June 2018

Mr. W. Allen Hardy
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. Hardy:

Attached you will find Aqua's Q2- 2018 responses and updates for the current notice of deficiency (NOD) water systems. We have developed this cover letter to supply you with a concise summary of our current and ongoing efforts.

There are 6 wells that we are requesting to be removed from the quarterly reporting based on consistent water samples demonstrating water quality under sMCL levels and a reduction in customer complaints.

- Saddleridge #20- P20
- Ethans Glen #19 & #20 – P97
- Middle Creek Acres #1 – P01
- Stanstead #2
- Woodvalley #11
- Brayton Park #2 (Well no longer exists)

There are four NOD wells that have been submitted to public staff for approval of greensand filtration.

- The Barony #5
- Woodvalley #9
- Georges Grant #1
- Upchurch #1 & #4

There are two NOD wells that have public staff approval for greensand filtration and are currently being engineered for installation.

- Ridgebrook Bluffs/Westbury #1
- Wakefield #6

There are two current NOD wells that have been installed since 1st quarter report.

- Hampton Park #6
- Galloway #2

There are 24 wells included in this report for which we believe require greensand filtration based on the consistent sample results and customer complaints. Aqua is in process of completing the executive summary to garner Commission support with the installation of greensand filtration at these sites.

- Avocet #1
- Branston #2
- Forest Glen #1
- Forest Glen #2
- Chari Heights #1
- Trapper's Creek #2
- Southwood #1
- Cary Oaks #3
- Belle Ridge #2
- Duncan Ridge #5
- River Oaks #3
- Olde South Trace #1
- Hickory Creek #1
- Georges Grant #1
- Hawthorne well #1 and #2
- Enclave at Barton Creek Bluffs #18
- Enclave at BB #18
- Carlysle Manor #4
- Cotesworth #2
- Briarwood/Kildaire #1
- High Meadows #2
- Southwood #1
- Belle Ridge #2
- Seville #1

There are 4 wells that continue to require additional in-depth investigation to determine appropriate measures to approprietely address heightened iron and/or manganese levels at these well sites due to inconsistent sample results and/or the possibility of taking the well offline based on limited current capacity.

- Tyndrum well #1
- Eagle Creek well #3
- Glendale well #1
- High Grove well #1

The investigation efforts will revolve around the following;

- Current sampling techniques being performed by the ORC
- Current chemical feed locations/operation
- Current chemical dosages being used
- Capacity study

Additional water quality improvement efforts:

Water storage tank cleaning – Aqua kicked-off a vigorous tank cleaning program in 4th quarter of 2017 for all sites initially identified as a Group 1 well sites intended to remove any excess residual build up inside our storage, hydro and elevated tanks. Over 30 hydro tanks have been cleaned since this effort began along with one elevated storage tank. Aqua is on track to finish cleaning all hydro tanks on the NOD report reporting list during Q2-2018. Once we have completed all the NOD systems, Aqua will continue these efforts in remaining systems on a reoccurring schedule. Two elevated storage tanks in the Bayleaf system will also be cleaned and painted in 2018.

Distribution sampling – The distribution sample results were added to these reports as part of a holistic approach to better understand the current condition inside our distribution system and begin a secondary investigation and action plan outside of these reports to also help further improve water quality and aesthetics for our customers. The locations are not being tracked at this time but will be in the near future as that project becomes more streamlined.

Distribution flushing - Aqua is currently changing our water main flushing techniques. The volume of water and velocity needed to effectively scour the water mains in most of these smaller systems isn't possible with the current storage availability. Aqua has recently partnered with Southern Corrosion, Inc, to help rectify this issue. Southern Corrosion will be assisting Aqua by utilizing temporary tankage to increase available water volume during flushing events to help produce a more effective scour during flushing.

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Avocet Subdivision, Wake County
WDF ID No.: Well #1, PO1
Water System No: NC4092107

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Avocet Well #1, PO1. The Avocet water system is comprised of four active wells and three points of entry (POE). The current number of customers served is 155 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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Avocet Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Avocet, Well #1 (P01) Approved GPM (32) Avg. Quarterly Runtime (0.0)	• September 2015 – Started using SeaQuest • April 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Started raw sampling • December 2017 – Cleaned hydropneumatic storage tank	• Aqua will submit executive summary for greensand filtration. • Continue to minimize usage of this well until greensand filtration is approved • Continue water main flushing efforts

Comments:

Currently, Aqua is running well #1 only as needed and will rely on production from wells #2, #3, and #4. A new well, well #12, will be interconnected with well #2 (pre-filter) to benefit from the upgraded greensand filtration that was completed in 2017. The construction of well #12 is 90% complete. The developer informed Aqua they are anticipating start up sometime in the third quarter of 2018. Aqua will also be submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Avocet 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

AVOCET-4092107													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Well-1-Fe Lab	P01-Well-1-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Well-1-Mn Lab	P01-Well-1-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/3/2017	0			1.19	0.324	0.388	0.183			0.0978	0.0954	0.169	0.159
10/17/2017	0			3.11	1.43	0.271	0.156			0.124	0.125	0.14	0.137
11/1/2017	0			9.21	0.156	0.561	0.172			0.175	0.174	0.13	0.143
11/15/2017	0			0.286	0.134	0.31	0.131			0.0915	0.091	0.0999	0.0973
12/19/2017	0	8.14	1.07	3.49	0.334	0.296	0.116	0.283	0.278	0.343	0.338	0.1	0.0948
1/11/2018	0	3.78	0.0581	0.778	0.413	0.263	0.118	0.356	0.335	0.104	0.0972	0.0981	0.0904
3/6/2018	0	7.94	0.148	4.23	0.0389	0.285	0.113	0.186	0.293	0.629	0.596	0.0902	0.0854
4/3/2018	0	8.68	< 0.022	5.55	0.0569	0.267	0.108	0.216	0.186	0.522	0.517	0.0882	0.0806
5/1/2018	0	1.64	<0.022	0.762	0.0862	0.19	0.0711	0.254	0.247	0.213	0.2	0.19	0.0343

Table 3 - Avocet Well #1 Customer Complaints

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10583627	LABD-S	YASMIN HAS BROWN WTR PLEASE CHECK	5/22/2018	5/23/2018	1372036	5720 LUMINERE ST	HOLLY SPRINGS, NC 27540	AVOCET WATER	CL .9 pH 7.0 po4 1.2 Fe .23 MN .041 water was clear apon arrivalLeft door tagFSR:johnsos, EVT:Lab
10540672	LABD-S	THERA IS EXTREMELY UPSET ABOUT POOR WATER QUALITY, SHE ADVISED THAT WATER IS RED/MUDDY AND STAINING ALL HER APPLIANCES. SHE REQUESTED ADAMANTLY FOR SOMEONETO CALL HER.. SHE WOULD LIKE FOR SOMEONE TO COME TO HER PROPERTY.	4/27/2018	4/27/2018	1325990	6433 CARDINAUX LN	HOLLY SPRINGS, NC 27540	AVOCET WATER	CL .14 po4 2.0 pH 7.0 Fe .16 MN .000 hardness 68.4Talked with customer and so did Jackie Jackson water was clearPut jumper in so customer can flush there lines

AQUA

June 27, 2018

Mr. W. Allen Hardy
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: P12, P19, P28, P39, P63, P67, P75, P76, P92, P93, P97, P3B, P4B, P7B
Water System No: NC039233

Dear Mr. Hardy:

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 P12, P19, P28, P39, P63, P75, P76, P92, P3B, P4B, P7B. 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 summarization 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. P12, P16, P19, P28, P39, P63, P75, P76, P92, P3B, P4B, P7B as part of the ongoing Inorganic Chemical Analyses (IOC).
- Table 3 (Attachment 3) provides a summary of customer complaint information.

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Barony Well #5 (P63) Approved GPM (77) Avg. Quarterly Runtime (7.54)	• September 2015 - Started using SeaQuest • Jan - Apr 2016 - Flushed system • Sept - Nov 2017 - Flushed system • September 2017 – Cartridge filter installed • September 2017 – Started Distribution and POE total and soluble sampling • March 2018 - Annual flushing complete • December 2017 – Added raw sample data • Q1-2018 system flushed	• Continue water main flushing efforts

Comments:

The executive summary for greensand filtration at well #5 has been submitted to Public Staff/NCUC as part of the Aqua water quality plan. Upon approval, Aqua will begin engineering in 2018 and plans installation of the filter in 2019.

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

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) Approved GPM (75) Avg. Quarterly Runtime (9.57)	• 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	• Continue flushing efforts

Comments:

Aqua will be submitting the executive summary for greensand filtration at well #18 in 2018 as part of the Aqua water quality plan. Upon approval, Aqua will begin engineering in 2018 and plans installation of the filter in 2019.

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Hawthorne Well #1 & #2 (P76) Approved GPM (73) Avg. Quarterly Runtime (11.21)	• February 2016 -Started Using SeaQuest • Jan - Apr 2016 - Flushed system • February 2017 - Flushed system • June 2017 - Installed cartridge filter • September 2017 – Started Distribution and POE total and soluble sampling • December 2017 - Added raw sample data • March 2018 - Storage tank was cleaned • Q2-2018 system flushed	• Continue investigation efforts • Continue flushing efforts

Comments:

The NOD was originally issued due to high concentrations of Fe and Mn. Field investigation and sample results confirm the high concentrations of Fe and Mn. Seaquest feed rates do seem inadequate and will be re-adjusted. Aqua will continue to monitor the sample results. This is a temporary solution as these elevated levels of Fe and Mn qualify this well to have an executive summary created and submitted for greensand filtration. The executive summary for greensand filtration will be completed in 2018.

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Woodvalley #9 (P92) Approved GPM (38) Avg. Quarterly Runtime (11.10)	• February 2016 - Started using SeaQuest • Jan - Apr 2016 - Flushed system • February 2017 - Flushed system • June 2017 - Well was treated via Aqua free • 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	• Executive summary has been completed and submitted to Public Staff/NCUC

Comments:

Aqua has submitted the executive summary for greensand filtration at well #9 as part of the Aqua water quality plan. Upon approval, Aqua will begin engineering in 2018 and plan installation of the filter in 2019.

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Carlyle Manor Well #4 (P3B) Approved GPM (73) Avg. Quarterly Runtime (7.45)	• September 2015 - Started using SeaQuest • Jan - Apr 2016 - Flushed system • June 2017 - Installed cartridge filter • September - Nov 2017 - Flushed system • September 2017 - Started Distribution and POE total and soluble sampling • December 2017 – Added raw sample data • Q1-2018 System flushed	• Executive summary has been completed, will submit to public staff in 2018 • Continue flushing efforts
Comments: Aqua will be submitting the executive summary for greensand filtration at well #4 in 2018 as part of the Aqua water quality plan.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Seville Well #1 (P4B) Approved GPM (44) Avg. Quarterly Runtime (10.68)	• August 2015 - Started using SeaQuest • Jan - Apr 2016 - Flushed system • Sep - Nov 2017 - Flushed system • September 2017 - Started Distribution and POE total and soluble sampling • Dec 2017 –Added raw sample data • Q1- 2018 Flushing Complete	• Executive summary has been completed, will submit to public staff in 2018 • Continue water main flushing efforts
Comments: Aqua will be submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.		

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
George's Grant Well #1 (P7B) Approved GPM (66) Avg. Quarterly Runtime (7.45)	• Oct 2015 - Started Using SeaQuest • Jan - Apr 2016 - Flushed system • Jun 2017 - Installed cartridge filter • Sep - Nov 2017 - Flushed system • Sep 2017 – Started Distribution and POE total and soluble sampling • Feb. 2018 Flushing complete • Dec 2017 Started Raw, Entry Point and Distribution Soluble and Insoluble Iron • Q1-2018 System flushed	• Executive summary has been completed, will submit to public staff in 2018 • Continue water main flushing efforts
Comments: Aqua will be submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Woodvalley Well #11 (P93) Approved GPM (29) Avg. Quarterly Runtime (10.43)	• December 2016 – Started using SeaQuest • February 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • Q2-2018 System flushed	• Continue water main flushing efforts
Comments: Based on the data supplied and steps Aqua has taken; we respectfully request that this system be removed from the required quarterly updates.		

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System Quarterly Update

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Barton Creek Bluffs Well #10 Approved GPM (15) Avg. Quarterly Runtime (9.27)	• 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	• Continue water main flushing efforts • Continue investigation efforts
Comments: The NOD was originally issued due to high concentrations of Fe and Mn. Sample results confirm the high concentrations of Fe and Mn. The elevated Fe levels are insoluble; however, the Mn levels show to be fully soluble. Seaquest feed rates do seem inadequate and will be re-adjusted. Aqua will continue to monitor the sample results and have submitted an executive summary for greensand filtration.		

Table 1 – Well Information, Completed Activities and Planned Activities		
Well Name and No.	**Completed Activities**	**Planned Activities**
Ethan's Glen Well #19 and #20 (P97) Approved GPM (18/11) Avg. Quarterly Runtime (7.23)	• Dec 2016 - Started feeding SeaQuest • Sep - Nov 2017 - Flushed system • Sep 2017 - Took soluble insoluble well head and distribution samples • Dec 2017 Started Raw, Entry Point and Distribution Soluble and Insoluble Iron • Q1- 2018 Annual Flushing Complete • Seaquest has been optimized for these wells.	• Continue water main flushing efforts
Comments: Based on the data supplied and steps Aqua has taken; we respectfully request that this system be removed from the required quarterly updates.		

Mr. W. Allen Hardy
June 27, 2018
Bayleaf Master System 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 -Bayleaf Sample Data

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Barony Well #5	1/6/2014	11					1				0.47					
	9/20/2016	14.9													4.4	1.6
	1/16/2017	7.43					1.35				0.61					
	3/23/2017	5.5													14	1.4
	6/8/2017	8.5													6.2	2
	4/19/2017	6.2					1.53				0.62					
	4/16/2017	6.2													22	6.7
	9/15/2017	9.93					1.71	<0.022	0.0322	0.254	0.55	0.424	0.0156	0.0044		
	10/2/2017	20.86					1.57	0.728	0.766	0.142	0.503	0.475	0.309	0.0165		
	10/16/2017	11.99					1.69	<.0220			0.577	0.57				
	10/23/2017	12.74					1.71	0.0829	0.0709	<0.022	0.545	0.463	0.0039	0.0262		
	11/6/2017	8.69					1.5	0.0304	0.813	0.693	0.506	0.485	0.455	0.452		
	11/17/2017	6.46					1.48	0.571	1.45	<0.022	0.486	0.424	0.404	0.269		
	12/11/2017	5.61	1.79	0.0411	0.609	0.599	1.69	0.596	0.577	0.563	2.25	0.703	0.562	0.425		
	1/5/2018	5.94	1.71	<0.0220	0.601	0.72	1.65	<.0220	1.6	<0.022	0.733	0.549	0.724	0.361		
	2/2/2018	5.9	1.48	<0.0220	0.538	0.529	1.42	0.182	1.42	0.156	0.538	0.484	0.535	0.462		
	3/2/2018	6.8	2.07	0.105	0.536	0.516	1.76	0.201	1.45	0.0259	0.541	0.504	0.527	0.506		
	4/6/2018		1.93	<0.0220	0.61	0.597	2.1	0.352	1.63	0.0946	0.607	0.47	0.6	0.4		
Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Enclave at Barton Creek Bluffs #18	10/9/2013	8.1					1				0.29					
	10/12/2019	10.46					1.49				0.348					
	12/20/2016	12.8													3.2	1.5
	3/23/2017	6.9													2.6	2.4
	4/26/2017	6.4													13	3.1
	6/8/2017	7.6													6	5.1
	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	0.0075		
	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	0.0017		
	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	0.295	0.264	0.515	0.085	0.261	<0.220	0.328	0.282	0.118	<0.0011		
	1/22/2018	11.3	1.25	<0.0220	0.325	0.314	4.01	0.115	0.433	<0.220	0.601	0.308	0.0673	0.0284		
	2/26/2018	9	0.872	0.0275	0.268	0.271	0.53	0.317	<0.220	0.0378	0.288	0.279	0.0053	0.0395		
	3/15/2018	7.29	0.233	0.2	0.0186	0.012	0.683	0.0659	1.18	0.103	0.49	0.442	0.51	0.499		
	4/11/2018	10.24	0.334	0.232	0.395	0.397	0.41	0.1	0.125	0.0408	0.392	0.357	0.0506	0.0038		
	5/10/2018	9.62	1.98	<0.0220	0.514	0.478	0.483	0.181	0.272	0.042	0.333	0.306	0.279	0.213		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Hawthorne # 1 & 2	5/19/2016	10.7					1.01				0.53					
	9/20/2016	14.2													22	1.7
	3/23/2017	10.3													14	3.9
	6/8/2017	15.51													12	11
	9/15/2017	16.9														
	9/28/2017	21.72					0.833	0.164	0.0585	<0.0220	0.531	0.184	0.0108	0.0012		
	10/6/2017	23.6					0.882	0.309	<.0220	<.0220	0.417	0.343	0.0024	0.0016		
	10/23/2017	18.38					0.892	0.0559	0.139	<0.0220	0.32	0.225	0.0308	0.006		
	11/7/2017	11.86					0.634	0.0331	0.0234	<0.0220	0.202	0.134	0.0029	0.0013		
	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	0.391	0.362	2.38	0.171	<.0220	<0.0220	0.423	0.181	0.0014	0.0011		
	1/22/2018	10.1	6.96	<0.022	0.54	0.5	1.42	0.102	0.116	0.0572	0.478	0.102	0.0196	0.0032		
	2/26/2018	12.2	1.24	0.15	0.693	0.489	1.07	0.0817	0.0482	<0.0220	0.693	0.276	0.144	0.304		
	3/28/2018	6.7	1.08	0.0386	0.582	0.614	1.1	<0.0220	0.87	0.217	0.586	0.547	0.402	0.287		
	4/5/2018	8.19	0.941	<0.022	0.847	0.578	0.775	0.0407	<.0220	<.0220	0.457	0.353	0.0852	0.507		
	5/2/2018	7.56	0.828	<.00600	0.531	0.518	0.952	0.0163	0.206	<.00600	0.526	0.486	0.531	0.518		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Woodvalley #9	10/7/2015	8.39					0.8				0.5					
	12/19/2016	12.9													4	0.91
	3/23/2017	7.3													11	2.9
	6/16/2017	0.13													0.01	0.01
	9/14/2017	9.54					0.221	<0.022	0.091	<0.022	0.344	0.264	0.013	<0.0011		
	9/28/2017	10.51					0.124	0.0316	0.0465	<0.0220	0.33	0.332	0.0567	0.0112		
	10/5/2017	15.89					0.226	<0.0220	0.0255	<0.0220	0.259	0.205	0.0057	0.0039		
	10/16/2017	9.99					0.0856	<.0220			0.324	0.393				
	10/24/2017	14.55					0.126	<0.0220	0.0549	<0.0220	0.226	0.185	0.0142	0.0017		
	11/10/2017	6.38					0.391	0.0744	0.0417	<0.0220	0.371	0.137	0.0089	<0.0011		
	12/14/2017		1.03	<0.0220	0.549	0.399	0.273	<0.0220	<0.0220	<0.0220	0.397	0.0658	0.0306	0.0018		
	1/25/2018	10.1	0.146	<0.0220	0.352	0.353	0.164	<0.0220	0.0367	<0.0220	0.369	0.326	0.0386	0.0042		
	2/22/2018	2	0.703	<0.0220	0.465	0.442	0.22	0.33	<0.0220	<0.0220	0.342	0.303	0.0025	<0.0011		
	3/22/2018	7	0.0732	<0.0220	0.453	0.441	0.0836	0.0356	0.0836	0.0338	0.341	0.321	0.317	0.299		
	4/16/2018	11.98	0.0901	0.0448	0.321	0.311	0.0987	0.0338	0.0409	<0.0220	0.32	0.233	0.0085	0.002		
	5/4/2018	9.85	0.634	<.00600	0.55	0.413	0.0822	0.0327	0.159	0.0327	0.398	0.376	0.272	0.207		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Carlyle Manor #4	10/7/2015	8.5					2				0.67					
	9/20/2016	11.7													18	1.3
	10/3/2016	10.5					1.21				0.68					
	3/23/2017	5.6													5.6	2.6
	6/9/2017	8.6													2.4	2.3
	9/15/2017	6.04														
	10/2/2017	20.86					1.22	0.928	0.283	0.0341	0.681	0.658	0.223	0.0079		
	10/23/2017	12.79					0.949	0.36	0.169	<0.0220	0.623	0.51	0.0835	0.0778		
	11/6/2017	10.01					0.736	<0.0220	0.538	<0.0220	0.567	0.461	0.0658	0.036		
	11/17/2017	6.51					0.731	0.264	0.104	<0.0220	0.593	0.502	0.019	0.0168		
	12/11/2017	5.52	0.802	0.17	0.662	0.625	0.813	0.228	0.672	0.569	0.293	0.0993	0.0432	0.0164		
	1/5/2018	5.7	0.806	<0.0220	0.622	0.616	0.766	<0.0220	0.828	0.114	0.584	0.543	0.644	0.601		
	2/2/2018	6.1	0.931	<0.0220	0.624	0.618	0.647	<0.0220	0.804	<0.0220	0.531	0.437	0.612	0.492		
	3/2/2018	6	0.0821	0.0485	0.578	0.532	0.57	0.0511	0.579	0.0667	0.582	0.484	0.561	0.518		
	4/6/2018	7.41	0.835	<0.0220	0.619	0.61	1.03	<0.0220	1.11	<0.0220	0.637	0.413	0.738	0.549		
	5/1/2018	9.39	1.06	<.00600	0.61	0.471	0.623	0.0097	0.678	0.025	0.556	0.46	0.681	0.588		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Seville #1	1/9/2016	7.25					1				0.5					
	9/20/2016	14.1													3.8	0.84
	1/19/2017	7.43					1.02				0.557					
	3/23/2017	5.8													2.3	0.85
	6/8/2017	8.5													2.5	3.6
	9/15/2017	9.81					0.947	0.0915	0.495	0.246	0.467	0.421	0.054	0.0599		
	9/28/2017	15.41					1.05	0.307	0.0676	<.0220	0.385	0.332	0.0317	0.0147		
	10/5/2017	20.09					1.23	0.33	1.09	0.308	0.507	0.417	0.271	0.208		
	10/23/2017	11.3					0.413	0.0973	0.732	0.648	0.141	0.125	0.0334	0.013		
	11/10/2017	9.11					0.595	0.105	0.541	0.112	0.166	0.15	0.165	0.163		
	11/16/2017	7.7					1.82	0.19	2.17	0.241	0.218	0.203	0.278	0.254		
	12/15/2017	0	1.48	0.397	0.556	0.529	1.96	0.271	0.234	0.21	0.579	0.508	0.0157	0.0057		
	2/2/2018	0	8.94	<0.0220	1.1	0.914	13.3	<0.0220	13.4	<0.0220	0.99	0.958	1.05	1.01		
	3/15/2018	1.47	0.187	0.0413	0.134	0.121	0.375	0.158	1.05	0.242	0.146	0.146	0.562	0.513		
	4/18/2018	6.9	1.56	0.0971	0.623	0.585	1.38	0.103	1.47	0.0601	0.603	0.563	0.616	0.556		
	5/2/2018	7.36	1.05	0.032	0.578	0.573	0.969	0.0295	0.973	0.0242	0.568	0.469	0.568	0.481		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
George's Grant #1	7/16/2015	6.16					1.3				0.63					
	12/12/2016	15													15	2.4
	3/1/1932	5.5													6.4	2.7
	6/8/2017	8.5													9.6	7.2
	10/2/2017	20.84					1.48	0.0512	1.08	0.588	0.636	0.511	0.295	0.22		
	10/23/2017	12.77					1.72	0.192	0.283	0.301	0.662	0.527	0.0209	0.015		
	11/6/2017	10.03					1.32	0.121	1.4	0.493	0.608	0.506	0.624	0.542		
	11/17/2017	6.67					1.65	0.0304	1.4	0.0489	0.655	0.503	0.35	0.271		
	12/11/2017	5.54	1.51	0.296	0.665	0.681	1.95	0.0337	0.706	0.585	1.24	0.462	0.585	0.424		
	1/8/2018	5.7	1.43	0.92	0.596	0.558	1.63	0.0441	1.29	0.15	0.628	0.549	0.636	0.601		
	2/2/2018	6.1	1.47	0.0429	0.644	0.65	1.53	0.18	1.42	0.0259	0.65	0.519	0.669	0.526		
	3/2/2018	5.9	1.94	0.0327	0.672	0.638	1.69	0.289	1.45	0.181	0.686	0.535	0.672	0.637		
	4/6/2018	5.53	1.67	<.0220	0.702	0.692	1.88	0.114	1.61	0.298	0.705	0.597	0.694	0.581		
	5/3/2018	9.49	0.525	0.125	0.199	0.188	0.658	0.309	0.243	0.0097	0.252	0.242	0.225	0.2		
Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Woodvalley #11	9/15/2015	9.46					1.32	0.0328	1.15	0.0275	0.582	0.484	0.266	0.127		
	12/10/2015	7.3					0.18				0.285					
	9/22/2016	9.7													ND	0.151
	3/6/2017	7.91													10	0.61
	4/26/2017	10.13													8	0.41
	5/24/2017	10.4													8.4	0.22
	6/9/2017	11.8													7.6	0.36
	9/15/2017	9.74					<0.0220	<0.022	0.72	0.042	0.0325	0.0248	0.0361	0.011		
	9/28/2017	10.53					<0.0220	<0.0220	0.114	<0.0220	0.0396	0.036	0.0337	0.0022		
	10/6/2017	20.93					<0.0220	<0.0220	0.0259	<0.0220	0.0373	<0.0110	0.0064	0.0011		
	11/10/2017	9.64					<0.0220	<0.0220	0.0567	<0.0220	0.0187	<0.0110	0.0102	0.001		
	12/14/2017		<0.0220	<0.0220	0.0265	0.0065	0.0479	<0.0220	0.0855	<0.0220	0.0436	0.0053	0.0616	0.0017		
	Off Line	0														
	2/22/2018	6.2	0.0334	<0.0220	0.13	0.12	0.042	<0.0220	<0.0220	<0.0220	0.135	0.111	0.0027	<0.0110		
	3/15/2018	7.05	0.0268	<0.0220	0.148	0.135	0.0302	<0.0220	0.055	<0.0220	0.127	0.119	0.0085	0.0029		
	4/16/2018	12.2	0.103	<0.0220	0.144	0.0135	0.0287	<0.0220	0.0406	<0.0220	0.139	0.13	0.0083	0.0021		
	5/2/2018	9.85	0.0323	<.00600	0.0848	0.0826	0.0141	<.00600	0.0078	0.0067	0.129	0.112	0.0089	0.0022		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Ethan's Glen #19	9/17/2014	7.22					1.87				0.0179					
	9/22/2016	10.6					0.08				0.078					
	3/8/2017	7.5														
	4/26/2017	7.8													0.13	0.31
	9/14/2017	6.8					<0.022	<0.022	<0.022	<0.022	0.0028	<0.001	<0.0011	<0.001		
	9/27/2017	9.29					<0.022	<0.022	<0.022	<0.022	0.0029	<0.001	0.0024	<0.001		
	10/5/2017	19.38					<0.022	<0.022	0.784	<0.220	0.004	0.0014	0.0062	<0.001		
	10/23/2017	12.65					0.197	<0.022	<0.022	<0.022	0.0045	<0.001	<0.0011	<0.001		
	11/8/2017	10.07					0.542	0.165	0.0525	<0.022	0.0039	0.0012	0.0027	0.0015		
	11/17/2017	7.71					0.0326	<0.0220	0.723	<0.220	0.0037	<0.001	0.0072	<0.001		
	12/13/2018	7.2	0.0698	<0.022	0.0027	0.0052	0.121	<0.0220	0.0293	<0.220	0.0026	<0.001	0.0023	<0.001		
	1/8/2018	7.5	<0.022	<0.022	0.003	0.0032	0.0868	<0.0220	<0.220	<0.220	0.003	<0.001	0.0012	<0.001		
	2/2/2018	6	0.0283	<0.022	0.0023	0.0021	0.0635	<0.0220	<0.220	<0.220	0.0018	<0.001	0.0014	<0.001		
	3/2/2018	6.55	0.0476	<0.022	0.0431	<0.022	0.0431	<0.0220	0.0351	<0.0220	0.0024	0.0012	0.0023	0.0011		
	4/6/2018	6.66	0.0622	<0.022	0.0022	0.0021	0.0718	<0.0220	<0.220	<0.0220	0.0024	0.0022	0.0022	0.0022		
	5/2/2018	7.85	<.00600	<.00600	0.0026	0.0016	0.0288	<.00600	0.0144	<.00600	0.0019	0.0034	0.0018	0.0009		

Well Name	Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
Ethan's Glen #20	9/17/2014	9.6					1.87				0.0179					
	9/22/2017	10.6					0.38				0.035					
	3/8/2017	7.5														
	4/26/2017	7.8													0.51	0.31
	9/14/2017	6.3														
	9/14/2017	6.8					<0.022	<0.022	<0.022	<0.022	0.0028	<0.0011	<0.0011	<0.0011		
	9/27/2017	9.29					<0.022	<0.022	<0.022	<0.022	0.0029	<0.001	0.0024	<0.001		
	10/5/2017	19.38					<0.022	<0.022	0.784	<0.220	0.004	0.0014	0.0062	<0.001		
	10/23/2017	12.65					0.197	<0.022	<0.022	<0.022	0.0045	<0.001	<0.0011	<0.001		
	11/8/2017	10.07					0.542	0.165	0.0525	<0.022	0.0039	0.0012	0.0027	0.0015		
	11/17/2017	7.71					0.0326	<0.0220	0.723	<0.220	0.0037	<0.001	0.0072	<0.001		
	12/13/2018	7.2	0.0739	<0.022	0.0025	0.0016	0.121	<0.0220	0.0293	<0.220	0.0026	<0.001	0.0023	<0.001		
	1/8/2018	7.5	<0.0220	<0.0220	0.0016	0.0015	0.121	<0.0220	0.0293	<0.220	0.0026	<0.001	0.0023	<0.001		
	2/2/2018	6	0.217	0.022	0.002	0.0013	0.0635	<0.0220	<0.220	<0.220	0.0018	<0.001	0.0014	<0.001		
	3/2/2018	6.55	0.0476	<0.0220	0.048	<0.0220	0.0431	<0.0220	0.0351	<0.0220	0.0024	0.0012	0.0023	0.0011		
	4/6/2018	6.66	0.08	<0.0220	0.0021	0.0018	0.0718	<0.0220	<0.220	<0.0220	0.0024	0.0022	0.0022	0.0022		
	5/2/2018	7.85	0.0174	<.00600	0.0016	0.0024	0.0288	<.00600	0.0144	<.00600	0.0019	0.0034	0.0018	0.0009		

Table 3 - Bayleaf Customer Complaints

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10550495	LABD-S	EMAIL FROM GREYSON WITH PHOTO OF TUB LACED WITH BLACK SEDIMENTCUSTOMER STATES HE RAN THE WATER FOR 2 MINS PRIOR TO TRYING TO FILL TUB	5/3/2018	5/3/2018	564960	2808 SUNNYSTONE WAY	RALEIGH, NC 27613-6181	BARTON CREEK BLUFFS	Cl2 .94 ph 7.4 Po4 1.6 fe .13 mn .230Post flush results did find black sediment.upon arrival very little sedimenLeft after flushin instructed customer to flush inside lines
10599165	LABD-S	EMAIL FROM TINA WITH PHOTO BEFORE AND AFTER OF FILTER FILLED WITHBLACK SEDIMENT AFTER ONLY THREE MONTHS USAGE	5/31/2018	5/31/2018	537887	12433 BAYLEAF CHURCH RD	RALEIGH, NC 27614-9168	CARLYLE MANOR	Cold pull cl2 n/a ph 7.3 po4 n/a fe 0.10 mn 0.007 5 min cl2 n/a ph 7.3 po4 n/a fe 0.06 mn 0.002 Some test n/a due to filter. called. no ans. left vm. left door tag. wtr ok
10591303	LABD-S	PER MEGAN BLACK RESIDUE	5/25/2018	5/25/2018	538256	12520 AMORETTO WAY	RALEIGH, NC 27613-8569	ENCLAVE OF BARTON CRK BLF	Cl2- .61 Ph- 7.4 po4- 1.57 fe- .14 mn- .032Possible filter causing issuesFSR:carterm, EVT:Lab

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Belle Ridge Subdivision, Wake County
WSF ID No.: Well #2, P02
Water System No: NC0392358

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Belle Ridge Well #2, P02. The Belle Ridge water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 57 and the system is approved to serve 55 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Bell Ridge Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Belle Ridge, Well #2 (P02) Approved GPM (30) Avg. Quarterly Runtime (0 hrs)	• August 2015 – Started using SeaQuest • June 2017 – Flushed System • September 2017 – Installed cartridge filter. • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • February 2018 - Hydropneumatic storage tank cleaned	• 2018 - Submit executive summary for greensand filtration • Continue the limited use of this well until greensand filtration is approved • Continue water main flushing efforts

Comments:

Aqua does not run Belle Ridge well #2 and relies on well #1 for meeting system demand. Aqua will be submitting an executive summary to the public staff for greensand filtration approval in 2018 as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Bell Ridge 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

BELLE RIDGE-0392358													
Date	Avg. Sample Week Run Time	P02R-Well-2 Raw-Fe Lab	P02R-Well-2 Raw-Fe-Diss	P02-Well-2-Fe Lab	P02-Well-2-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P02R-Well-2 Raw-Mn Lab	P02R-Well-2 Raw-Mn-Diss	P02-Well-2-Mn Lab	P02-Well-2-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/13/2017	2			0.588	0.357	0.403	0.181			0.197	0.171	0.0999	0.0655
10/18/2017	1.15			0.574	0.0275	0.381	0.179			0.207	0.13	0.177	0.141
11/2/2017	0.5			0.931	0.151	0.0876	0.0303			0.173	0.108	0.022	0.0134
11/15/2017	2.9			0.467	< 0.022	0.159	0.0237			0.194	0.108	0.0573	0.0305
12/14/2017	0.5	1.82	1.21	0.869	0.0793	0.578	0.205	0.253	0.248	0.246	0.166	0.0478	0.0197
1/5/2018	0.625	0.337	0.0361	0.348	0.0634	0.368	0.0813	0.375	0.367	0.37	0.33	0.38	0.332
3/8/2018	0.5	1.68	1.09	1.01	0.125	0.976	0.0613	0.285	0.284	0.319	0.228	0.315	0.229
4/3/2018	0	2.31	1.31	1.32	0.109	1.27	0.0262	0.322	0.319	0.386	0.298	0.395	0.297
5/3/2018	0.25	4.31	0.0683	1.52	0.0972	1.49	0.079	0.321	0.29	0.323	0.293	0.353	0.318

Table 3 - Belle Ridge Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
Aqua received zero complaints for this system in Q-2 of 2018									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Branston Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Branston, Well #2 (TP1) Approved GPM (49) Avg. Quarterly Runtime (3.75)	• 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	• 2018- submit executive summary for greensand filtration • Continue water main flushing efforts

Comments:

Aqua will be submitting the executive summary for greensand filtration at well #2 in 2018 as part of the Aqua water quality plan.

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

BRANSTON-4092076											
Date	Avg. Sample Week Run Time	TP1R-Well-2 Raw-Fe Lab	TP1R-Well-2 Raw-Fe-Diss	TP1-Well-2-Fe Lab	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	TP1R-Well-2 Raw-Mn Lab	TP1R-Well-2 Raw-Mn-Diss	TP1-Well-2-Mn Lab	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/13/2017				0.441	0.311	0.152			0.412	0.39	0.379
10/17/2017	8.41			3.2	0.351	0.204			0.623	0.413	0.44
11/1/2017	6.9			0.387	0.289	0.16			0.388	0.359	0.34
11/15/2017	4.71			0.383	0.245	0.0718			0.198	0.269	0.214
12/14/2017	4.5	0.371	0.0292	0.321	2.2	0.0815	0.328	0.312	0.314	1.21	0.279
1/5/2018	5.4	1.82	1.33	0.877	0.534	0.0794	0.256	0.254	0.25	0.0839	0.172
3/8/2018	3.5	0.436	< 0.022	0.421	0.435	0.0382	0.326	0.317	0.341	0.288	0.246
4/11/2018	2.16	0.402	< 0.022	0.404	0.369	0.0739	0.357	0.349	0.347	0.329	0.296
5/7/2018	3.29	0.545	0.401	0.481	0.516	0.0166	0.463	0.401	0.392	0.449	0.275

Table 3 - Branston Well #2 Customer Complaints								
SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
Aqua receiced zero complaints for Q2- 2018								

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Brayton Park Subdivision, Wake County
WSF ID No.: PO1
Water System No: NC4393164

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated June 26, 2017 regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Brayton Park Well #2, P01. The Brayton Park water system is comprised of one active well and one point of entry (POE). The current number of customers served is 22 and the system is approved to serve 65 connections. The table below outlines the run time and the latest iron and manganese concentrations collected as part of the ongoing Inorganic Chemical Analyses (IOC) samples collected at Well #2, PO1.

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

- Table 1 provides a summarization of well information, completed activities and planned activities.
- Table 2 (attachment 2) provides a summary of raw, POE and distribution iron and manganese samples.
- Table 3 (attachment 3) provides a summary of customer complaint information.

Mr. W. Allen Hardy
June 27, 2018
Brayton Park Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Brayton Park, Well #2 (P0l) Approved GPM (85) Avg. Quarterly Runtime (0.0)	• Q3 2016 cartridge filter installed • April 2017 the 5,400 hydropneumatic tank for the system was cleaned • Q4 2016 -This well was abandoned via an NCDOT TIP project • An secondary interconnect with the Town of Holly Springs was completed 11/23/2017	• Continue water main flushing efforts

Comments:

Aqua requests that Brayton Park well #2 (PO1) be removed from the NOD list as it is no longer in existence. Brayton Park is now a single well system with a secondary interconnect to the Town of Holly Springs.

Mr. Allen Hardy
June 27, 2018
Brayton Park 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 - Brayton Park Well #2 Sample Data															
Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
No samples were pulled at this well as it was abandoned in 2016.															

Table 3 - Brayton Park Well #2 Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10474255	LABD-S	HEIDI STATES THAT THE INSDIE OF TOILET IS BLACK FROM THE WATER SHE WOULD LIKE TO SPEAK WITH LAB IN REGARDS TO THIS	4/6/2018	4/6/2018	586596	5300 WHITE SBORO CT	HOLLY SPRINGS, NC 27540-8457	BRAYTON PARK	CL .5 po4 1.3 pH 7.2 Fe .44 MN .211 water was clear apon arrivalBut MN is on the high side! Left door tag FSR:johnsos, EVT:Lab

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Briarwood/Kildaire Subdivision, Wake County
WSF ID No.: Well #1, P04
Water System No: NC0392383

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Briarwood/Kildaire Well #1, P04. The Briarwood/Kildaire water system is comprised of five active wells and five points of entry (POE). The current number of customers served is 161 and the system is approved to serve 168 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Briarwood/Kildaire Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Briarwood/Kildaire Well #1 (P04) Approved GPM (30) Avg. Quarterly Runtime (0 hrs. per day)	• June 2015 – Started using SeaQuest • June 2017 – Flushed system • August 2017 – Installed blow-off • September 2017 – Started distribution and POE total and soluble sampling • Continuation of the soluble/insoluble Fe/Mn sampling • December 2017 – Added raw sample data • December 2017 – Cleaned hydropneumatic storage tank • December 2017 installed cartridge filters at Well #1 and #2.	• Continue water main flushing efforts • Continue investigation efforts

Comments:

Aqua does not run this well. Optimizing seaquest is an option for the raw Mn, however, there's not enough soluble Fe to stay below the sMCL. Aqua will continue to work with the ORC in optimizing seaquest for the Mn while going ahead and submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Briarwood/Kildaire 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 - Briarwood Kildaire Well #1 Sample Data

Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
1/6/2016	5.8					0.95				0.17					
11/8/2016	7.5													<0.50	<0.50
4/18/2017	6.9													2.3	1.6
7/18/2017	7.5													4.3	2.9
9/13/2017	6.26					0.558	0.157	0.43	0.0269	0.151	0.128	0.118	0.0885		
10/2/2017	8					0.32	0.0911	0.195	0.075	0.0931	0.102	0.102	0.069		
10/17/2017	6					0.198	0.022	0.186	<0.0220	0.084	0.0322	0.0756	0.0278		
11/1/2017	6.5					0.183	0.0705	0.182	0.0815	0.0828	0.0612	0.0814	0.0665		
11/15/2017	6					0.797	0.0575	0.317	0.0247	0.197	0.203	0.133	0.0312		
12/19/2017	0	0.431	0.0415	0.114	0.118					0.255	0.0547	0.254	0.065		
1/11/2018	0	1.66	0.0374	0.733	0.737					0.691	0.0371	0.678	0.0399		
2/7/2018	0	4.05	0.0225	0.348	0.33					2.16	0.0352	2.1	0.0269		
3/6/2018	0	1.47	<0.0220	0.22	0.217					1.09	0.0417	1.37	0.0647		
4/3/2018	0	1.2	<0.0220	0.388	0.369	4.58	<0.0220	1.46	0.0362	0.44	0.365	0.314	0.245		
5/1/2018	0	0.396	0.00855	0.07	0.0672	0.374	0.0463	0.37	0.0568	0.0615	0.0533	0.0616	0.0526		

Table 3 - Briarwood Kildaire Well #1 Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
AQUA received zero customer complaints for the Q2- 2018									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC 27699-1628

Re: Notice of Deficiency - Quarterly Status Report
Iron and Manganese Concentration
Cotesworth Down/Kensington Manor Well# 2 P05
Wake County
Water System No: NC0392125

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated February 8, 2016, regarding elevated concentrations of iron (Fe) and manganese (Mn) at Cotesworth Down/Kensington Manor Well #2, P05. The Cotesworth Down/Kensington Manor master system is comprised of four wells and four points of entry (POE). The current number of customers served is 192 and the system is approved to serve 192 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Cotesworth Down/Kensington Manor Subdivision Quarterly Update

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Cotesworth Down Well #2 (P05) Approved GPM (33) Avg. Quarterly Runtime (6.38 hrs. per day)	• February 2014 – Started using SeaQuest • February 2015 – 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 – Cleaned hydro pneumatic tank	• 2018 – Submit executive summary for greensand filtration • Continue water main flushing efforts

Comments:

Aqua will be submitting an executive summary to the public staff for greensand filtration approval in 2018 as part of the Aqua water quality plan.

