

**SANFORD LAW OFFICE, PLLC**

Jo Anne Sanford, Attorney at Law

July 13, 2022

**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  
Second Quarter 2022 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 Second Quarter 2022 Notice of Deficiency Reports; these were provided to the North Carolina Department of Environmental Quality and the Public Staff on July 8, 2022.

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



July 8, 2022

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 Q-2 2022 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 is 1 well that has Public Staff and North Carolina Utilities Commission approval which is currently in the engineering/installation/startup phase of the project and planned to be operational in Q-4 2022.

- High Grove well #1 (P01)

There are two 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)
- Hawthorne well #1 and #2 (P76)

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

- Branston well #2 (TP1)
- Eagle Creek Well #3
- Northgate well #1 (P01)
- Foxboro Well #3 (P03)



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

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



July 8, 2022

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, 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, P76. The Bayleaf Master water system is comprised of 122 active wells and 117 points of entry (POE). The current number of connections 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, P76 as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

**UPDATED QUARTERLY STATUS REPORT**

<b><u>Table 1 – Well Information, Completed Activities and Planned Activities</u></b>		
<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
Hawthorne Well #1 & #2 (P76)	<ul style="list-style-type: none"> <li>• February 2016 -Started Using SeaQuest</li> <li>• Jan - Apr 2016 - Flushed system</li> <li>• February 2017 - Flushed system</li> <li>• June 2017 - Installed cartridge filter</li> <li>• September 2017 – Started Distribution and POE total and soluble sampling</li> <li>• December 2017 - Added raw sample data</li> <li>• March 2018 - Storage tank was cleaned</li> <li>• Q2-2018 system flushed</li> <li>• July 2018 - Adjusted Seaquest feed rate</li> <li>• Q4- 2018 performed jar testing at well #1 and adjusted sequestration feeds</li> </ul>	<ul style="list-style-type: none"> <li>• Continued investigation of well #1 and #2 production and water quality</li> <li>• Well 1 will be placed offline (not actively feeding distribution) by May 1, 2022</li> <li>• Evaluate alternative options (drilling new well, cleaning, etc.) to remediate the supply loss</li> </ul>
Approved GPM (73)		
Avg. Quarterly Runtime (0)		
<b><u>Comments:</u></b>		
<p>Aqua keeps 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. Well 1 will be placed offline (not actively feeding distribution) by May 1, 2022. Aqua will evaluate alternative options (drilling new well, cleaning, etc.) to remediate the supply loss to the Bayleaf master system.</p>		

Mr. Shawn F. Guyer, P.E.  
 July 8, 2022  
 Bayleaf Quarterly Update

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Jul 13 2022

**UPDATED QUARTERLY STATUS REPORT**

<b><u>Table 1 – Well Information, Completed Activities and Planned Activities</u></b>		
<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
Barton Creek Bluffs Well #10 (P67)	<ul style="list-style-type: none"> <li>• March 2016 – Started using SeaQuest</li> <li>• February 2017 – Flushed system</li> <li>• September 2017 – Took soluble and insoluble well head and distribution samples</li> <li>• December 2017 – Added raw sample data distribution soluble and insoluble iron</li> <li>• Q2 – 2018 Flushed system</li> <li>• Q4- 2018 performed jar testing at this well and adjusted sequestration feeds.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to monitor the effectiveness of sequestration</li> </ul>
Approved GPM (15)		
Avg. Quarterly Runtime (13)		
<p><b><u>Comments:</u></b></p> <p>Aqua will continue to monitor the effectiveness of sequestration and determine if filtration is required/prudent.</p>		

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

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
Bayleaf # 1 & 2	5/19/2016	10.7			1.01						0.53			
P76	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												
	10/6/2017	23.6												
	10/23/2017	18.38												
	11/7/2017	11.86												
	11/16/2017	8.38												
	12/14/2018	9.8												
	1/22/2018	10.1												
	2/26/2018	12.2												
	3/28/2018	6.7												
	4/5/2018	8.19												
	5/2/2018	7.56												
	6/21/2018	12.67												
	7/12/2018	12.94												
	8/9/2018	5.21												
	9/8/2018	8.97												
	10/19/2018	8.92												
	11/16/2018	10.33												
	12/5/2018	7.18												
	1/24/2019	5.04												
	2/7/2019	3.21												
	5/10/2019	6.47												
	9/19/2019	9.46												
	1/31/2020	16.3												
	2/27/2020	0												
	4/20/2020	0												
	10/29/2020	23.67												
	2/22/2022	0												

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
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
Q-2 2022 Zero Customer Complaints									



