

# SANFORD LAW OFFICE, PLLC

Jo Anne Sanford, Attorney at Law

April 5, 2021

## Via Electronic Filing

Ms. Kimberley A. Campbell, 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  
First Quarter 2021 Notice of Deficiency Reports Provided to the  
North Carolina Department of Environmental Quality

Dear Ms. Campbell:

Attached for filing please find Aqua North Carolina, Inc.'s First Quarter 2021 Notice of Deficiency Reports; these were provided to the North Carolina Department of Environmental Quality and the Public Staff on April 1, 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



April 1, 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 Q4- 2020 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 4 wells that Aqua respectfully requests to be removed from quarterly NOD reporting.

- Strazis (TM8)
- Duncan Ridge well #5 (P05)
- Chari Heights well #1 (P02)
- Hickory Creek well #1 (TP1)

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.

- Wakefield well #6 (P06)
- Enclave at Barton Creek Bluffs well #18 (P75)
- High Meadows well #2 (TM1)

There are 2 wells that have completed executive summaries and have been submitted to the public staff for the recommendation of manganese dioxide filtration.

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

Mr. Shawn F. Guyer, P.E.  
April 1, 2021  
Q1 2021 Final NOD Cover Letter

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)

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



April 1, 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,  
, TM8  
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, TM8. 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, TM8 as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

**UPDATED QUARTERLY STATUS REPORT**

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Apr 05 2021

**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>
Enclave at Barton Creek Bluffs Well #18 (P75)	<ul style="list-style-type: none"> <li>October 2015 - 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>Q2-2018 System flushed</li> <li>September 2018 – Submitted executive summary to Public Staff of the North Carolina Utilities Commission for approval of iron and manganese filtration</li> <li>Q4- 2018 performed jar testing at this well and adjusted sequestration feeds based on results.</li> <li>Q2-2019 – Well #18 was cleaned and re-drilled</li> <li>Q3-2019 – Draw down test performed and re-sampled.</li> <li>9-28-2020 - Public Staff gave pre-approval for filtration</li> </ul>	<ul style="list-style-type: none"> <li>Q3-2021 Install new filtration</li> <li>Continue cartridge filter replacement operations until the new filter is online</li> </ul>
Approved GPM (75)		
Avg. Quarterly Runtime (6.57)		

**Comments:**

Aqua has submitted the executive summary for manganese dioxide filtration at well #18 as part of the Aqua water quality plan. Public Staff has requested that Aqua perform a cleaning and drawdown test of this well prior to approval. The drawdown and cleaning have been completed. Public Staff gave pre-approval for filtration 9-28-2020. Aqua plans to have filtration installed by Q3- 2021.

**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"><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></ul>
Approved GPM (73)		
Avg. Quarterly Runtime (.24)		
<u>Comments:</u>  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.		

**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"><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 (6.57)		
<u>Comments:</u>  Aqua will continue to monitor the effectiveness of sequestration and determine if filtration is required/prudent.		

**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>
Strazis (2816 Sunnystone Way) TM8 = BCB #7, #8, #12, #15	<ul style="list-style-type: none"><li>• November 2018 - Jar testing was completed on wells 7,8,12, and 15. Wells #8 and #12 did not require any adjustments. Adjustments were made on well #7 and #15.</li><li>• Feb - April 2019 – Flushed system</li><li>• April 2019 Follow up jar testing at well #7 and #15. Additional adjustments were made.</li></ul>	<ul style="list-style-type: none"><li>• Continue Flushing Operations</li></ul>
Approved GPM (129)		
Avg. Quarterly Runtime (6.57) Combined		
<u>Comments:</u>  Our last hydraulic model showed that 2816 Sunnystone Way (Strazis) currently gets; <ul style="list-style-type: none"><li>• 35% of the water contributed from Barton Creek Bluffs #10</li><li>• 37% contributed by BCB #7</li><li>• 21% contributed by BCB #12</li><li>• 3% contributed by BCB #8</li><li>• 4% contributed by BCB #15</li></ul> Aqua has received zero customer complaints in the last several quarters of reporting and respectfully requests that this system be removed from quarterly reporting.		



Mr. Shawn F. Guyer, P.E.  
April 1, 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 dark ink, appearing to read "Robert Krueger", with a long, sweeping horizontal line 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

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Apr 05 2021

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
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			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	<0.0600	0.952	0.0163	0.206	<0.0600	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		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	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 P67	6/1/2013	9.4									0.2			
	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		

Well Name	Date	Avg. Sample Week Run Time	Raw-Fe Lab
Strazis			
Well Name	Date	Fe Lab	Mn Lab
Bayleaf (TM8)	9/26/2018	0.362	0.196
	10/19/2018	0.0543	0.161
	12/7/2018	1.48	0.219
	1/24/2019	0.0968	0.147
	2/7/2019	0.418	0.213
	3/15/2019	0.615	0.217
	4/25/2019	0.126	0.153
	5/10/2019	0.207	0.152

Table 3 - Bayleaf Customer Complaints										FSR Comments
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes	
Aqua Received Zero customer complaints for Q1 - 2021										



April 1, 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**

<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> </ul>	<ul style="list-style-type: none"> <li>• Aqua is still responding to Public Staff additional information requests for the approval of manganese dioxide filtration</li> </ul>
Approved GPM (49)		
Avg. Quarterly Runtime (2.45 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. Aqua continues to respond to the Public Staff's requests for additional information.

Mr. Shawn F. Guyer, P.E.  
April 1, 2021  
Branston 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, sweeping horizontal line 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

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Apr 05 2021



BRANSTON - NC4092076 - Well #2													
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
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		

\* 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
Aqua Received Zero customer complaints for Q1 - 2021									



April 1, 2021

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

Re: Notice of Deficiency – Quarterly Update  
Iron and Manganese Concentration  
Glendale Master System Subdivision  
WSF ID No.: Well #1 (Chari Heights) P02  
Water System No: NC0392293

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 Glendale Master System Well #1, (Glendale) P01 and Well #1 (Chari Heights) P02. The Glendale Master System is comprised of six active wells and six points of entry (POE). The current number of customers served is 254 and the system is approved to serve 254 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>
Well #1 (Chari Heights) P02	<ul style="list-style-type: none"> <li>September 2015 – Started using SeaQuest</li> <li>March 2017 – Installed cartridge filter</li> <li>March 2017 – Flushed system</li> <li>December 2017 – Hydro tank cleaned</li> <li>Stated pulling raw, Fe, and Mn samples data to the report</li> <li>December 2017 – Added raw sample data</li> <li>December 2017 – Cleaned hydropneumatic tank</li> <li>April 2018 – Flushed system</li> <li>January 2019 – Instituted jar testing on the Glendale wells.</li> <li>October 2019 – Met with public staff to discuss interconnection and executive summary to address elevated Fe and Mn.</li> <li>October 2019 – Received approval for manganese dioxide filtration from Public Staff</li> <li>System flushed 2/17/2020</li> <li>August 2020 - Installation of Fe/Mn removal system</li> </ul>	<ul style="list-style-type: none"> <li>Continue the operation and maintenance of the new filtration system</li> <li>1Q – 2021 Flush system</li> </ul>
Approved GPM (40)		
Avg. Quarterly Runtime (6.2 hrs. per day)		

**Comments:**

Aqua completed the installation of a manganese dioxide combined filtration system Chari Heights/Hickory Creek. Start up for the new filter was completed on 8/31/2020. Aqua respectfully requests that this system be removed from the NOD quarterly reporting list.

Mr. Shawn F. Guyer, P.E.  
April 1, 2021  
Glendale Master Subdivision Quarterly Update  
Well #1 (Chari Heights) P02