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 - Cotesworth Well #2 Sample Data															
Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
2/14/2017	4.2					0.8				0.2					
1/16/20117	3.9													5.7	0.047
2/6/2017	4.1					1.17				0.232					
5/10/2017	3.8													6.5	0.46
9/13/2017	7.52					1.82	0.0257	0.0625	0.0258	0.263	0.16	0.0125	0.00414		
9/28/2017	8.36					0.924	0.13	0.589	0.215	0.199	0.11	0.134	0.0954		
10/5/2017	10.52					0.733	0.32	0.573	0.0766	0.233	0.203	0.17	0.135		
10/23/2017	8.46					3.59	0.116	0.515	0.258	0.377	0.151	0.124	0.106		
12/6/2017	4.34					0.897	0.0464	0.806	0.388	0.262	0.206	0.172	0.149		
12/14/2017	4.12	0.58	0.322	0.22	0.261	0.758	0.0251	1.96	0.157	0.233	0.193	0.392	0.121		
1/25/2018	4.45	0.979	0.304	0.242	0.234	2.91	0.068	0.54	0.148	0.859	0.206	0.0384	0.0149		
2/15/2018	5.1	0.997	0.145	0.245	0.243	0.952	0.0614	0.582	0.0738	0.243	0.195	0.0427	0.0227		
3/19/2018	3.5	0.955	0.347	0.224	0.282	1.03	0.221	0.429	0.178	0.232	0.15	0.0338	0.218		
4/23/2018	3.29	1.01	0.143	0.235	0.231	0.899	0.0243	0.676	0.0502	0.235	0.173	0.133	0.0184		
5/21/2018	3.5	0.892	0.0509	0.225	0.23	0.87	<.0220	0.33	0.0239	0.219	0.156	0.0556	0.00607		

Table 3 - Cotesworth Well #2 Sample Data									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10539931	LABD-S	CONNIE HAS BROWN WTR ALL THROUGHOUT HOME	4/27/2018	4/27/2018	568471	3101 DONLIN DR	WAKE FOREST, NC 27587-5561	KIMMON PLACE	Brown water. cl2 0.59, ph 7.1, po4 1.55, fe 0.29, mn 0.111. ran outside Faucet till clear. system scheduled to be flushed next week FSR:thompss, EVT:Lab
10545082	LABD-S	LORETTA CLD TO ADV WATER IS BROWN	5/1/2018	5/1/2018	614834	8497 FALKIRK RDG	WAKE FOREST, NC 27587	KIMMON PLACE	
10539931	LABD-S	CONNIE HAS BROWN WTR ALL THROUGHOUT HOME	4/27/2018	4/27/2018	568471	3101 DONLIN DR	WAKE FOREST, NC 27587-5561	KIMMON PLACE	Brown water. cl2 0.59, ph 7.1, po4 1.55, fe 0.29, mn 0.111. ran outside Faucet till clear. system scheduled to be flushed next week FSR:thompss, EVT:Lab
10545082	LABD-S	LORETTA CLD TO ADV WATER IS BROWN	5/1/2018	5/1/2018	614834	8497 FALKIRK RDG	WAKE FOREST, NC 27587	KIMMON PLACE	

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 88 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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Duncan Ridge Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Duncan Ridge, Well #5 (P05) Approved GPM (33) Avg. Quarterly Runtime (1.28 hrs. per day)	• August 2014 – Started using SeaQuest • March 2017 – Installed auto blow-off • April 2017 – Flushed system • September 2017 – Started Distribution and POE total and soluble sampling • December 2017 – Added raw sample data • January 2018 – Cleaned hydropneumatic storage tank	• Aqua will submit executive summary for greensand filtration in 2018 • Continue water main flushing efforts

Comments:

Aqua will be submitting the executive summary for greensand filtration at well #5 in 2018 as part of the Aqua water quality plan.

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

DUNCAN RIDGE-4092063													
Date	Avg. Sample Week Run Time	P05R-Well-5 Raw-Fe Lab	P05R-Well-5 Raw-Fe-Diss	P05-Well-5-Fe Lab	P05-Well-5-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P05R-Well-5 Raw-Mn Lab	P05R-Well-5 Raw-Mn-Diss	P05-Well-5-Mn Lab	P05-Well-5-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution 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

Table 3 - Duncan Ridge Customer Complaints

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10472757	LABD-S	TOM-HUSBAND CLD TO REPORT BROWN WATER/ WANTS US TO SEND 2 BOTTLES OF IRON OUTSAYS WE DID IN THE PAST	4/5/2018	4/6/2018	1052924	6316 LAURACA LN	FUQUAY-VARINA, NC 27526	DUNCAN RIDGE	CL 1.3 po4 .9 pH 7.1 Fe .28 MN .048 water was clear apon arrivalLeft door tag and some iron out for customerFSR:johnsos, EVT:Lab

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 three active wells and three points of entry (POE). The current number of customers served is 89 and the system is approved to serve 89 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Eagle Creek Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Eagle Creek Well #3 (P03) Approved GPM (29) Avg. Quarterly Runtime (3.32 hrs. per day)	• 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 • Installed cartridge filter Q2-2018	• Continue investigation efforts • Continue water main flushing efforts

Comments:

The NOD was originally issued due to high concentrations of Fe and Mn. Sample results indicate that the Fe and Mn are mostly soluble. The field investigation determined that the treatment was set-up properly; however, the seaquest was not fully optimized. The operator re-ran the calculations which proved to be the case. Aqua will continue to sample and to optimize seaquest.

Mr. W. Allen Hardy
June 27, 2018
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,

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

EAGLE CREEK-4392128													
Date	Avg. Sample Week Run Time	P03R-Well-3 Raw-Fe Lab	P03R-Well-3 Raw-Fe-Diss	P03-Well-3-Fe Lab	P03-Well-3-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P03R-Well-3 Raw-Mn Lab	P03R-Well-3 Raw-Mn-Diss	P03-Well-3-Mn Lab	P03-Well-3-Mn-Diss	D01-Distribution System-Mn Lab	D01-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

Table 3 - Eagle Creek Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10559585	LABD-S	PLS INVESTIGATE THE COLOR YELLOW ON THE WATER RUSTY LIKE	5/9/2018	5/9/2018	590045	5732 THISTLETON LN	RALEIGH, NC 27606-8967	EAGLE CREEK	Cl2 1.2 PO4 1.4 ph 7.2 fe 0.87/0.22 MN 0.135/0.064 hard 102Cust filling pool slowly, dirtied up new liner with high mineral residual, Flushed service @meter/&hose bibe to clear after 30min cust last home/BO

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Forest Glen Subdivision, Wake County
WSF ID No.: Well #1, P01
Water System No: NC4392142

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Forest Glen Well #1, P01. The Forest Glen water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 108 and the system is approved to serve 109 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Forest Glen Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Forest Glen Master Well #1 (P01) Approved GPM (33) Avg. Quarterly Runtime (0.28 hrs.)	• June 2014 - Started using SeaQuest • Feb 2015 - Hydropneumatic tank cleaned • Feb 2015 - Installed 5 micron filter (collapsed due to high concentrations of iron) • Feb 2015 - Installed 20 micron filter • July 2106 - Sent greensand filtration request to Public Staff, NCUC • Denied approval by Public Staff, NCUC, for greensand filtration. • March 2017- Flushed system • March 2017 - Installed auto flush valve • June 2017 - Removed auto flush valve (caused flooding issues) • July 2017- Flushed system • September 2017 –Started distribution and POE total and soluble sampling • October 2017 – Flushed system • December 2017- Aqua began adding raw sample data to the report • March 2018 – Flushed system • June 2018 – Flushed system	• Pursue approval of greensand filtration at both well #1 and #2 in this system through the Public Staff and Utilities Commission. • Continue system flushing efforts

Comments:

Aqua does not use well #1. Although the well does report run time, the well does not currently feed the distribution system. It is set up to flush to the ground. Based on our customer complaint history, and the current laboratory results, SeaQuest is not adequately sequestering Fe in this system. The sum of total iron and total manganese is consistently greater than one. Based on this information, this well has been included in Aqua's water quality plan. The executive summary for approval of a greensand filter will be re-submitted to the Public Staff and the North Carolina Utilities Commission in 2018.

Mr. W. Allen Hardy
June 27, 2018
Forest Glen 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

FOREST GLEN-4392142													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Fe Lab	P01-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Mn Lab	P01-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/2/2017	0.67			1.06	0.454	1.08	0.184			0.151	0.137	0.372	0.00968
10/20/2017	3.6			1.35	0.385	4.68				0.169	0.0998	1.04	
11/7/2017	0.68			1.07	1.06	1.48				0.16	0.152	0.108	
11/28/2017	0.79			1.18	0.843	1.23				0.163	0.138	0.06	
12/13/2017	0.35	2.18	1.72	1.75	1.16	1.24	0.66	0.165	0.158	0.155	0.128	0.0989	0.0442
12/19/2017	0.56					0.333	0.0421					0.126	0.0462
1/31/2018	0.99	1.41	1.32	1.18	0.603	1.24	0.385	0.164	0.159	0.138	0.132	0.0773	0.0326
2/20/2018	0.32	2.8	2.94	1.87	1.76	1.44	0.402	0.194	0.19	0.177	0.176	0.147	0.0543
3/19/2018	0					2.76	< 0.022					9.7	0.00429
4/9/2018	0.29			1.33						0.158			

Table 3 - Forest Glen Customer complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10596754	LABD-S	WATER STILL BROW. PLEASE FLUSH LINES AGAIN.	5/30/2018	5/30/2018	596395	6405 GLEN BRACK CT	RALEIGH, NC 27603-7909	FOREST GLEN	Left door hanger on door//no number found to call//put flushing valveOn meter box//will flush until thursday//told her last 2 weeks we will Flush sub//scheduled for june/fe .2/mn .2/cl2 .9/po4 .8/got from last visit
10566405	LABD-S	DEBORAH SAID HAVING BROWN WATER ON ALL OUTLET	5/14/2018	5/14/2018	596395	6405 GLEN BRACK CT	RALEIGH, NC 27603-7909	FOREST GLEN	Cl2 .8/ph 7.6/seaquest .6/fe .1/mn .07 1st draw///after flush fe .1 mn .2LM//left door hanger/fe/mn handout//iron out at front door/told them toFlush lines and how to use iron out
10586032	LABD-S	MUDDY WATER. FSR WENT OUT LAST WEEK AND WATER IS STILL MUDDY. FLUSH LINES.	5/23/2018	5/23/2018	596395	6405 GLEN BRACK CT	RALEIGH, NC 27603-7909	FOREST GLEN	1st draw fe .3//mn .2//after flush fe .2//mn .2//ph 7.0//seaquest .8//Cl2 .9// told her i will flush the b/o near her house/told her to try And get her hot water heater flushed//saw her in person

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Forest Glen Subdivision, Wake County
WSF ID No.: Well #2, P02
Water System No: NC4392142

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated March 7, 2018 regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Forest Glen Well 2, P02. The Forest Glen water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 108 and the system is approved to serve 109 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Forest Glen Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Forest Glen Master Well #2 (P02) Approved GPM (84) Avg. Quarterly Runtime (2.736 hrs.)	• June 2014 - Started using SeaQuest • Feb 2015 - Hydropneumatic tank cleaned • Feb 2015 - Installed 5 micron filter (collapsed due to high concentrations of iron) • Feb 2015 - Installed 20 micron filter (collapsed due to high concentrations of iron) • July 2106 - Sent greensand filtration request to Public Staff, NCUC • Denied approval by Public Staff, NCUC, for greensand filtration. • March 2017- Flushed system • July 2017- Flushed system • October 2017 – Flushed system • February 2018 – Started distribution, raw and POE total and soluble sampling March 2018 – Flushed system • 3/20/18 switched the chemical feed in an attempt to hold the soluble iron and manganese in suspension rather than oxidize it and capture in the cartridge filter. • Hydropneumatic tank cleaned April 10, 2018 • March 2018 – Flushed system • June 2018 – Flushed system	• Monitor customer complaint to assess the effectiveness of the sequestration and change in chemical order. • Pursue approval of greensand filtration through NCPUC and the Utility Commission. • Continue water main flushing efforts

Mr. W. Allen Hardy
June 27, 2018
Forest Glen Subdivision Quarterly Update

Comments:
Aqua prepared a request to the Public Staff of the North Carolina Utilities Commission for a greensand filtration system at well #2, which has the larger capacity of the two wells. This information was provided by Aqua on July 18, 2016 however, Aqua and the Public Staff could not reach an agreement to proceed. On March 20, 2018 Aqua switched the order of the chemical feed at Well #2 in an attempt to hold the soluble iron and manganese in suspension rather than oxidize it and capture it with the Harmsco cartridge filter. Unfortunately, these efforts were unsuccessful based on our customer complaint history, and the current laboratory results. This well will be added to Aqua's water quality plan to determine the necessary level of treatment needed going forward.

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) 653-6964.

Sincerely,

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

FOREST GLEN-4392142													
Date	Avg. Sample Week Run Time	P02R-Well-2 Raw-Fe Lab	P02R-Well-2 Raw-Fe-Diss	P02-Well-2-Fe Lab	P02-Well-2-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P02R-Well-2 Raw-Mn Lab	P02R-Well-2 Raw-Mn-Diss	P02-Well-2-Mn Lab	P02-Well-2-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/2/2017	2.5			0.326	< 0.022	1.08	0.184			0.156	0.071	0.372	0.00968
10/20/2017	8.47		0.265			4.68			0.0172			1.04	
11/7/2017	2.53		0.682			1.48			0.0318			0.108	
11/28/2017	2.54		0.783			1.23			0.0469			0.06	
12/13/2017	2.17					1.24	0.66					0.0989	0.0442
12/19/2017	2.45	0.358	0.31	0.299	< 0.022	0.333	0.0421	0.178	0.169	0.204	0.0784	0.126	0.0462
1/31/2018	2.43					1.24	0.385					0.0773	0.0326
2/20/2018	3.6	0.391	0.378	0.319	0.0441	1.44	0.402	0.195	0.196	0.168	0.122	0.147	0.0543
3/19/2018	2.28	0.375	0.355	0.356	< 0.022	2.76	< 0.022	0.184	0.192	0.201	0.078	9.7	0.00429
4/9/2018	2.00			0.393						0.18			

Table 3 - Forest Glen Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10596754	LABD-S	WATER STILL BROW. PLEASE FLUSH LINES AGAIN.	5/30/2018	5/30/2018	596395	6405 GLEN BRACK CT	RALEIGH, NC 27603-7909	FOREST GLEN	Left door hanger on door//no number found to call//put flushing valveOn meter box//will flush until thursday//told her last 2 weeks we will Flush sub//scheduled for june/fe .2/mn .2/cl2 .9/po4 .8/got from last visit
10566405	LABD-S	DEBORAH SAID HAVING BROWN WATER ON ALL OUTLET	5/14/2018	5/14/2018	596395	6405 GLEN BRACK CT	RALEIGH, NC 27603-7909	FOREST GLEN	Cl2 .8/ph 7.6/seaquest .6/fe .1/mn .07 1st draw///after flush fe .1 mn .2LM//left door hanger/fe/mn handout//iron out at front door/told them toFlush lines and how to use iron out
10586032	LABD-S	MUDDY WATER. FSR WENT OUT LAST WEEK AND WATER IS STILL MUDDY. FLUSH LINES.	5/23/2018	5/23/2018	596395	6405 GLEN BRACK CT	RALEIGH, NC 27603-7909	FOREST GLEN	1st draw fe .3//mn .2//after flush fe .2//mn .2//ph 7.0//seaquest .8//Cl2 .9// told her i will flush the b/o near her house/told her to try And get her hot water heater flushed//saw her in person

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
Engineering Supervisor
Public Water Supply Section
Raleigh Regional Office, NCDEQ
1628 Mail Service Center
Raleigh, NC27699-1628

Re: Notice of Deficiency – Quarterly Update
Iron and Manganese Concentration
Galloway Subdivision, Wake County
WSF ID No.: Well #2, P02
Water System No: NC4092027

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Galloway Well #2, P02. The Galloway water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 91 and the system is approved to serve 91 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Galloway Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Galloway, Well #2 (P02) Approved GPM (31) Avg. Quarterly Runtime (1.12 hrs per day)	• September 2015 – Started using SeaQuest • February 2016 – Cleaned hydro tank • Dec. 2016 – Installed cartridge filter • June 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • Dec 2017 - Added raw sample data • Well #2 has been put online as of June 14th 2018 • System was flushed Q2- 2018	• Continue water main flushing efforts • Monitor effectiveness of the new filter

Comments:

Greensand filtration has been installed at Galloway well #2 and the filter was put online on June 14th, 2018. Aqua will continue sampling efforts to monitor the effectiveness of the new filter.

Mr. W. Allen Hardy
June 27, 2018
Galloway 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

GALLOWAY-4092027													
Date	Avg. Sample Week Run Time	P02R-Well-2 Raw-Fe Lab	P02R-Well-2 Raw-Fe-Diss	P02-Well-2-Fe Lab	P02-Well-2-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P02R-Well-2 Raw-Mn Lab	P02R-Well-2 Raw-Mn-Diss	P02-Well-2-Mn Lab	P02-Well-2-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/5/2017	2.39			2.8	0.628	0.37	0.183			0.42	0.388	0.029	0.0113
10/23/2017	0.37			2.06	0.433	0.762	0.0599			0.319	0.32	0.0626	0.00465
12/6/2017	1.14			4.47	0.813	0.304	0.0942			0.353	0.336	0.0154	0.00413
12/14/2017	0	7.6	2.79	7.46	0.358	0.885	0.169	0.445	0.442	0.439	0.386	0.0996	0.00927
1/19/2018	0	2.05	0.868	0.668	0.0898	0.278	0.0228	0.341	0.306	0.0655	0.00468	0.00658	< 0.0011
2/13/2018	0	0.138	0.025	0.0839	< 0.022	0.0851	< 0.022	0.0109	0.00131	0.0035	< 0.0011	0.00369	< 0.0011
3/9/2018	0	2.02	0.498	0.344	0.0516	0.561	0.0282	0.335	0.313	0.013	0.00176	0.0224	0.00111
5/1/2018	0	2.39	0.0585	0.96	0.011	0.7	0.0154	0.35	0.328	0.0487	0.00105	0.0352	0.000918

Table 3 - Galloway Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There have been zero customer complaints in the Q2-2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Wake County
WSF ID No.: Well # 1, TPl
Water System No: NC0392293

Dear Mr. Hardy:

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, TPl. The Glendale Master System is comprised of six active wells and six points of entry (POE). The current number of customers served is 253 and the system is approved to serve 253 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Glendale Master Subdivision Quarterly Update
Well # 1, TP1

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Glendale Master Hickory Creek Well # 1 (TP #1) Approved GPM (45) Avg. Quarterly Runtime (6.5 hrs. per day)	• September 2015 - Started feeding SeaQuest • March 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • Stated pulling raw, Fe, and Mn samples data to the report • Flushing scheduled for the week of 3/26/18 • December 2018 – added raw sample data • December 2017 – cleaned hydropnuematic tank	• 2018 - Submit executive summary for greensand filtration. • Continue water main flushing efforts

Comments:

Based on the field investigation, Aqua will be submitting an executive summary in 2018 for greensand filtration as part of Aqua's water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Glendale Master Subdivision Quarterly Update
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,

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 - Glendale Master Hickory Well #1 Creek Well Sample Data														
Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU
10/1/2014						1.3				0.175				
10/6/2016	4.36					0.72				0.085				
11/4/2016	4.36													<0.50
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	0.0227	0.025	0.978	0.57	0.973	0.483	0.0219	0.014	0.0238	0.0122	
1/10/2018	6.9	1.1	0.437	0.127	0.12	1.04	0.299	0.938	0.0372	0.114	0.135	0.118	0.902	
2/8/2018	6.3	0.982	0.336	0.112	0.115	0.931	0.077	0.938	0.0293	0.131	0.0785	0.12	0.0768	
3/8/2018	6.5	1.14	0.148	0.125	0.114	1.05	0.169	2.56	0.0765	0.118	0.0922	0.125	0.087	
4/4/2018	9.4	1.06	0.209	0.125	0.122	1.82	0.0939	3.67	0.0903	0.136	0.077	0.152	0.0722	
5/9/2018	7.27	1.2	0.0268	0.129	0.124	1.12	<0.0220	1.04	<0.0220	0.122	0.0794	0.124	0.0814	

Table 3 - Glendale Master Well Sample Data									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There have been zero customer complaints in the second quarter of 2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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 (Glendale) P01 and Well #1 (Chari Heights) P02
Water System No: NC0392293

Dear Mr. Hardy:

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 253 and the system is approved to serve 253 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Glendale Master Subdivision Quarterly Update
Well #1 (Glendale) P01 and Well #1 (Chari Heights) P02

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Well #1 (Chari Heights) P02 Approved GPM (40) Avg. Quarterly Runtime (7.35 hrs. per day)	• September 2015 – Started using SeaQuest • March 2017 – Installed cartridge filter • March 2017 – Flushed system • December 2017 – Hydro tank cleaned • Stated pulling raw, Fe, and Mn samples data to the report • Flushing scheduled for the week of 3/26/18 • December 2017 – Added raw sample data • December 2017 – Cleaned hydropnuematic tank	• 2018 - submit executive summary for greensand filtration • Continue water main flushing efforts

Comments:

Based on the field investigation, Aqua will be submitting an executive summary for greensand filtration as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Glendale Master Subdivision Quarterly Update
Well #1 (Glendale) P01 and Well #1 (Chari Heights) P02

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Well #1 (Glendale) P01	• September 2015 – Started using SeaQuest • December 2017 – Cleaned hydropnuematic tank	• Continue water main flushing efforts
Approved GPM (45)		
Avg. Quarterly Runtime (0.0)		

Comments:

Aqua is reviewing capacity availability in this system to where this well may be permanently taken out of service. Until the final decision is made, this well will continue to remain offline.

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 - Glendale Master Well Sample Data Glendale Well#1 P01

Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
10/1/2014	0					1.3				0.175					<0.50
10/6/2016	4					0.72				0.085					0.81
11/4/2016	4													<0.50	
4/4/2018	0	3.78	<0.0220	0.125	0.119										
5/10/2018	0	2.61	0.022	0.156	0.143										

Table 2 - Glendale Master Well Sample Data Chari Heights Well# 1 P02

Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
10/1/2014	3.5					1.99				0.024					
11/4/2016	5													<0.5	
1/6/2017	5													1.4	
4/18/2017	5.7													1.6	
8/9/2017	5.9													0.88	
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	0.11	0.11	0.949	0.0486	1.23	0.391	0.107	0.0762	0.117	0.0894		
1/10/2018	7.61	3.24	0.647	0.0286	0.0305	1.09	0.242	1.12	0.0546	0.073	0.0492	0.0753	0.0456		
2/8/2018	5.3	0.644	<0.0220	0.0208	0.021	0.314	0.114	0.288	0.0617	0.0206	0.0082	0.0203	0.00461		
3/8/2018	5.33	0.708	0.0465	0.0212	0.0209	0.518	0.0533	0.702	0.0537	0.0273	0.00316	0.0345	0.00368		
4/4/2018	6.8	7.28	0.0328	0.0306	0.0308	0.705	0.0351	0.715	<0.0220	0.0279	0.00426	0.0513	0.0148		
5/9/2018	8.7	0.732	0.0667	0.0228	0.0238	0.409	0.0332	0.324	0.0704	0.0218	0.0143	0.0216	0.0219		

Table 3 - Glendale Master Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There have been zero cusomer complaints in the Q-2 of 2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Hampton Park Subdivision, Wake County
WSF ID No.: Well #6, TP2
Water System No: NC4092084

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Hampton Park Well #6, TP2. The Hampton Park water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 69 and the system is approved to serve 101 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Hampton Park Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Hampton Park Well #6 (TP2) Approved GPM (88 gpm) Avgerage Quarterly Runtime (4.19 hrs. per day)	• October 2014 – Started using SeaQuest • November 2016 – Flushed system • December 2016 – Submitted request for greensand filtration to NCUC • January 2017 – Approval received for greensand filtration • September 2017 – Started quarterly POE total and soluble sampling • October 2017 – Flushed system • December 2017 – Cleaned hydropneumatic storage tank • April 2018 – Flushed System	• Continue system flushing and • Monitor effectiveness of the new greensand filter

Comments:

The greensand filtration system has been installed and will be online by Q3- 2018.

Mr. W. Allen Hardy
June 27, 2018
Hampton Park 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

HAMPTON PARK-4092084									
Date	Avg. Sample Week Run Time	TP2R-Well-6 Raw-Fe Lab	TP2R-Well-6 Raw-Fe-Diss	TP2-Well-6-Fe Lab	TP2-Well-6-Fe-Diss	TP2R-Well-6 Raw-Mn Lab	TP2R-Well-6 Raw-Mn-Diss	TP2-Well-6-Mn Lab	TP2-Well-6-Mn-Diss
1/12/2015	1.1			0.914				0.232	
10/10/2017	4.2			1.15	0.169			0.211	0.191
10/30/2017	4.55								
12/18/2017	0.83	1.42	0.776	1.41	0.0972	0.304	0.291	0.25	0.209
2/6/2018	0.04	1.43	0.633	1.48	0.0763	0.298	0.309	0.282	0.214
2/26/2018	2.1			1.42				0.242	
4/9/2018	3.1	1.5	1.27	1.39	0.249	0.247	0.254	0.262	0.126

Table 3 - Hampton Park Well #6 Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There were no customer complaints received during the Q2-2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 149 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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
High Grove Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
High Grove, Well #1 (P01) Approved GPM (48) Avg. Quarterly Runtime (3.75 hours per day)	• September 2015 – Started using SeaQuest • May 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • November 2017 – Hydropnuematic tank cleaned • December 2017 – added raw sample data	• Continue water main flushing efforts • Continue investigation efforts • Install a cartridge filter in Q-3 2018

Comments:

Based on the field investigation, Aqua will continue to work with the ORC of the system and truly optimize SeaQuest along with installing a cartridge filter. Sampling efforts will continue and be used to show progress on the water quality.

