Subdivision, Wake County
WSF ID No.: Well #6, P06
Water System No: NC0392155

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Wakefield Well #6, P06. The Wakefield water system is comprised of four active wells and four points of entry (POE). The current number of customers served is 157 and the system is approved to serve 174 connections.

Aqua has compiled the requested information in a table format as follows:

- Table 1 provides a summary of well information, completed activities and planned activities.
- Table 2 (Attachment 2) provides a summary of raw, POE and distribution iron and manganese samples collected as part of the ongoing Inorganic Chemical analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Wakefield Well #6 (P06)	<ul style="list-style-type: none"> • March 2013 – Cleaned hydro tank • October 2014 – Started using SeaQuest • March 2016 – Received NCUC approval for iron and manganese filtration • March 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – added raw sample data • June/July 2018 – Adjusted phosphate feed • November 2018 - Hydropneumatic tank cleaned • April 2019 – System flushed • Worked with Wakefield HOA and local church to obtain an easement to interconnect wells #6 and #8 for consolidated treatment 	<ul style="list-style-type: none"> • Installation of the new manganese dioxide filter is planned for 2021.
Approved GPM (88)		
Avg. Quarterly Runtime (5.02)		
<p><u>Comments:</u></p> <p>Per our investigation efforts, it is apparent that sequestration will not fully address iron and manganese concerns and Aqua has decided to install manganese dioxide filtration. Aqua also investigated the use of two mobile manganese dioxide filters for well #6 and well #8. The permanent manganese dioxide filter has been approved by the North Carolina Utility Commission and filter installation is planned for 2021. Filter startup planned for Q4 – 2021.</p>		

Mr. Shawn F. Guyer, P.E.
October 5, 2021
Wakefield Plantation Subdivision Quarterly Update

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

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Krueger", with a long horizontal flourish extending to the right.

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff