

SANFORD LAW OFFICE, PLLC

Jo Anne Sanford, Attorney at Law

July 20, 2021

Via Electronic Filing

Ms. A. Shonta Dunston, Interim 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 2021 Notice of Deficiency Reports Provided to the
North Carolina Department of Environmental Quality

Dear Ms. Dunston:

Attached for filing please find Aqua North Carolina, Inc.'s Second Quarter 2021 Notice of Deficiency Reports; these were provided to the North Carolina Department of Environmental Quality on July 8, 2021 and the Public Staff on July 20, 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



July 8, 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 Q2- 2021 responses and updates for the current notice of deficiency water systems. We have developed this cover letter to supply you with a summary of our current and ongoing efforts.

There are 4 wells that have Public Staff and North Carolina Utilities Commission approval which are currently in the engineering/installation/startup phase of the project and planned to be operational in 2020/2021.

- Branston well #2 (TP1)
- Wakefield well #6 (P06)
- Enclave at Barton Creek Bluffs well #18 (P75)
- High Meadows well #2 (TM1)

There is 1 well that have completed executive summaries and have been submitted to the public staff for the recommendation of manganese dioxide filtration.

- Eagle Creek well #3 (P03)

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

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

Mr. Shawn F. Guyer, P.E.
July 8, 2021
Q2 2021 Final NOD Cover Letter

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

- Northgate well #1 (P01)

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

Sincerely,



Robert Krueger
Area Manager
Aqua North Carolina, Inc.

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

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JUL 20 2021



July 8, 2021

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

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

Dear Mr. Guyer:

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

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

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

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	Completed Activities	Planned Activities
Enclave at Barton Creek Bluffs Well #18 (P75)	<ul style="list-style-type: none">• October 2015 - Started using SeaQuest• Jan - Apr 2016 - Flushed system• February 2017 - Flushed system• June 2017 - Installed cartridge filter• September 2017 – Started Distribution and POE total and soluble sampling• December 2017- Added raw sample data• Q2-2018 System flushed• September 2018 – Submitted executive summary to Public Staff of the North Carolina Utilities Commission for approval of iron and manganese filtration• Q4- 2018 performed jar testing at this well and adjusted sequestration feeds based on results.• Q2-2019 – Well #18 was cleaned and re-drilled• Q3-2019 – Draw down test performed and re-sampled.• 9-28-2020 - Public Staff gave pre-approval for filtration	<ul style="list-style-type: none">• Q3-2021 Install new filtration• Continue cartridge filter replacement operations until the new filter is online
Approved GPM (75)		
Avg. Quarterly Runtime (10.70)		
Comments: Aqua has submitted the executive summary for manganese dioxide filtration at well #18 as part of the Aqua water quality plan. Public Staff requested that Aqua perform a cleaning and drawdown test of this well prior to approval. The drawdown and cleaning were completed in Q2 and Q3 of 2019.Public Staff gave pre-approval for filtration on September 28, 2020. The new filter is planned to be 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">February 2016 -Started Using SeaQuestJan - Apr 2016 - Flushed systemFebruary 2017 - Flushed systemJune 2017 - Installed cartridge filterSeptember 2017 – Started Distribution and POE total and soluble samplingDecember 2017 - Added raw sample dataMarch 2018 - Storage tank was cleanedQ2-2018 system flushedJuly 2018 - Adjusted Seaquest feed rateQ4- 2018 performed jar testing at well #1 and adjusted sequestration feeds	<ul style="list-style-type: none">Continued investigation of well #1 and #2 production and water quality
Approved GPM (73)		
Avg. Quarterly Runtime (23.87)		
<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">• March 2016 – Started using SeaQuest• February 2017 – Flushed system• September 2017 – Took soluble and insoluble well head and distribution samples• December 2017 – Added raw sample data distribution soluble and insoluble iron• Q2 – 2018 Flushed system• Q4- 2018 performed jar testing at this well and adjusted sequestration feeds.	<ul style="list-style-type: none">• Continue to monitor the effectiveness of sequestration
Approved GPM (15)		
Avg. Quarterly Runtime (10.14)		
<u>Comments:</u> Aqua will continue to monitor the effectiveness of sequestration and determine if filtration is required/prudent.		

Mr. Shawn F. Guyer, P.E.
July 8, 2021
Bayleaf Quarterly Update

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

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Krueger", 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

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

Well Name	Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe- Diss	Fe Lab	Fe-Diss	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
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	23.67	0.884	<0.0220	0.719	<0.0220			0.524	0.525	0.503	0.420		

Well Name	Date	Avg. Sample Week Run Time	Raw-Fe Lab	Raw-Fe- Diss	Fe Lab	Fe-Diss	Distributio n System- Fe Lab	Distributio n System- Fe-Diss	Raw-Mn Lab	Raw-Mn Diss	Mn Lab	Mn-Diss	Distributio n System- Mn Lab	Distributio n System- Mn-Diss
Barton Creek Bluffs #10 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		

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 Q2 - 2021										



July 8, 2021

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

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

Dear Mr. Guyer:

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

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

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

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Branston, Well #2 (TP1)	<ul style="list-style-type: none"> July 2013 – Started using SeaQuest September 2016 – Flushed system March 2017 – Flushed system July 2017 – Flushed system September 2017 – Started distribution and POE total and soluble sampling Continue distribution and POE soluble and insoluble sampling December 2017 – Added raw sample data December 2017 – Cleaned hydropneumatic storage tank July 2018 - Flushed system December 9, 2018 - Submitted executive summary to the Public Staff of the North Carolina Utilities Commission for manganese dioxide filtration Q4 2019 – Met with Public Staff to discuss interconnection location. Q4 2019 – Flushed System Q1 2021 – Flushed System 	<ul style="list-style-type: none"> Aqua is still responding to Public Staff additional information requests for the approval of manganese dioxide filtration Annual flushing of the distribution system.
Approved GPM (49)		
Avg. Quarterly Runtime (5.3 hours per day)		

Comments:

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

Mr. Shawn F. Guyer, P.E.
July 8, 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 "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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Jul 20 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		
4/21/2021	4			0.835	0.0317					0.404	0.356		

* 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
13299355	LABD-S	PER DONALD BLACK SPECKS IN WATER	4/15/2021	4/15/2021	705857	2609 BRANSTON WAY	APEX, NC 27539	BRANSTON	customer had new hot water heater installed and had some black sediment in his water pulled meter and flushed service FSR:johnsos, EVT:Lab



July 8, 2021

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

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

Dear Mr. Guyer:

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

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

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

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

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

Comments:

The field investigation in Q-2 of 2018 determined that treatment at this well was properly installed; however, the phosphate feed was not fully optimized. Recent sample results from Q3 – 2019 demonstrated no improvement in the optimization of the phosphate feed. Q1-2020 Aqua submitted the executive summary for filtration to the Public Staff of the North Carolina Utilities Commission for wells #2 and #3. Aqua continues to respond to Public Staff additional comments.

Mr. Shawn F. Guyer, P.E.
July 8, 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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Jul 20 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	1.5			0.698	0.108					0.137	0.0725		
10/29/2020	1.5			0.710	0.122					0.139	0.0748		
2/11/2021	1.16			0.504	<0.0220					0.117	0.0408		
2/11/2021	1.16			0.656	0.0896					0.127	0.0631		

* All units are in mg/L

* Lab is Total Metals

Table 3 - Eagle Creek Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
13384879	LABD-S	BLACK WATER OUT OF EVERY FAUCET, AND TOILET	6/5/2021	6/6/2021	589767	5709 THISTLETON LN	RALEIGH, NC 27606-8968	EAGLE CREEK	put a jumper in overnight to flush cust. house . Mn was a little high on 6/5 residual=c12=1.23/BO4=2.06/Ph=6.7/Fe=0.28/Mn=0.091/flushed.



July 8, 2021

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

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

Dear Mr. Guyer:

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

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

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

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
High Grove, Well #1 (P01)	<ul style="list-style-type: none">• September 2015 – Started using SeaQuest• May 2017 – Flushed system• September 2017 – Started distribution and POE total and soluble sampling• November 2017 – Hydropneumatic tank cleaned• December 2017 – added raw sample data• August 2018 - Installed cartridge filter• January 2019 – Instituted jar testing on the• Q4 2019 – Flushed System• Q1-2020 - Installed an auto blow off on the cartridge filter.• Q1-2020 Flushed system• Q1-2021 Flushed system	<ul style="list-style-type: none">• Manganese dioxide filtration is being evaluated• Continue to monitor sequestration and cartridge filter operation.• Annual flushing of the distribution system.
Approved GPM (48)		
Avg. Quarterly Runtime (7.6 hours per day)		
Comments: Aqua is evaluating filtration and will continue to monitor sequestration and cartridge filter operations.		

Mr. Shawn F. Guyer, P.E.
July 8, 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 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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JUL 20 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		
3/4/2021	1.0	0.452	0.0592	0.476	0.0277	0.334	0.0248	0.129	0.131	0.131	0.102	0.0473	0.022
4/26/2021	4.25			1.100	0.0242					0.172	0.116		

* All units are in mg/L

* Lab is Total Metals

SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
LABD-S	EMAIL FROM CHERYL RUSSO AUTH WITH PHOTO OF SINK FULL OF BROWN WATER	6/28/2021		1374827	5000 DARCY WOODS LN	FUQUAY-VARINA, NC 27526	HIGH GROVE	



July 8, 2021

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

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

Dear Mr. Guyer:

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

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

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

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
High Meadows, Well #2 (TM1)	<ul style="list-style-type: none">• October 2013 – Started using SeaQuest• September 2014 – Installed cartridge filter• April 2017 – Flushed system• September 2017 – Started distribution and POE total and soluble sampling• December 2017 – added raw sample data• February 2018 - Hydropneumatic tank cleaned• June 2018 – Flushed system• December 9, 2018 – Submitted executive summary for iron and manganese filtration• July 2019 – Flushed System• January 2020 – Installed timed automatic blowoff on well.• March 2020 – Flushed System	<ul style="list-style-type: none">• Public Staff gave Aqua NC pre-approval for filtration and it is planned to come online by Q-3 2021• Continue cartridge filter replacement operations
Approved GPM (64)		
Avg. Quarterly Runtime (7.36 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.
July 8, 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 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.