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

HIGH GROVE-4092096													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Well-1-Fe Lab	P01-Well-1-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Well-1-Mn Lab	P01-Well-1-Mn-Diss	D01-Distribution System-Mn Lab	D01-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

Table 3 - High Grove Customer Complaints

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10481783	LABD-S	EMAIL FROM FRANK REPORTING WATER IS LIGHT BROWN AND MURKYALSO REPORTING PRESSURE HAS DROPPED OVER LAST 24 HRS	4/11/2018	4/11/2018	1329410	5108 SHIRLAND RD	FUQUAY-VARINA, NC 27526	High Grove	Cl2 .75 po4 .97 Ph 7.0 Fe 0.10 Mn 0.005 FSR:taberj, EVT:Lab
10485007	LABD-S	CUSTOMER STATES THE WATER HAS SEDIMENT IN WATER	4/12/2018	4/12/2018	1355945	5005 BOYLSTON DR	FUQUAY-VARINA, NC 27526	High Grove	Cl2 0.70 Ph 7.0 Po4 1.1 Fe 0.08 Mn 0.005 FSR:taberj, EVT:Lab
10554178	LABD-S	******EMAIL****FROM JEFFREY****REPORTING YELLOW WATER****HAD WATERRUNNING FOR 20 MINUTES AND DID NOT CLEAR***PLEASE CALL TO DISCUSS****	5/7/2018	5/7/2018	1051156	5101 WILSHIRE WOODS CT	FUQUAY-VARINA, NC 27526	High Grove	B.F.F. Fe 1.20 Mn .068 Cl2 .60 Ph7.0 Po4 .90 har 68.4A.F. Fe .08 Mn.006 Cl2 .65 Ph 7.0 FSR:taberj, EVT:Lab
10563341	LABD-S	PUC COMPLAINT. CUST STATES BROWN WATER PERIODICALLY EVERY MONTHPLS TAKE WATER SAMPLES AND INVESTIGATE	5/11/2018	5/11/2018	1055530	5105 WILSHIRE WOODS CT	FUQUAY-VARINA, NC 27526	High Grove	30 min.flush from bl.o. in cul-de-sac frlush from outside spic. Fe1.0 Mn0.040 Ph6.9 Cl2.60 Po41.0Talked to customer in person no phone number on work order
10522127	LABD-S	BROWN WATER PER LAURIE	4/17/2018	4/18/2018	1055530	5105 WILSHIRE WOODS CT	FUQUAY-VARINA, NC 27526	High Grove	Fe 0.80 Mn 0.03 Ph 7.3 Po4 .89 Cl2 .60 FSR:taberj, EVT:Lab

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 133 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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
High Meadows Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
High Meadows, Well #2 (TM1) Approved GPM (64) Avg. Quarterly Runtime (3.72 hrs. per day)	• 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	• 2018-Submit executive summary for greensand filtration • Continue water main flushing efforts • Continue sampling efforts • Flush system by end of 3rd quarter 2018

Comments:

The NOD was originally issued due to high concentrations of Fe and Mn. High Meadows well #2 and well #3 are combined entries. After the onsite investigation, it was found that we were reporting raw sample data for well#3. The correct sample results indicate that sequestration would be ineffective in improving water quality. Based on these findings, Aqua will be submitting an executive summary for greensand filtration as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
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,

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

HIGH MEADOWS-0392334													
Date	Avg. Sample Week Run Time	TM1R-Well-2 Raw-Fe Lab	TM1R-Well-2 Raw-Fe-Diss	TM1-Well-2&3-Fe Lab	TM1-Well-2&3-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	TM1R-Well-2 Raw-Mn Lab	TM1R-Well-2 Raw-Mn-Diss	TM1-Well-2&3-Mn Lab	TM1-Well-2&3-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/3/2017	5.87			0.696	0.253	0.189	0.0424			0.151	0.128	0.0187	0.0475
10/17/2017	3.9			0.708	0.022	0.172	0.0647			0.163	0.0591	0.0189	0.00934
11/2/2017	4.36			0.703	0.308	0.389	0.0992			0.153	0.113	0.0532	0.013
11/14/2017	3.89			0.697	0.075	0.481	<0.022			0.156	0.0994	0.0351	0.00124
12/19/2017	3.48	1.12	0.0303	0.591	0.261	0.426	0.026	0.214	0.232	0.14	0.134	0.0325	0.00952
1/8/2018	4.34	1.43	0.313	0.592	0.0426	0.36	0.44	0.225	0.216	0.132	0.0855	0.0604	0.042
2/20/2018	3.58	3.24	0.224	0.986	0.0809	2.69	0.936	0.234	0.2	0.216	0.0895	0.205	0.0672
3/19/2018	3.48	1.34	0.123	1.06	0.0421	8.05	3.57	0.195	0.192	0.193	0.135	0.741	0.25
4/25/2018	3.91	1.52	<.00600	0.704	0.00975	0.274	<00660	0.191	0.188	0.146	0.0818	0.025	0.0298

Table 3 - High Meadows Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There were zero customer omplaints in Q2 of 2018									

AQUA

June 27, 2018

Mr. W. Allen Hardy
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
Middle Creek Acres Subdivision, Wake County
WSF ID No.: Well #1, P01
Water System No: NC0392370

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Middle Creek Acres Well #1, P01. The Middle Creek Acres water system is comprised of one active well and one point of entry (POE). The current number of customers served is 12 and the system is approved to serve 23 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Middle Creek Acres Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Middle Creek Acres, (Well #1, P01) Approved GPM (Not specified – currently 12) Avg. Quarterly Runtime (1.95 hours per day)	• September 2015 – Started using SeaQuest • October 2016 – Flushed system • October 2016 - Installed auto blow-off at well head • March 2017 – Installed cartridge filter • August 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – cleaned hydropneumatic storage tank • December 2017 - Aqua added raw sample data to the report.	• Continue to test the effectiveness of the flushing valve and adjusting the time to optimize the water quality • Continue to test the effectiveness of the cartridge filter • Continue water main flushing efforts

Comments:

There were zero customer complaints received in all of 2017, and zero complaints have been received in Q1 & Q2 - 2018. Also, with the completed activities listed above and the recent samples showing Fe and Mn being below the sMCL, Aqua respectively requests that this well be taken off the quarterly NOD reporting.

Mr. W. Allen Hardy
June 27, 2018
Middle Creek Acres 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

MIDDLE CREEK ACRES-0392370													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Well-1-Fe Lab	P01-Well-1-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Well-1-Mn Lab	P01-Well-1-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/11/2017	1.41			0.378	0.104	1.47	0.441			0.00354	0.00213	0.0183	0.00603
10/25/2017	1.29			0.0885	0.0386	0.53	0.0443			0.002	0.00171	0.00613	< 0.0011
11/1/2017	1.44			0.131						0.00234			
11/8/2017	1.34			0.219	0.126	0.331	0.0589			0.00351	0.00318	0.00394	< 0.0011
11/22/2017	1.64			0.252	0.0483	0.085	0.0437			0.00239	0.00126	< 0.0011	< 0.0011
12/19/2017	2.57	0.209	< 0.022	0.163	0.113	0.363	0.117	0.00404	0.00196	0.00229	0.00226	0.00539	0.00169
1/10/2018	1.73	0.626	0.0586	0.206	0.0402	1.18	0.0685	0.00682	0.00326	0.00308	0.00148	0.016	0.00167
2/22/2018	1.56	0.622	< 0.022	0.374	0.0867	0.27	0.0737	0.00447	0.00429	0.00439	0.0024	0.0026	0.00128
3/27/2018	1.38	0.266	< 0.022	0.235	0.117	0.166	0.111	0.00308	0.00306	0.00311	0.00292	0.00137	0.0012
4/12/2018	1.35	0.177	< 0.022	0.132	0.0473	1.08	0.0856	0.00287	0.00305	0.00287	0.00211	0.0129	0.00128

Table 3 - Middle Creek Well Sample Data									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There were zero customer complaints for theQ-2 of 2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Northgate Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Northgate, Well #1 (P01) Approved GPM (not specified) Avg. Quarterly Runtime (1.43 hour per day)	• September 2015 – Started using SeaQuest • September 2016 – Flushed system • December 2016 – Filed for approval of greensand filtration • January 2017 – Approval received for greensand filtration • January 2017 – Greensand 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	• Continue water main flushing efforts

Comments:

Aqua filed for approval from the North Carolina Utilities Commission (NCUC) for the installation of a greensand 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 greensand 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 so as 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 close 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 transacted, 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 greensand filter in this system is not appropriate, and therefore, the project continues to be on hold.

Mr. W. Allen Hardy
June 27, 2018
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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

NORTHGATE-0392217													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Well-1-Fe Lab	P01-Well-1-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Well-1-Mn Lab	P01-Well-1-Mn-Diss	D01-Distribution System-Mn Lab	D01-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

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
There were zero customer complaints in the second quarter of 2018									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Northgate Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Northgate, Well #1 (P01) Approved GPM (not specified) Avg. Quarterly Runtime (1.43 hour per day)	• September 2015 – Started using SeaQuest • September 2016 – Flushed system • December 2016 – Filed for approval of greensand filtration • January 2017 – Approval received for greensand filtration • January 2017 – Greensand 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	• Continue water main flushing efforts

Comments:

Aqua filed for approval from the North Carolina Utilities Commission (NCUC) for the installation of a greensand 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 greensand 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 so as 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 close 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 transacted, 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 greensand filter in this system is not appropriate, and therefore, the project continues to be on hold.

Mr. W. Allen Hardy
June 27, 2018
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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

NORTHGATE-0392217													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Well-1-Fe Lab	P01-Well-1-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Well-1-Mn Lab	P01-Well-1-Mn-Diss	D01-Distribution System-Mn Lab	D01-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

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
There were zero customer complaints in the second quarter of 2018									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Olde South Trace Subdivision, Wake County
WSF ID No.: Well #1, P01
Water System No: NC4392131

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Olde South Trace Well #1, P01. The Olde South Trace 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 32 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Olde South Trace Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Olde South Trace Well #1 (P01) Approved GPM (34) Avg. Quarterly Runtime (2.46 hrs. per day)	• July 2014 – Started using SeaQuest • December 2016 – Flushed system • March 2017 – Installed cartridge filter • September 2017 – Started distribution and POE total and soluble sampling • December 2017- hydropneumatic storage tank cleaned • December 2017 – added raw sample data	• 2018-Complete executive summary for greensand filtration • Continue water main flushing efforts
Comments: Aqua will be submitting the executive summary for greensand filtration at well #1 in 2018 as part of Aqua's water quality plan.		

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

OLDE SOUTH TRACE-4392131													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Well-1-Fe Lab	P01-Well-1-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Well-1-Mn Lab	P01-Well-1-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/16/2017	2.5			0.947	0.527	0.468	0.311			0.273	0.252	0.103	0.0367
10/30/2017	2			1.27	0.488	0.624	0.0855			0.268	0.247	0.058	0.0084
11/3/2017	2.5			0.783	0.365	1.02	0.437			0.266	0.217	0.286	0.247
11/16/2017	2			1.08	0.288	0.64	0.185			0.297	0.243	0.056	0.0236
12/18/2017	2.012	2.12	0.285	0.912	0.627	0.623	0.159	0.282	0.287	0.285	0.249	0.0756	0.0143
1/11/2018	2.14	1.92	0.463	0.963	0.309	0.686	0.256	0.248	0.267	0.281	0.195	0.0784	0.0353
3/5/2018	2.19	6.37	0.197	1.14	0.731	0.66	0.177	0.278	0.279	0.259	0.234	0.0554	0.0201
4/6/2018	2.07	2.59	0.173	1.09	0.623	0.33	0.045	0.326	0.315	0.303	0.281	0.058	0.00384
5/2/2018	2.1	2.52	0.658	0.813	0.629	0.581	0.0329	0.264	0.294	0.258	0.248	0.0549	0.0329

Table 3 - Olde South Trace Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There are zero customer complaints in the Q2- 2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Ridgebrook/Westbury Subdivision, Wake County
WSF ID No.: P03
Water System No: NC4392101

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated May 24, 2017 regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Westbury Well #1, P03 (also called Ridgebrook Well #3). The Ridgebrook/Westbury water system is comprised of three active wells and three points of entry (POE). The current number of customers served is 92 and the system is approved to serve 108 connections. The table below outlines the run time and the latest iron and manganese concentrations collected as part of the ongoing Inorganic Chemical Analyses (IOC) samples collected at Well #, P03.

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

- Table 1 provides a summarization of well information, completed activities and planned activities.
- Table 2 (attachment 2) provides a summary of raw, POE and distribution iron and manganese samples.
- Table 3 (attachment 3) provides a summary of customer complaint information.

Mr. W. Allen Hardy
June 27, 2018
Ridgebrook/Westbury Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Ridgebrook/Westbury, Well #1 (P03) Approved GPM (33) Avg. Quarterly Runtime (2.71 hrs. per day)	• June 2017 - cleaned the hydropnematic tank • June 2017 - cartridge filter installed • June 2017 - service lines were replaced at 3824 and 3828 Westbury Lake Dr. • June 2017 - distribution system flushed • July 2017 - service lines replaced at 3732, 3736, 3740m 3744 Westbury Lake Dr. • September 2017 - distribution system flushed	• Continue water main flushing efforts • Install greensand filtration in 2019

Comments:

Sequestering the Mn levels at this well has proven unsuccessful. Therefore, on 11/29/2017 the Public Staff of the North Carolina Utilities Commission recommended approval for the installation of greensand type (i.e. manganese oxide) filtration. Engineering for the filter will start in 2018 and installation of this filter is expected to be complete in 2019.

Mr. W. Allen Hardy
June 27, 2018
Ridgebrook/Westbury 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 - Ridgebrook-Westbury Sample Data															
Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
9/14/2016	9					0.0647				0.0105					
10/2/2017	7.5					<0.0220	<0.0220	<0.0220	<0.0220	0.913	0.905	0.00305	<0.00110		
10/19/2017	4					<0.0220	<0.0220	<0.0220	<0.0220	0.954	0.963	0.0115	0.00269		
11/7/2017	3.5					<0.0220	<0.0220	<0.0220	<0.0220	0.852	0.833	0.0434	0.04		
11/17/2017	8					0.0274	<0.0220	<0.0220	<0.0220	0.786	0.799	0.787	0.734		
12/13/2017	6.5	<0.0220	<0.0220	0.964	0.958	<0.0220	<0.0220	<0.0220	<0.0220	1.07	1.06	1.08	1.09		
1/10/2018	13.4	<0.0220	<0.0220	1.2	1.17	0.0462	<0.0220	<0.0220	<0.0220	0.886	0.912	1.12	1.21		
2/7/2018	2.05	<0.0220	<0.0220	1.36	1.33	<0.0220	<0.0220	<0.0220	<0.0220	1.21	1.24	1.18	1.2		
3/6/2018	1.21	<0.0220	<0.0220	1.28	1.25	<0.0220	<0.0220	0.0296	<0.0220	0.085	0.0833	0.0834	0.08		
4/4/2018	2.48	<0.0220	<0.0220	1.2	0.2	0.108	<0.0220	<0.0220	<0.0220	0.909	0.713	0.886	0.796		
5/9/2018	0.82	0.11	<0.0220	1.39	1.55	<0.0220	<0.0220	<0.0220	<0.0220	0.984	0.97	0.996	0.984		

Table 3 - Ridgebrook-Westbury Customer Complaints									
SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes	FSR Comments
There were zero customer complaints in Q2-2018									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
River Oaks Subdivision, Wake County
WSF ID No.: Well #3, P02
Water System No: NC0392096

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at River Oaks Well #3, P02. The River Oaks water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 47 and the system is approved to serve 47 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
River Oaks Subdivision Quarterly Update

UPDATED QUARTERLY REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
River Oaks, Well #3 (P02) Approved GPM (50) Avg. Quarterly Runtime (1.13 hrs. per day)	• September 2015 – Started using SeaQuest • May – June 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • February 2018- Hydropneumatic tank cleaned	• Complete executive summary for greensand filtration • Continue water main flushing efforts • Scheduled to be flushed by end of 3rd quarter 2018