July 8, 2022

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**

<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
Branston, Well #2 (TP1)	<ul style="list-style-type: none"> <li>• July 2013 – Started using SeaQuest</li> <li>• September 2016 – Flushed system</li> <li>• March 2017 – Flushed system</li> <li>• July 2017 – Flushed system</li> <li>• September 2017 – Started distribution and POE total and soluble sampling</li> <li>• Continue distribution and POE soluble and insoluble sampling</li> <li>• December 2017 – Added raw sample data</li> <li>• December 2017 – Cleaned hydropneumatic storage tank</li> <li>• July 2018 - Flushed system</li> <li>• December 9, 2018 - Submitted executive summary to the Public Staff of the North Carolina Utilities Commission for manganese dioxide filtration</li> <li>• Q4 2019 – Met with Public Staff to discuss interconnection location.</li> <li>• Q4 2019 – Flushed System</li> <li>• Q1 2021 – Flushed System</li> <li>• Q4 2021 – Flushed system</li> <li>• Interconnection with the Royal Senter Ridge Water system is completed as of 3-14-2022</li> <li>• PWSID# NC4092076 is no longer active. The well is now part of NC4392140</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Continue yearly flushing operations</li> </ul>
Approved GPM (49)		
Avg. Quarterly Runtime (0) hours per day)		

**Comments:**

Based on the results from previous sampling events, it is apparent that sequestration will not fully address the iron

Mr. Shawn F. Guyer, P.E.  
July 8, 2022  
Branston Subdivision Quarterly Update

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 30<sup>th</sup>, 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 installed at all the wells in Royal Senter Ridge. The interconnection with Branston is complete and fully online as of 3-14-2022. Aqua completed the installation and startup of a manganese dioxide filtration system for Royal Senter Ridge Wells 2 and 3 in Q3 - 2021. Given these planned activities are complete, Aqua respectfully requests this well be removed from the NOD reporting.

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

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JUL 13 2022

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		
10/12/2021	4.43			2.33	0.22					0.442	0.393		
1/12/2022	3.13			0.51	< 0.0220					0.311	0.279		
4/7/2022	0			1.44	0.0431					0.095	0.086		
4/27/2022	0			0.292						0.412			

\* 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
Q-2 2022 Zero Customer Complaints								



July 8, 2022

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**

<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
Eagle Creek Well #3  (P03)	<ul style="list-style-type: none"> <li>• September 2015 – Started using SeaQuest</li> <li>• April 2017 – Flushed system</li> <li>• June 2017 – Installed automatic blow-off at the well.</li> </ul>	<ul style="list-style-type: none"> <li>• Filtration was placed online Q4 – 2021</li> </ul>
Approved GPM (29)	<ul style="list-style-type: none"> <li>• September 2017 – Started distribution and POE total and soluble sampling</li> <li>• December 2017 – Cleaned hydropneumatic storage tank</li> <li>• December 2017 – Added raw sample data</li> </ul>	
Avg. Quarterly Runtime (1.73 hrs. per day)	<ul style="list-style-type: none"> <li>• Q2-2018 - Installed cartridge filter</li> <li>• Q3-2019 – Performed Jar Testing</li> <li>• January 2020 – Flushed system</li> <li>• Q1 – 2020 Aqua submitted an executive summary for manganese dioxide filtration for wells #2 and #3 in the system.</li> <li>• March 2021 – Flushed System</li> <li>• October 2021 – Installed manganese dioxide filtration system for wells #2 and #3, now combined entry.</li> </ul>	



Mr. Shawn F. Guyer, P.E.  
July 8, 2022  
Eagle Creek Subdivision Quarterly Update

**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 for filtration approval which could not come to an agreeable solution, so Aqua ultimately decided to move forward with the installation of the filtration. Filtration was placed online Q4 – 2021. Given these planned activities are complete, Aqua respectfully requests this well be removed from the NOD reporting.

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

**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	0.0887	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		
5/27/2021	8.44			0.266	<0.0220					0.086	0.0019		
8/19/2021	2.83			0.343	<0.0220					0.115	<0.00150		
12/15/2021	4.725			0.630	0.32					0.137	0.0774		

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

# Water\_Quality\_Complaints From 4/1/2022 - 6/30/2022

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise
13957850	LABI-S	CUSTOMER WOULD LIKE THE LEAD AND COPPER CHECK IN WATER HAS TEST DONE AND IS HIGH AND ALSO CHLORINE	5/5/2022	5/19/2022	1504853

Address	City State Zip	Subdivision	FSR Notes
2321 TOLL MILL CT	RALEIGH, NC 27606	THE SANCTUARY	Sampled Water/ Dropped off Pb/Cu test kit FSR:meierk, EYT:Lab



July 8, 2022

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  
Manganese Concentration  
Foxboro Estates, Orange County  
WSF ID No. P03 Well #3  
Water System No: NC368144

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**

<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
Foxboro Estates Well #3 (P03)	<ul style="list-style-type: none"><li>April 19, 2022 -Obtained approval from the Utilities Commission for the installation of an iron and manganese filtration system.</li></ul>	<ul style="list-style-type: none"><li>Filter installation scheduled to be completed in Q-4 of 2022</li></ul>
Approved GPM (23)		
Avg. Quarterly Runtime (1.36) hours per day)		
<b><u>Comments:</u></b> Based on the approval of filtration, Aqua respectfully requests this well be removed from the NOD reporting.		