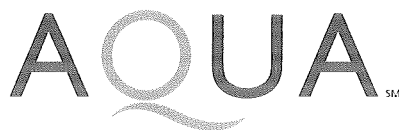
Cc: Shawn Guyer
State of North Carolina
Department of Commerce
Utilities-Public Staff

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JUL 20 2021

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

Table 3 - High Meadows Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
13293561	LABD-S	BROWN WATER PLEASE INVESTIGATE	4/13/2021	4/14/2021	610722	8005 ROUND OAK RD	RALEIGH, NC 27616-8572	HIGH MEADOWS	4/18 spk to customer yesterday. Explained B/O was being opened to clear lines/d customer and I would check status this am. Customer stated water is now clear TSS CLSD
13293138	LABD-S	CUSTOMER REPORTING DISCOLORATION W/ AIR IN THE LINES.	4/12/2021	4/12/2021	611754	8116 ROUND OAK RD	RALEIGH, NC 27616-9525	HIGH MEADOWS	breaker left off at well waters to discolored to check residuals opened blow off to help clear FSR:johnsos, EVT:Lab
13293137	LABD-S	CUSTOMER REPORTING BROWN WATER	4/12/2021	4/12/2021	573099	3616 OPEN SIGHT CT	RALEIGH, NC 27616-8996	HIGH MEADOWS	water is to discolored to check residuals left blow off opened to help clear FSR:johnsos, EVT:Lab



July 8, 2021

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

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

Dear Mr. Guyer:

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

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

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

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Northgate, Well #1 (P01)	<ul style="list-style-type: none"> September 2015 – Started using SeaQuest September 2016 – Flushed system December 2016 – Filed for approval of iron and manganese filtration January 2017 – Approval received for iron and manganese filtration January 2017 – Iron and manganese filtration project put on hold March 2017 – Installed cartridge filter June 2017 – Flushed system September 2017 – Started distribution and POE total and soluble sampling December 2017 – Added raw sample data Q1-2019 - Installed a detention tank to afford more detention time for the chlorine to oxidize the manganese so that cartridge filter could remove the fine particulate. 3Q – 2019 flushed system 1Q – 2021 flushed system 	<ul style="list-style-type: none"> Continue cartridge filter replacement operations Continue investigation efforts. Annual flushing of the distribution system.
Approved GPM (not specified)		
Avg. Quarterly Runtime (1.3 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.

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.

Mr. Shawn F. Guyer, P.E.
July 8, 2021
Northgate Subdivision Quarterly Update

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

Sincerely,



Robert Krueger
Area Manager
Aqua North Carolina, Inc.

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

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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
13368317	LABD-S	RACHEL REPORT BROWN WATER	5/26/2021	5/27/2021	534336	117 RIDING RIDGE RD	FUQUAY VARINA, NC 27526-9350	NORTHGATE	Water was clear when I arrived cl .4 po4 2.6 ph 7.4 fe .33 mn .043 hardness 17.1FSR:johnsos, EVT:Lab



July 8, 2021

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

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

Dear Mr. Guyer:

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

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

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

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

<u>Well Name and No.</u>	<u>Completed Activities</u>	<u>Planned Activities</u>
Wakefield Well #6 (P06)	<ul style="list-style-type: none"> • March 2013 – Cleaned hydro tank • October 2014 – Started using SeaQuest • March 2016 – Received NCUC approval for iron and manganese filtration • March 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – added raw sample data • June/July 2018 – Adjusted phosphate feed • November 2018 - Hydropneumatic tank cleaned • April 2019 – System flushed • Worked with Wakefield HOA and local church to obtain an easement to interconnect wells #6 and #8 for consolidated treatment 	<ul style="list-style-type: none"> • Installation of the new manganese dioxide filter is planned for 2021.
Approved GPM (88)		
Avg. Quarterly Runtime (3.79)		

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 also investigated the use of two mobile manganese dioxide filters for well #6 and well #8. The permanent manganese dioxide filter has been approved by the North Carolina Utility Commission and filter installation is planned for 2021.

Mr. Shawn F. Guyer, P.E.
July 8, 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 "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 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	<0.0220	1.29	<0.0220			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	3.37			1.86	0.253					0.267	0.260		
2/23/2021	1.67			1.53	<0.0220					0.184	0.063		
3/26/2021	3.17			1.67	0.148					0.227	0.163		
5/5/2021	3.96			1.57	0.193					0.223	0.215		

* 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
13331605	LABD-S	CUST CALLED TO REPORT YELLOWISH BROWN COLORED WATER	5/4/2021	5/4/2021	552151	1909 MOUNTAIN HIGH RD	WAKE FOREST, NC 27587	WAKEFIELD ESTATES	Cust called back in and cancelled request. Adv water cleared up. FSR:rhinerb, EVT:Lab