Comments:

Well #3 will operate in the lag mode and will only be used during heavy peak demand. Aqua will be submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

RIVER OAKS-0392096													
Date	Avg. Sample Week Run Time	P02R-Well-3 Raw-Fe Lab	P02R-Well-3 Raw-Fe-Diss	P02-Well-3-Fe Lab	P02-Well-3-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P02R-Well-3 Raw-Mn Lab	P02R-Well-3 Raw-Mn-Diss	P02-Well-3-Mn Lab	P02-Well-3-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/3/2017	2.1			0.676	0.663	0.664	< 0.022			0.144	0.15	0.183	0.132
10/23/2017	1.05			0.922	0.86	0.197	< 0.022			0.137	0.133	0.196	0.199
11/8/2017	0.6			1.02	0.925	0.432	< 0.022			0.0994	0.0941	0.0252	0.015
12/8/2017	0			3.1	3.04	2.06	2			0.173	0.172	0.157	0.154
12/15/2017	0	2.48	1.85	2.62	1.92	< 0.022	< 0.022	0.158	0.174	0.167	0.169	0.0247	< 0.0011
1/16/2018	0	4.91	1.03	4.96	0.757	4.13	1.11	0.216	0.219	0.213	0.212	0.187	0.211
2/13/2018	0	2.21	1.89	2.08	1.95	< 0.022	< 0.022	0.173	0.172	0.168	0.174	0.00128	0.00188
3/9/2018	0	12	1.92	4.37	1.43	0.0983	< 0.022	0.247	0.225	0.183	0.176	0.186	0.00794
4/13/2018	0	2.16	<0.0220	2.35	<0.0220	0.0296	< 0.022	0.134	0.134	0.133	0.128	0.0226	0.0113
5/1/2018	0	2.71	1.46	2.81	1.34	2.32	1.54	0.178	0.169	0.178	0.164	0.171	0.174

Table 3 -River Oaks Customer Complaints

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes	FSR Notes
There were zero customer complaints for Q2 - 2018										

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Saddle Run, Wake County
WSF ID No. P05
Water System No: NC0392080

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated August 3, 2017, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Stanstead Well #2 P05. The Saddle Run water system is comprised of five active wells and four points of entry (POE). The current number of customers served is 229 and the system is approved to serve 230 connections. The table below outlines the run time and the latest iron and manganese concentrations collected as part of the ongoing Inorganic Chemical Analyses (IOC) samples collected at Well #2, P05.

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

- Table 1 provides a summarization of well information, completed activities and planned activities.
- Table 2 (attachment 2) provides a summary of raw, POE and distribution iron and manganese samples.
- Table 3 (attachment 3) provides a summary of customer complaint information.

Mr. W. Allen Hardy
June 27, 2018
Saddle Run Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Stanstead, Well #2 (P05) Approved GPM (90) Avg. Quarterly Runtime (7.87)	• April 2017 - System flushed • November 2017 - Aqua completed repairs of fencing around the sand bed, and clean-up the site • December 2017 - the sand beds were cleaned and a roofing structure was placed over the entire sand bed to minimize leaf litter in the filter bed that was causing blinding issues • Filter storage tankage was completed and is currently in service	• Continue water main flushing efforts

Comments:

With the addition of the sludge storage tanks and the roof over the sand filter, this system has been producing consistently clear water. We are not experiencing the short wash cycles that we were previously experiencing.

Based on the current upgrades to this well system along with the recent sample results, Aqua respectively requests that this well be removed from the quarterly reporting.

Mr. W. Allen Hardy
June 27, 2018
Saddle Run 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 -Saddle Run Well (Stanstead Well #2 (POS) Sample Data															
Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
9/14/2016 (IOC)						0.064				0.0105					
7/21/2017 (Special)		7.7		2.12											
12/19/2017 (Special)	5.1	10.4		2.25											
3/28/2018	4.4	11.5	0.684	2.13	2.68	0.337	0.0707	0.0404	0.0576	0.0163	0.005	0.0138	0.0138		
4/6/2018	5.45	14	0.565	4.92	0.103	0.189	<0.0220	1.27	0.0239	0.0108	<0.00110	0.395	0.00197		
5/8/2018	11.58	6.86	4.15	1.44	1.43	0.0363	<0.0220	0.072	<0.0220	0.00244	<0.00110	0.00686	<0.00110		

Table 3 -Saddleridge Customer Complaints

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10614165	LABD-S	CUST REPORTED BROWN WATER	6/8/2018	6/8/2018	586610	5301 MILLSTONE CREEK DR	HOLLY SPRINGS, NC 27540	SUNSET FOREST	fe-0--mn-0.001--cl2-.48--ph 7.0--po4 .11wtr was clear on the outside.talked to cust -chkd auto bo it was oper corradvised cust to call back if happen again
10618848	LABD-S	EMAIL FROM JERRY REPORTING BROWN WATER	6/12/2018	6/12/2018	582177	4813 OAKWEALTH DR	FUQUAY VARINA, NC 27526-6863	SUNSET LAKE	wtr was discolored. flushed outside until it cleared up FSR:mahaffd, EVT:Lab
10616767	LABD-S	CUST REPORTED DISCOLORED WATER PLS CHECK AND SPEAK WITH CUSTOMER	6/11/2018	6/12/2018	585735	5200 RATHKEALE CT	FUQUAY VARINA, NC 27526-6879	SUNSET FOREST	work order was completed by on call staffsystem needs to be flushed contracted j. jackson about flushing systemFSR:mahaffd, EVT:Lab

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Saddleridge Subdivision, Wake County
WSF ID No.: Well #20, P20
Water System No: NC4392103

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Saddleridge Well #20, P20. The Saddleridge water system is comprised of six active wells and five points of entry (POE). The current number of customers served is 169 and the system is approved to serve 194 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Saddleridge Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Saddleridge Well #20 (P20) Approved GPM (5) Avg. Quarterly Runtime (5.28 hrs. per day)	• February 2016 – Started using SeaQuest • December 2016 – Cartridge filter installed • June 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data	• Hydro tank at well #1 scheduled to be cleaned Q3 2018 • System is scheduled to be flushed Q3-2018 • Continue flushing efforts

Comments:

The use of SeaQuest as well as the installation of a cartridge filter has shown the POE results to be consistently under the SMCL.

Based on the data supplied and steps Aqua has taken; we respectfully request that this system be removed from the required quarterly updates.

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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 -Saddleridge Well Sample Data

Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
4/14/2015	8.14					4.5				0.032					
11/11/2016	5.5													38	25
3/6/2017	3.1													0.5	1.5
4/26/2017	4.7														
9/14/2017	5.83					0.722	0.022	<0.022	<0.022	0.00232	0.00122	<0.011			
9/25/2017	11.27					0.022	0.22	0.0514	<0.022	0.0014	0.00131	0.0155			
10/3/2017	13.68					0.022	0.22	<0.022	<0.022	<0.011	<0.0110	0.00256			
10/23/2017	11.07					0.429	0.0662	0.0624	0.045	0.0361	0.0245	<0.00110			
11/7/2017	4.24					0.022	0.22	<0.022	<0.022	0.00653	0.00817	0.00656			
11/16/2017	3.07					0.022	0.22	0.0244	<0.022	0.0067	0.00601	0.00808			
12/20/2017	3.12	0.0531	0.0374	0.0282	0.028	0.0544	0.036	0.0454	0.0371	0.0289	0.0238	0.0265	0.0243		
1/8/2018	2.46	0.132	0.0931	0.0102	0.00754	0.0334	<0.022	0.0275	<0.022	0.00763	0.00735	0.00706	0.00745		
2/5/2018	3.8	0.0428	0.0255	0.00505	0.00498	0.0257	<0.022	0.632	0.0256	0.00614	0.0046	0.0049	0.0127		
3/2/2018	2.87	0.109	<0.022	0.00527	0.00669	0.0352	<0.022	0.0369	<0.022	0.00599	0.00596	0.00628	0.00471		
4/6/2018	2.77	0.0523	0.0275	0.0072	0.00681	0.0324	0.00667	0.0408	0.00726	0.00765	0.00667	0.0075	0.00726		
5/4/2018	5.07	0.0766	0.0195	0.00417	0.00418	0.0156	0.00345	0.0232	0.00769	0.00348	0.00345	0.00331	0.00155		

Table 3 -Saddleridge Customer Complaints

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10588428	LABD-S	KAREN REWPORTS DARK BROWN WATER	5/24/2018	5/24/2018	593013	6107 CRUPPER CT	RALEIGH, NC 27613-7130	SADDLERIDGE	Cl2 .55,pH 6. 6, P04 .52, Fe.11,MN .03 FSR:ratliffa, EVT:Lab

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Southwood-Surry Ridge Subdivision, Wake County
WSF ID No.: Well #1 (Southwood) P01 and Well #3 (Cary Oaks) P03
Water System No: NC0392338

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Well #1 (Southwood) P01 and Well #3 (Cary Oaks) P03. The Southwood-Surry Ridge water system is comprised of these two active wells and two points of entry (POE); a new Surry Point Well #3 was just re-drilled to serve this system. The current number of customers served is 121 and the system is approved to serve 154 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Southwood-Surry Ridge Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 - Completed Activities, Customer Complaints, and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Southwood Well #1 (P01) Approved GPM (27) Average Quarterly Runtime (0 hrs. per day)	• August 2013 – Started using SeaQuest • September 2015- Installed cartridge filter on Southwood well #1 • June 2016 – Flushed system • June 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Fixed pressure switch • December 2017 – Hydropnuematic tank cleaned • December 2017 – Flushed system	• Continue water main flushing efforts

Comments:

With the addition of the Greensand filter at Surry Point well #1, Aqua is limiting the production from this well. Aqua will be submitting the executive summary for greensand filtration at well #1 in 2018 as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Southwood-Surry Ridge Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 - Completed Activities, Customer Complaints, and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Cary Oaks Well #3 (P03) Approved GPM (40) Average Quarterly Runtime (0.028) hrs. per day	• August 2013 – Started using SeaQuest • June 2016 – Flushed system • June 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • December 2017 – Cleaned hydropnuematic tank	• Continue water main flushing efforts

Comments:

With the addition of the Greensand filter at Surry Point well #1, Aqua is limiting the production from this well. Aqua will be submitting the executive summary for greensand filtration at well #3 in 2018 as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Southwood-Surry Ridge 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 -Southwood-Surry Ridge Well Sample Data Southwood Well #1

Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
4/1/2014	16.2					1.1				0.5					
9/1/2016	18													1.1	
3/22/2017	14													4.8	1.8
4/20/2017	15.5													6.7	0.71
8/9/2017	16.7													27	0.5
9/14/2017	16.88					0.553	0.114	1.12	0.0592	0.606	0.554	0.293	0.0903		
10/19/2017	22					0.0429	0.0842	<0.0220	<0.0220	0.561	0.548	0.0764	0.0689		
11/6/2017	21					0.677	0.11	0.671	0.094	0.588	0.542	0.587	0.548		
11/17/2017	24					0.933	0.276	0.92	0.421	0.653	0.642	0.64	0.621		
12/12/2017	0.61	1.99	0.0312	0.223	0.127	0.507	0.0393	2.39	0.039	0.0701	0.0261	0.283	0.0192		
1/8/2018	0.41	0.213	<0.0220	0.316	0.455	0.0391	<0.0220	0.223	0.0861	0.00667	0.00263	0.0853	0.0929		
2/8/2018	0.682	0.899	<0.0220	0.258	0.299	0.477	<0.0220	0.159	<0.0220	0.266	0.282	0.464	0.0486		
3/5/2018	0.02	0.449	<0.0220	0.753	0.979	0.107	<0.0220	0.0775	<0.0220	0.0164	0.0148	0.0225	0.0187		
4/2/2018	0.02	0.575	<0.0220	0.44	0.784	0.356	<0.0220	0.0704	<0.0220	1.06	0.345	0.0261	0.0219		
5/8/2018	0	3	<0.0220	0.644	0.537										

Table 2 -Southwood-Surry Ridge Well Sample Data Cary Oaks Well # 3

Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
4/1/2014	2.5					1.39				0.1					
11/3/2016	8.5													13	
3/23/2017	0.27													4.1	2.2
4/20/2017	0.5													0.92	0.69
8/9/2017	3.2													1.1	0.85
9/14/2017	0.63					0.325	0.0713	0.0788	<0.0220	0.148	0.128	0.0601	0.0523		
10/19/2017	8.3					0.382	0.164	0.0478	0.0492	0.182	0.168	0.0834	0.0895		
11/6/2017	0					0.33	0.166	0.336	0.153	0.18	0.172	0.184	0.166		
11/17/2017	14					0.337	0.168	0.342	0.162	0.212	0.192	0.214	0.195		
12/20/2018	1.02	0.688	<0.0220	0.0413	0.0245	0.324	0.0811	0.313	0.069	0.124	0.062	0.1	0.0652		
1/8/2018	0.98	0.337	<0.0220	0.332	0.392	0.0403	<0.0220	0.145	0.107	0.00647	0.00236	0.0485	0.0741		
2/5/2018	0.52	0.271	<0.0220	0.324	0.333	0.627	<0.0220	0.117	<0.0220	0.277	0.255	0.129	0.0296		
3/5/2018	0.692	0.449	<0.0220	0.753	0.979	0.107	<0.0220	0.0775	<0.0220	0.0164	0.0148	0.0225	0.0187		

Table 3 -Southwood-Surry Ridge Customer Complaints

SO	SO	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10592821	LABD-S	DISCOLORED WATER PLS CHECK	5/29/2018	5/29/2018	579571	4400 SURRY RIDGE CIR	APEX, NC 27539-8906	SOUTHWOOD	BF.F Fe 3.30 Mn .800 Po4 1.2 Ph 7.3 Cl2 1.5A.F. Fe .62 Mn 1.92 Ph 7.3 Cl2 1.5 po4 1.1Flushed from outside line abut 20 minutes water did not clear . open bl.o.