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

FOXBORO - NC0368144 - 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

Sample data will continue after filter installation to verify filter performance.

\* All units are in mg/L

\* Lab is Total Metals

<b>Table 3 - Foxboro Well #2 Customer Complaints</b>									
<b>SO</b>	<b>SO Type</b>	<b>CSR Notes</b>	<b>Date of SO</b>	<b>Completion Date</b>	<b>Premise</b>	<b>Address</b>	<b>City State Zip</b>	<b>Subdivision</b>	<b>FSR Notes</b>
Q-2 2022 Zero Customer Complaints									





July 8, 2022

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**

<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
High Grove, Well #1 (P01)	<ul style="list-style-type: none"> <li>• September 2015 – Started using SeaQuest</li> <li>• May 2017 – Flushed system</li> <li>• September 2017 – Started distribution and POE total and soluble sampling</li> <li>• November 2017 – Hydropneumatic tank cleaned</li> <li>• December 2017 – added raw sample data</li> <li>• August 2018 - Installed cartridge filter</li> <li>• January 2019 – Instituted jar testing on the</li> <li>• Q4 2019 – Flushed System</li> <li>• Q1-2020 - Installed an auto blow off on the cartridge filter.</li> <li>• Q1-2020 Flushed system</li> <li>• Q1-2021 Flushed system</li> <li>• Q1-2022 Flushed system</li> </ul>	<ul style="list-style-type: none"> <li>• Manganese dioxide filtration is being designed and planned to be online by Q4-2022.</li> <li>• Continue to monitor sequestration and cartridge filter operation.</li> <li>• Annual flushing of the distribution system.</li> </ul>
Approved GPM (48)		
Avg. Quarterly Runtime (6.9 hours per day)		
<p><b>Comments:</b></p> <p>Filtration is currently in the design phase. Aqua will continue to monitor sequestration and cartridge filter operations. Aqua plans to install filtration by Q4-2022.</p>		

Mr. Shawn F. Guyer, P.E.  
July 8, 2022  
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

SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
LABD-S	06/06/22 MARK CALLED TO REPORT ORANGE WATER.	6/6/2022	6/10/2022	1421413	101 LEBRUN PATH DR	FELQUAY-VASINA, NC 27526	High Grove	6/10 CALLED CSTMIR ZX ON 6/6 ADN I TIME 6/8. PHONE JUST RANG/DISCONNECTED/NORECORDING TO ALLOW FOR A MESSAGE. TSS, CI, SD, ORDERESR, markard, EVC, Lab



July 8, 2022

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**

<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
Northgate, Well #1 (P01)	<ul style="list-style-type: none"> <li>• September 2015 – Started using SeaQuest</li> <li>• September 2016 – Flushed system</li> <li>• December 2016 – Filed for approval of iron and manganese filtration</li> </ul>	•
Approved GPM (not specified)	<ul style="list-style-type: none"> <li>• January 2017 – Approval received for iron and manganese filtration</li> <li>• January 2017 – Iron and manganese filtration project put on hold</li> </ul>	
Avg. Quarterly Runtime (0.82 hours per day)	<ul style="list-style-type: none"> <li>• March 2017 – Installed cartridge filter</li> <li>• June 2017 – Flushed system</li> <li>• September 2017 – Started distribution and POE total and soluble sampling</li> <li>• December 2017 – Added raw sample data</li> <li>• 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.</li> <li>• 3Q – 2019 flushed system</li> <li>• 1Q – 2021 flushed system</li> <li>• The system is no longer active. Has been turned over to the Town of Fuquay June 2022.</li> </ul>	

**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

Mr. Shawn F. Guyer, P.E.  
July 8, 2022  
Northgate Subdivision Quarterly Update

Town shortly thereafter.

Q-4 2021 Update – Construction to transition water service to the Town of Fuquay is underway. Water main installation is complete and service line installation and switch over to the Town of Fuquay is expected to begin in January 2022. 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.

Q-1 2022 Update – All water services have been transferred over to the Town of Fuquay Varina. The town is currently setting meters and Aqua is performing the necessary tasks to decommission the current well. Aqua respectively requests that this system be removed from the NOD reporting.

Q-2 2022 Update – the water system is no longer active and has been deactivated with NCDEQ. Aqua respectively requests that this NOD be removed from quarterly reporting.

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

OFFICIAL COPY

JUL 13 2022



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
1/1/2018	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		
10/22/2021	1			2.07	<0.0220					0.405	0.178		
3/1/2022	1			1.26						0.401			
3/1/2022	1			1.33	<0.0220					0.384	0.196		
4/27/2022	0			2.21	0.0654					0.334	0.193		

\* 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
Q-2 2022 Zero Customer Complaints									