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

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Apr 05 2021

Table 2 - Glendale Master - NC0392293 - Chari Heights Well# 1 P02

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
10/1/2014	3.5			1.99						0.024			
11/4/2016	5												
1/6/2017	5												
4/18/2017	5.7												
8/9/2017	5.9												
9/14/2017	5.5			0.758	0.135	2.28	0.572			0.0597	0.0422	0.204	0.0371
9/27/2017	6			0.73	0.0652	2.35	0.36			0.0196	0.00481	0.842	0.0227
10/3/2017	8			0.832	0.402	1.25	0.352			0.0621	0.0399	0.0375	0.0311
10/19/2017	5			5.05	0.448	1.01	0.161			0.0285	0.0427	0.0321	0.0383
11/8/2017	6			0.719	0.317	0.716	0.102			0.0355	0.0263	0.0352	0.0187
11/17/2017	5			0.616	0.116	0.613	0.234			0.0394	0.0187	0.0322	0.0246
12/13/2017	5.25	0.902	0.611	0.949	0.0486	1.23	0.391	0.11	0.11	0.107	0.0762	0.117	0.0894
1/10/2018	7.61	3.24	0.647	1.09	0.242	1.12	0.0546	0.0286	0.0305	0.073	0.0492	0.0753	0.0456
2/8/2018	5.3	0.644	<0.0220	0.314	0.114	0.288	0.0617	0.0208	0.021	0.0206	0.0082	0.0203	0.00461
3/8/2018	5.33	0.708	0.0465	0.518	0.0533	0.702	0.0537	0.0212	0.0209	0.0273	0.00316	0.0345	0.00368
4/4/2018	6.8	7.28	0.0328	0.705	0.0351	0.715	<0.0220	0.0306	0.0308	0.0279	0.00426	0.0513	0.0148
5/9/2018	8.7	0.732	0.0667	0.409	0.0332	0.324	0.0704	0.0228	0.0238	0.0218	0.0143	0.0216	0.0219
6/12/2018	8.93	1.4	0.467	0.503	0.103	0.517	0.0822	0.023	0.0223	0.0206	0.0142	0.0416	0.0269
7/25/2018	9.2	0.86	0.0426	0.194	0.0172	0.417	0.0382	0.0193	0.0188	0.0182	0.0172	0.042	0.0316
8/14/2018	6.29	0.11	0.0356	0.0636	0.166	0.437	0.0523	0.019	0.0189	0.0186	0.0433	0.055	0.0185
9/5/2018	6.26	0.0998	<0.0220	0.0369	0.027	0.0289	0.0573	0.0183	0.0192	0.0177	0.0176	0.018	0.0331
10/3/2018	6.27	0.434	<0.0220	0.0359	0.0275	0.0255	0.0225	0.0184	0.0190	0.0187	0.0187	0.0170	0.0175
11/7/2018	7.19	0.0730	<0.0220	0.0591	0.0420	0.0750	0.0363	0.0199	0.0198	0.0199	0.0189	0.0223	0.0172
12/5/2018	5.44	0.266	0.0223	0.215	0.192	0.679	0.0587	0.0203	0.0198	0.0211	0.0198	0.0737	0.056
1/15/2019	1.26	1	0.869	0.834	0.0838	0.935	0.0304	0.0296	0.0309	0.0284	0.0139	0.0978	0.0693
2/13/2019	6.11	0.272	0.129	0.195	0.128	0.495	0.0657	0.0190	0.0185	0.0191	0.0178	0.0531	0.0273
3/11/2019	7.5	0.354	0.204	0.681	0.272	0.739	0.192	0.0208	0.0207	0.0571	0.0753	0.0827	0.0441
10/30/2019	13.3	0.0534	<0.0220	<0.0220	<0.0220			0.0216	0.0222	0.022	<0.00150		
1/22/2020	8.6			5.24	0.664					0.318	0.312		
5/13/2020	2.5			0.185	0.0942					0.0174	0.00803		
10/13/2020	4.33			<0.0220	<0.0220					<0.00150	<0.00150		
2/3/2021	5.75			<0.0220	<0.0220					<0.00150	<0.00150		

\* All units are in mg/L

\* Lab is Total Metals

Table 3 - Glendale Master 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 Q1 - 2021									



April 1, 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  
Duncan Ridge Subdivision, Wake County  
WSF ID No.: Well #5, P05  
Water System No: NC4092063

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 Duncan Ridge Well #5, P05. The Duncan Ridge water system is comprised of three active wells and two points of entry (POE). The current number of customers served is 90 and the system is approved to serve 90 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>
Duncan Ridge, Well #5 (P05)	<ul style="list-style-type: none"> <li>• August 2014 – Started using SeaQuest</li> <li>• March 2017 – Installed auto blow-off</li> <li>• April 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>• January 2018 – Cleaned hydropneumatic storage tank</li> <li>• November 14, 2018 – Submitted executive summary for iron and manganese filtration.</li> <li>• Q1 2019 - Met with Public Staff on site to review proposed filtration at well #5</li> <li>• Q2 2019 – Met with Public Staff to discuss proposed filtration at well #5</li> <li>• Q3 2019 – Installed pressure monitors in the distribution system to determine high elevation pressure for proposed iron &amp; manganese filter. +</li> <li>• Q4 2019 – Met with Public Staff to discuss options to address water quality at Duncan Ridge well #5</li> <li>• Q4 2019 – Flush System</li> <li>• November 8, 2019 – Received Public Staff pre-approval for manganese dioxide filtration</li> <li>• January 2020 – Flushed system</li> <li>• Q3 2020 – Filter Start up</li> <li>• Q1 2-21 – Flushed system</li> </ul>	<ul style="list-style-type: none"> <li>• Continue the operation and maintenance of the new filtration system</li> </ul>
Approved GPM (33)		
Avg. Quarterly Runtime (4.07 hrs. per day)		

Mr. Shawn F. Guyer, P.E.  
April 1, 2021  
Duncan Ridge Subdivision Quarterly Update

**Comments:**

Aqua completed the installation of a manganese dioxide filtration system at Duncan Ridge Well No. 5. Start up for the new filter was completed on 8/25/2020. Aqua respectfully requests that this system be removed from the NOD quarterly reporting list.

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, sweeping horizontal line 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

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Apr 05 2021

DUNCAN RIDGE - NC4092063 - Well #5													
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
10/3/2017	2			1.48	0.594	1.45	0.645			0.394	0.361	0.404	0.369
10/17/2017	1			1.67	< 0.022	1.66	0.095			0.419	0.334	0.451	0.359
11/1/2017	0			1.63	0.139	< 0.022	< 0.022			0.404	0.309	0.139	0.138
11/15/2017	0			1.37	0.491	1.11	0.274			0.352	0.302	0.374	0.281
12/19/2017	0.5	1.12	0.0435	1.59	< 0.022	1.13	0.213	0.358	0.387	0.372	0.269	0.361	0.249
1/11/2018	0.77	1.2	0.104	1.05	0.0909	1.04	0.128	0.35	0.368	0.331	0.112	0.327	0.121
3/6/2018	0.96	1.43	0.0659	1.29	< 0.022	1.22	0.0587	0.382	0.372	0.365	0.176	0.344	0.181
4/3/2018	1	1.49	0.0683	1.34	0.0731	1.12	0.0403	0.395	0.394	0.381	0.209	0.326	0.182
5/1/2018	1.67	1.29	0.114	1.17	0.0075	1.13	< 0.006	0.368	0.356	0.365	0.00618	0.35	0.00104
6/15/2018	1.23	0.378	0.139	0.0516	0.0276	0.0377	0.0221	0.906	0.9	0.721	0.697	0.72	0.712
7/3/2018	5.4	2.02	0.0432	1.38	<0.0220	1.46	0.0253	0.407	0.401	0.391	0.239	0.42	0.241
8/1/2018	0.81	1.35	0.0527	1.29	0.228	1.32	0.414	0.36	0.355	0.36	0.247	0.365	0.267
12/13/2018	0	1.23	0.0677	1.25	0.0229	1.16	<0.0220	0.352	0.348	0.363	0.172	0.340	0.154
1/9/2019	0	1.26	0.0872	1.14	0.0225	1.19	0.0245	0.362	0.367	0.292	0.129	0.293	0.127
2/13/2019	0	1.27	0.344	1.17	0.477	1.04	0.164	0.337	0.337	0.347	0.250	0.320	0.204
5/14/2019	0.5			1.17	0.317					0.326	0.212		
7/10/2019	0.5			1.24	0.0298					0.373	0.216		
10/3/2019	2			1.08	0.0397					0.349	0.235		
1/10/2020	0.5			1.5	0.024					0.392	0.148		
4/16/2020	1			1.12	<0.0220					0.336	0.179		
10/5/2020	4.5			<0.0220	<0.0220					0.0019	<0.00150		
1/27/2021	3.67			<0.0220	<0.0220					0.0019	<0.00150		

\* All units are in mg/L

\* Lab is Total Metals

Table 3 - Duncan Ridge #5 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 Q1 - 2021									



April 1, 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**

<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> <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> <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> </ul>	<ul style="list-style-type: none"> <li>Continue investigation efforts</li> <li>Q1 – 2022 Flush system</li> <li>Continue cartridge filter replacement operations</li> </ul>
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. Investigation efforts will continue for Eagle Creek well #3. Q1-2020 Aqua submitted the executive summary for filtration to the Public Staff of the North Carolina Utilities Commission for wells #2 and #3 and is still responding to PS comments.

Mr. Shawn F. Guyer, P.E.  
April 1, 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", 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

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Apr 05 2021



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				0.698	0.108					0.137	0.0725		
10/29/2020				0.710	0.122					0.139	0.0748		
2/11/2021				0.504	<0.0220					0.117	0.0408		
2/11/2021				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 Q1 - 2021									



April 1, 2021

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

Re: Notice of Deficiency – Quarterly Update  
Iron and Manganese Concentration  
Glendale Master System Subdivision  
WSF ID No.: Well # 1 (Hickory Creek) TPI  
Water System No: NC0392293

Dear Mr. Guyer:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated February 24, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Glendale Master System Well #1, TPI. The Glendale Master System is comprised of six active wells and six points of entry (POE). The current number of customers served is 254 and the system is approved to serve 254 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>
Glendale Master Hickory Creek Well # 1 (TP1)	<ul style="list-style-type: none"> <li>September 2015 - Started feeding SeaQuest</li> <li>March 2017 – Flushed system</li> <li>September 2017 – Started distribution and POE total and soluble sampling</li> <li>December 2018 – added raw sample data</li> <li>December 2017 – cleaned hydropneumatic tank</li> <li>April 2018 – Flushed system</li> <li>January 2019 – Instituted jar testing for the Glendale wells.</li> <li>October 2019 – Met with public staff to discuss interconnection and executive summary to address elevated Fe and Mn.</li> <li>October 2019 – Received approval for manganese dioxide filtration from Public Staff</li> <li>Q4 2019 – Flushed System</li> <li>Q1 2020 – Flushed System</li> <li>August 2020 – installation of Fe/Mn removal system.</li> </ul>	<ul style="list-style-type: none"> <li>Continue the operation and maintenance of the new filtration system</li> </ul>
Approved GPM (45)		
Avg. Quarterly Runtime (5.46 hrs. per day)		

**Comments:**

Aqua completed the installation of a manganese dioxide combined filtration system Chari Heights/Hickory Creek. Start up for the new filter was completed on 8/31/2020. Aqua respectfully requests that this system be removed from the NOD quarterly reporting list.

Mr. Shawn F. Guyer, P.E.  
April 1, 2021  
Glendale Master Subdivision Quarterly Update  
Hickory Creek Well # 1, TP1

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

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Table 2 - Hickory Creek - NC0392293 - 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
10/1/2014				1.3						0.175			
10/6/2016	4.36			0.72						0.085			
11/4/2016	4.36												
9/15/2017	6												
10/4/2017	7			1.29	0.0387	0.955	0.0393			0.12	0.0911	0.12	0.0512
10/19/2017	7			1.21	0.0422	0.933	0.03			0.115	0.0795	0.112	0.0415
11/8/2017	6.5			0.893	0.0363	0.842	0.0318			0.113	0.081	0.106	0.0318
11/17/2017	6			1.12	0.0533	1.52	0.0476			0.113	0.0893	0.118	0.0897
12/13/2018	5.5	1.35	0.935	0.978	0.57	0.973	0.483	0.0227	0.025	0.0219	0.014	0.0238	0.0122
1/10/2018	6.9	1.1	0.437	1.04	0.299	0.938	0.0372	0.127	0.12	0.114	0.135	0.118	0.902
2/8/2018	6.3	0.982	0.336	0.931	0.077	0.938	0.0293	0.112	0.115	0.131	0.0785	0.12	0.0768
3/8/2018	6.5	1.14	0.148	1.05	0.169	2.56	0.0765	0.125	0.114	0.118	0.0922	0.125	0.087
4/4/2018	9.4	1.06	0.209	1.82	0.0939	3.67	0.0903	0.125	0.122	0.136	0.077	0.152	0.0722
5/9/2018	7.27	1.2	0.0268	1.12	<0.0220	1.04	<0.0220	0.129	0.124	0.122	0.0794	0.124	0.0814
6/12/2018	6.75	0.977	0.401	0.915	0.0405	0.924	0.048	0.118	0.119	0.113	0.0797	0.119	0.079
7/25/2018	6.71	1.04	0.556	0.917	0.0223	0.855	0.287	0.116	0.122	0.11	0.0841	0.106	0.0907
8/14/2018	5.75	0.859	0.308	0.901	0.0374	0.847	0.258	0.11	0.11	0.112	0.0849	0.11	0.0916
9/5/2018	6.95	1.14	0.208	0.878	0.081	0.937	0.43	0.121	0.121	0.112	0.081	0.114	0.0931
10/3/2018	6.97	1.11	0.0952	0.834	0.026	0.910	0.335	0.124	0.131	0.108	0.0900	0.111	0.0999
11/7/2018	7.2	1.13	0.0428	1.25	0.0619	1.04	0.0470	0.122	0.122	0.137	0.101	0.120	0.0834
12/5/2018	6.9	1.14	0.0616	0.968	0.0326	1.03	0.0760	0.129	0.126	0.121	0.0786	0.128	0.123
1/15/2019	7.01	1.29	0.679	1.27	0.0427	0.892	0.0497	0.146	0.137	0.118	0.0854	0.114	0.0823
2/13/2019	11.03	1.06	<0.0220	1.11	0.357	1	0.305	0.128	0.124	0.130	0.0884	0.126	0.129
1/22/2020	0												
5/13/2020	4.33			1.03	0.0826					0.122	0.0882		
12/21/2020	ND			ND	ND					ND	ND		

This entry point is no longer active - now combined with Chari Heights.

\* All units are in mg/L

\* Lab is Total Metals

Table 3 - Glendale Master 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 Q1 - 2021									



April 1, 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"><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></ul>	<ul style="list-style-type: none"><li>Manganese dioxide filtration is being evaluated</li><li>Continue to monitor sequestration and cartridge filter operation.</li></ul>
Approved GPM (48)		
Avg. Quarterly Runtime (6.36 hours per day)		
<b>Comments:</b>  Aqua is evaluating filtration and will continue to monitor sequestration and cartridge filter operations.		



Mr. Shawn F. Guyer, P.E.  
April 1, 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", 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

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Apr 05 2021

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		

\* All units are in mg/L

\* Lab is Total Metals

Table 3 - High Grove Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
13130117	LABD-S	WATER IS PTICH BLACK	1/27/2021	1/27/2021	1368623	5117 DOUGHTYMEWS LN	FUQUAY-VARINA, NC 27526	High Grove	tank at well 1 airlocked FSR:taberj, EVT:Lab
13130312	LABD-S	BROWN WATER PER WILLIAM	1/27/2021	1/29/2021	1191922	3309 PETTICOAT LN	FUQUAY-VARINA, NC 27526	High Grove	1/29 LEFT VM FOR CSTMR EXPLAINING ISSUE ON 1/27. TOLD CSTMR TO CALL WITH QUESTIONS. CSTMR DIDN'T RETURN CALL. TSS CLSD ORDERFSR:markard, EVT:Lab
13130197	LABD-S	PLS INVESTIGATE BROWN WATER TODD REPORTS WATER COMING OUT BROWN SINCE WAKING UP THIS MORNING AND NEIGHBORS ALL HAVING SAME ISSUE	1/27/2021	1/27/2021	1364386	5132 DOUGHTYMEWS LN	FUQUAY-VARINA, NC 27526	High Grove	well 1airlocked oped blow off in area FSR:taberj, EVT:Lab
13130143	LABD-S	CUST THOMAS REPORT BROWN MUDDY WATER	1/27/2021	1/27/2021	1061311	3420 PETTICOAT LN	FUQUAY-VARINA, NC 27526	High Grove	well 1 airlocked FSR:taberj, EVT:Lab
13130607	LABD-S	CUSTOMER HAS DISCOLORED WATER SEVERAL NEIGHBORS HAVE REPORTED ISSUEWAS ADVISED BY AQUA TECH TO FLUSH. CUST WANT TO BE SURE TO BE CREDITEDFOR FLUSHING	1/27/2021	1/29/2021	1332188	5105 DOUGHTYMEWS LN	FUQUAY-VARINA, NC 27526	High Grove	1/29 AIR COMPRESSOR HUNG UP. WAS TOLD BY FSR TO FLUSH. CSTMR KNOWS ISSUE. LAB WAS SET UP TO AUTHORIZED FLUSHING CREDIT VERIFIED WITH FSR THAT CSTMR WAS ELIGIBLE. TSS CLSD ORDER WITH FLSH CRD OK'D
13130236	LABD-S	1/27/21 VICTORIA CALLED IN STATED BLACK WATER	1/27/2021	1/27/2021	1061136	5109 DOUGHTY MEWS	FUQUAY-VARINA, NC 27526	High Grove	well one airlocked FSR:taberj, EVT:Lab
13107780	LABD-S	PER ROGELIO/ WATER WAS DISCOLORED/ PLEASE INVESTIGATE	1/19/2021	1/21/2021	1356114	5425 DOWNTON GROVE CT	FUQUAY-VARINA, NC 27526	High Grove	system needs flushed. Wells have high raw fe mn Cl2 0.65 Ph 7.7 Fe 0.15. Mn 0.070 Hard 85.5FSR:taberj, EVT:Lab



April 1, 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"><li>• October 2013 – Started using SeaQuest</li><li>• September 2014 – Installed cartridge filter</li><li>• April 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>• February 2018 - Hydropneumatic tank cleaned</li><li>• June 2018 – Flushed system</li><li>• December 9, 2018 – Submitted executive summary for iron and manganese filtration</li><li>• July 2019 – Flushed System</li><li>• January 2020 – Installed timed automatic blowoff on well.</li><li>• March 2020 – Flushed System</li></ul>	<ul style="list-style-type: none"><li>• Public Staff gave Aqua NC pre-approval for filtration and it is planned to come online by Q-3 2021</li><li>• Continue cartridge filter replacement operations</li></ul>
Approved GPM (64)		
Avg. Quarterly Runtime (6.60 hrs. per day)		
<u>Comments:</u>  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 is planned to come online by Q3-2021.		

Mr. Shawn F. Guyer, P.E.  
April 1, 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 "Rob 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

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Table 3 - High Meadows 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 Q1 - 2021									





April 1, 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**

<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> <li>January 2017 – Approval received for iron and manganese filtration</li> <li>January 2017 – Iron and manganese filtration project put on hold</li> <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> </ul>	<ul style="list-style-type: none"> <li>Continue cartridge filter replacement operations</li> <li>Continue investigation efforts.</li> </ul>
Approved GPM (not specified)		
Avg. Quarterly Runtime (1.27 hours per day)		

**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

Mr. Shawn F. Guyer, P.E.  
April 1, 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,

A handwritten signature in dark ink, appearing to read "Robert Krueger", with a long, sweeping horizontal line 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

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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		

\* 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
13155450	LABD-S	DONNA REPORTED BROWN WATER STATED HASNT CLEARED UP AFTER AQUA REPAIR	2/5/2021	2/5/2021	538071	125 RIDING RIDGE RD	FUQUAY VARINA, NC 27526-9350	NORTHGATE	I helped her flush her outside lines properly,she will flush inside, main leak earlier today, I told her it may take a day or so to clear up,they arein cul de sac,someone on the phone at 5 told her improper way to flush



April 1, 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**

<b><u>Well Name and No.</u></b>	<b><u>Completed Activities</u></b>	<b><u>Planned Activities</u></b>
Wakefield Well #6; (P06)	<ul style="list-style-type: none"> <li>• March 2013 – Cleaned hydro tank</li> <li>• October 2014 – Started using SeaQuest</li> <li>• March 2016 – Received NCUC approval for iron and manganese filtration</li> <li>• March 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>• June/July 2018 – Adjusted phosphate feed</li> <li>• November 2018 - Hydropneumatic tank cleaned</li> <li>• April 2019 – System flushed</li> <li>• Worked with Wakefield HOA and local church to obtain an easement to interconnect wells #6 and #8 for consolidated treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Installation of the new manganese dioxide filter is planned for 2021.</li> </ul>
Approved GPM (88)		
Avg. Quarterly Runtime (1.67)		

**Comments:**

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 is also investigating 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.



Mr. Shawn F. Guyer, P.E.  
April 1, 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

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Apr 05 2021

Table 2 -Wakefield - NC0392155 - Well #6

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
4/25/2016	6.8			1.53						0.23			
12/21/2016	3.9			1.72						0.27			
4/27/2017	5.7												
8/10/2017	3.39												
9/13/2017	3.39			1.84	0.137	1.4	0.317			0.2	0.252	0.126	0.0989
9/28/2017	4.08			0.841	<.0220	1.29	<.0220			0.157	0.124	0.165	0.127
10/5/2017	4.4			1.94	0.297	1.6	0.519			0.258	0.231	0.235	0.192
10/23/2017	3.18			2.88	0.634	1.36	0.224			0.254	0.163	0.186	0.149
12/6/2017	2.01			0.904	0.168	1.77	0.193			0.168	0.143	0.189	0.107
12/14/2017	2.14	1.31	0.235	1.87	0.65	1.65	0.0486	0.197	0.275	0.263	0.229	0.198	0.161
2/1/2018	3.27	1.72	0.5	1.19	0.0825	1.2	0.0536	0.239	0.247	0.184	0.134	0.151	0.0669
3/14/2018	2.45	3.84	0.293	2.13	0.136	15	2.06	0.3	0.25	0.216	0.163	0.988	0.171
4/9/2018	1.71	2.17	0.168	1.84	0.0781	14.2	2.36	0.306	0.287	0.265	0.19	0.81	0.171
5/10/2018	6.41	1.13	<0.0220	2.35	<0.0220	2.16	<0.0220	0.165	0.154	0.235	0.192	0.0189	<0.00150
6/11/2018	9.64	1	0.12	1.01	0.0722	14.2	<0.0220	0.177	0.183	0.17	0.140	0.954	0.0637
7/25/2018	7.36	1.16	0.198	2.39	0.845	1.12	0.0332	0.156	0.161	0.23	0.223	0.0921	0.00358
8/7/2018	4.38	0.887	0.333	2.57	0.45	1.23	0.444	0.15	0.153	0.243	0.182	0.162	0.0247
10/23/2018	4.38	2.89	<0.0220	1.05	0.0962	1.51	0.0681	0.237	0.182	0.158	0.116	0.109	0.0153
11/27/2018	2.45	0.778	0.0983	0.669	0.0317	0.950	<0.0220	0.17	0.261	0.299	0.262	0.108	0.0151
1/29/2019	2.48	1.11	0.0269	1.47	<0.0220	0.837	0.0537	0.161	0.162	0.186	0.173	0.0513	0.0160
2/26/2019	3.89	0.840	0.380	0.801	0.229	1.70	0.649	0.166	0.167	0.160	0.131	0.326	0.0538
5/13/2019	3.88			1.95	0.329					0.243	0.119		
11/19/2019	3.74			2.45	0.444					0.271	0.257		
2/27/2020	1.87			1.29	0.147					0.207	0.145		
5/26/2020	4.64			2.63	0.0649					0.307	0.194		
9/21/2020				1.86	0.253					0.267	0.260		
2/23/2021	1.67			1.53	<0.0220					0.184	0.063		

\* All units are in mg/L

\* Lab is Total Metals

Table 3 -Wakefield Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
13223764	LABD-S	DICOLORED DARK DARK BROWN WATER. CUST CANT COOK WASH OR SHOWER	3/17/2021		557895	2200 OAK LAWN WAY	WAKE FOREST, NC 27587-4700	WAKEFIELD PLANTATION	