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Trapper's Creek Subdivision, Durham County
WSF ID No.: Well #2, P02
Water System No: NC0332132

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Trapper's Creek Well #2, P02. The Trapper's Creek water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 63 and the system is approved to serve 84 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Trapper's Creek Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 3 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Trappers Creek, Well #2 (P03) Approved GPM (75) Avg. Quarterly Runtime (2.75 hrs. per day)	• February 2016 – Started using SeaQuest • May 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • Installed a new well pump at well #2 • March 2018 – Cleaned hydropnuematic tank • March 2018 – Flushed system	• Continue water main flushing efforts • Continue investigation efforts

Comments:

The NOD was originally issued due to high concentrations of Fe and Mn. The field investigations confirm the high concentrations of Fe and Mn. The elevated Fe levels are insoluble; however, the Mn levels show to be fully soluble. Seaquest feed rates do seem inadequate and will be re-adjusted. Aqua will continue to monitor the sample results. In the meantime, Aqua will be submitting the executive summary for greensand filtration at well #2 in 2018 as part of the Aqua water quality plan.

Mr. W. Allen Hardy
June 27, 2018
Trapper's 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,

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

TRAPPERS CREEK-0332132													
Date	Avg. Sample Week Run Time	P02R-Well-2 Raw-Fe Lab	P02R-Well-2 Raw-Fe-Diss	P02-Well-2-Fe Lab	P02-Well-2-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P02R-Well-2 Raw-Mn Lab	P02R-Well-2 Raw-Mn-Diss	P02-Well-2-Mn Lab	P02-Well-2-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/13/2017	1			0.388	0.11	0.389	0.104			0.291	0.299	0.303	0.301
10/19/2017				0.378	0.0575	0.358	0.058			0.316	0.325	0.31	0.328
11/3/2017	1			0.431	< 0.022	0.362	0.0724			0.287	0.302	0.303	0.303
11/17/2017	9			0.815	0.0626	1.1	< 0.022			0.332	0.295	0.333	0.315
12/19/2017	7.1	0.302	< 0.022	0.316	< 0.022	0.3	< 0.022	0.318	0.328	0.34	0.343	0.334	0.335
1/26/2018	6.82	0.371	< 0.022	0.341	< 0.022	0.362	< 0.022	0.324	0.325	0.331	0.324	0.332	0.327
3/7/2018	1.73	0.751	< 0.022	0.35	< 0.022	0.33	< 0.022	0.306	0.31	0.292	0.279	0.289	0.289
4/11/2018	0.43	0.605	< 0.022	0.709	< 0.022	0.689	< 0.022	0.333	0.324	0.337	0.33	0.333	0.328
5/5/2018	7.1	0.534	<0.0220	0.365	<0.0220	0.389	<0.0220	0.315	0.291	0.308	0.293	0.317	0.287

Table 3 -Trappers Creek Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There have been zero customer complaints in the Q2 - 2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Tyndrum Subdivision, Durham County
WSF ID No.: Well #1, P01
Water System No: NC0332138

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Tyndrum Well #1, P01. The Tyndrum water system is comprised of two active wells and two points of entry (POE). The current number of customers served is 37 and the system is approved to serve 49 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Tyndrum Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Tyndrum, Well #1 (P01)	• February 2016 – Started using SeaQuest • May 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – Added raw sample data • Cleaned the hydro tank • Installed HARMSCO cartridge filter	• Continue investigation efforts • Continue water main flushing efforts
Approved GPM (17)		
Avg. Quarterly Runtime (1.21 hrs. per day)		

Comments:

The NOD was originally issued due to high concentrations of Fe and Mn. The hydropneumatic tank was cleaned in Q2 of 2018 along with an installation of a cartridge filter. These efforts have reduced the Fe levels but we are still seeing issues with Mn concentrations. The site investigation revealed that the seaquest feed rate was inadequate. Adjustments are being made and we will continue to monitor sample results for effectiveness.

Mr. W. Allen Hardy
June 27, 2018
Tyndrum 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

TYNDRUM-0332138													
Date	Avg. Sample Week Run Time	P01R-Well-1 Raw-Fe Lab	P01R-Well-1 Raw-Fe-Diss	P01-Well-1-Fe Lab	P01-Well-1-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	P01R-Well-1 Raw-Mn Lab	P01R-Well-1 Raw-Mn-Diss	P01-Well-1-Mn Lab	P01-Well-1-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
10/6/2017				1.24	< 0.022	< 0.022	< 0.022			0.0791	0.0273	0.0066	0.00345
10/19/2017	0			0.0923	0.0248	0.0899	0.0271			0.022	0.014	0.0214	0.0137
11/3/2017	0			0.868	0.0741	0.476	< 0.022			0.0644	0.0225	0.197	0.128
11/20/2017	0			0.695	0.251	0.0554	0.0482			0.0573	0.0282	0.0125	0.00595
12/22/2017	0	1.65	< 0.022	1.55	0.137	0.0571	< 0.022	0.382	0.386	0.347	0.269	0.0584	0.029
1/26/2018	0	1.02	< 0.022	0.52	0.0364	0.153	0.104	0.124	0.121	0.0853	0.0402	0.0306	0.0159
2/20/2018	0	0.48	0.269	0.773	< 0.022	0.162	< 0.022	0.0809	0.0792	0.0897	0.0449	0.137	0.101
3/27/2018	0.25	0.0643	< 0.022	0.0751	< 0.022	0.549	< 0.022	0.101	0.101	0.102	0.0945	0.119	0.00353
4/27/2018	0	0.25	<0.0220	0.423	<0.0220	0.126	0.0672	0.087	0.0812	0.104	0.0337	0.0172	0.0102
5/24/2018	0.75	3.39	<0.0220	3.74	<0.0220	0.66	<0.0220	0.514	0.6	0.806	0.375	0.775	0.213

Table 3 -Tyndrum Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
There have been zero complaints in the Q2 - 2018.									

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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
Upchurch Place Subdivision, Wake County
WSF ID No.: Wells #1 and Well #4, P01
Water System No: NC4092038

Dear Mr. Hardy:

Aqua North Carolina, Inc. (Aqua) received the above-referenced letter dated July 12, 2016, regarding elevated concentrations of Iron (Fe) and Manganese (Mn) at Upchurch Place Wells #1 and Well #4, P01. The Upchurch Place water system is comprised of two active wells and one point of entry (POE). The current number of customers served is 62 and the system is approved to serve 64 connections.

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

- Table 1 provides a summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Upchurch Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities, and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Upchurch Place Well #1 and Well #4 (P01) Approved GPM Well #1 – 62 gpm Well #4 – 27 gpm Avg. Quarterly Runtime Well #1 – 2.25 hrs per day Well #4 – 0.17 hrs per day	• March 2014 – Started using SeaQuest • November 2015 – Cleaned hydro tank • February 2017 – Flushed system • July 2017 – Flushed system • September 2017 – Flushed system • November 2017 – Installed cartridge filters at both wells • December 2017- Aqua added raw sample data to the report • April 2018 – Flushed system	• Continue to work with the Public Staff in an effort to receive approval of a greensand filtration system. • Continue water main flushing efforts

Comments:

Well #1, which has the lesser levels of iron and manganese concentrations, is currently supplying all the water to the system at this time. Aqua limits the run time at well #4 to limit the amount of mineral concentrations entering the distribution system. Two smart pumps have been installed to better regulate sequestration dosing, however, laboratory results show that SeaQuest still does not adequately solve the problems of iron and manganese in this system. The sum of total iron and total manganese is consistently greater than one. Although public staff originally denied the installation of greensand filtration, Aqua has requested that the Public Staff of the North Carolina Utilities Commission re-evaluate their decision. Aqua is currently awaiting the final decision and will update NCDEQ as soon as we are notified.

Mr. W. Allen Hardy
June 27, 2018
Upchurch 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: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

UPCHURCH PLACE-4092038																	
Date	Avg. Sample Week Run Time	TM1R-Well-1 Raw-Fe Lab	TM1R-Well-4 Raw-Fe Lab	TM1R-Well-1 Raw-Fe-Diss	TM1R-Well-4 Raw-Fe-Diss	TM1-Well-1&4-Fe Lab	TM1-Well-1&4-Fe-Diss	D01-Distribution System-Fe Lab	D01-Distribution System-Fe-Diss	TM1R-Well-1 Raw-Mn Lab	TM1R-Well-1 Raw-Mn-Diss	TM1R-Well-4 Raw-Mn Lab	TM1R-Well-4 Raw-Mn-Diss	TM1-Well-1&4-Mn Lab	TM1-Well-1&4-Mn-Diss	D01-Distribution System-Mn Lab	D01-Distribution System-Mn-Diss
3/13/2013	1.04 / 0					1								0.177			
1/8/2016	1.53 / 0					0.452								0.123			
10/2/2017	2.73 / 0					1.09	0.379	0.328	0.108					0.193	0.199	0.0713	0.0373
10/17/2017	2.53 / 0					1.08	0.547	0.409	0.151					0.213	0.208	0.0815	0.0457
11/7/2017	2.3 / 0					1.09	0.742	0.496	0.183					0.217	0.216	0.0739	0.0362
11/28/2017	2.24 / 0					1.23	< 0.022	0.281	0.0878					0.208	0.131	0.0602	0.0351
12/12/2017	2.43 / 0	0.275	0.92	0.171	0.493	0.911	0.191	0.365	< 0.022	0.139	0.142	0.199	0.197	0.196	0.139	0.12	0.0142
1/31/2018	1.08 / 0	0.809	1.28	0.383	1.11	0.861	0.0633	0.135	0.0961	0.158	0.173	0.22	0.202	0.177	0.14	0.0514	0.0468
2/20/2018	2.19 / 0	0.616	1.43	0.521	1.37	0.624	0.0344	0.237	< 0.022	0.186	0.189	0.224	0.228	0.176	0.133	0.076	0.0213
3/20/2018	2.38 / 0	0.434	1.11	0.222	0.218	0.386	0.0425	1.04	0.0433	0.132	0.133	0.234	0.221	0.15	0.111	0.845	0.0296
5/16/2018	3.53 / 0.03	0.679	1.13	0.439	0.957	0.381	< 0.022	0.126	0.0786	0.185	0.183	0.199	0.196	0.143	0.119	0.0242	0.0164

Table 3 - Upchurch Well Sample Data

SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
10563693	LABT-S	LOUIS SAID WATER STILL HAVE ROTTEN EGG SMELL AND STRONG SULPHUR	5/11/2018	5/11/2018	1194302	1409 UPCHURCH WOODS DR	RALEIGH, NC 27603	UPCHURCH PLACE	No answer at door/ LM/cl2 1.2/seaquest 1.2/ph 7.6/fe 1.4/mn.4 thats after Flushing/1st draw fe .3/mn .3//opened b/o/house is at cul de sac/left door Hanger and fe/mn handout/told to flush lines after i flush b/o
10612233	LABD-S	PUC CASE*** CUST STATES WATER BROWN, BLACK AND MUDDY. CUST ALSOADV THAT THE WATER HAS AN ODOR AND HAS BEEN GOING ON IN SUBDIVISIONFOR SOME TIME. PLEASE INVESTIGATE	6/7/2018	6/7/2018	543224	1412 UPCHURCH WOODS DR	RALEIGH, NC 27603	UPCHURCH PLACE	Talked to neighbors swimming in this customers pool//close friends//they Will tell i left the door tag// flushing b/o//i have been to this cul de Sac often//1st draw fe .05//mn.03/after 2 min of flush to high to read
10571598	LABT-S	ROTTEN EGG SMELL. THIS IS THE 3RD WO PLEASE FLUSH TOUGHLY	5/15/2018	5/15/2018	1194302	1409 UPCHURCH WOODS DR	RALEIGH, NC 27603	UPCHURCH PLACE	Told customer i will remove his meter wednesday and install a flushing Valve to run all day//cl2 1.1//ph 7.5//seaquest 1.2//fe .1//mn .1//i ran The b/o beside his house/tested his house friday
10550602	LABT-S	LOUIS REPORTING STRONG SULPHUR AND ROTTEN EGG SMELLSAFETY CONCERNS	5/3/2018	5/3/2018	1194302	1409 UPCHURCH WOODS DR	RALEIGH, NC 27603	UPCHURCH PLACE	.32 residual will talk to operator about bumping Cl2 up FSR:StevenAN, EVT:Lab

AQUA SM

June 27, 2018

Mr. W. Allen Hardy
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. Hardy:

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 160 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 summarization 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.

Mr. W. Allen Hardy
June 27, 2018
Wakefield Plantation Subdivision Quarterly Update

UPDATED QUARTERLY STATUS REPORT

Table 1 – Well Information, Completed Activities and Planned Activities

Well Name and No.	Completed Activities	Planned Activities
Wakefield Well #6, (P06) Approved GPM (88) Avg. Quarterly Runtime (5.86) Avg. per qtr.)	• March 2013 – Cleaned hydro tank • October 2014 – Started using SeaQuest • March 2016 – Received approval for greensand filtration • March 2017 – Flushed system • September 2017 – Started distribution and POE total and soluble sampling • December 2017 – added raw sample data	• Continue water main flushing efforts • Continue sampling efforts • Complete executive summaries • System scheduled to be flushed Q3-2018

Comments:

The original plan to improve the water quality on both well #6 and well #8 was to interconnect these two wells and install greensand filtration at well #6 to filter both wells at one location. This project was dependent on Aqua acquiring an easement from an outside party. Aqua has not been able to secure this easement so the next step is to install greensand filtration at both well #6 and well #8. Executive summaries for approval of greensand filtration will be completed in 2018. Aqua will continue ongoing sampling to get a more consistent set of data.

Mr. W. Allen Hardy
June 27, 2018
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,

Robert Krueger
Area Manager
Aqua North Carolina, Inc.

cc: David Furr
State of North Carolina
Department of Commerce
Utilities-Public Staff

Table 2 -Wakefield Well #6 Sample Data															
Date	Avg. Sample Week Run Time	Fe Raw Total	Fe Raw Sol	Mn Raw Total	Mn Raw Sol	Total Fe POE	Sol. Fe POE	Total Fe Dist.	Sol Fe Dist.	Total Mn POE	Sol Mn POE	Total Mn Dist	Sol Mn Dist.	Raw NTU	POE NTU
4/25/2016	6.8					1.53				0.23					
12/21/2016	3.9					1.72				0.27					
4/27/2017	5.7													2.1	
8/10/2017	3.39													4.8	0.75
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	0.197	0.275	1.87	0.65	1.65	0.0486	0.263	0.229	0.198	0.161		
2/1/2018	3.27	1.72	0.5	0.239	0.247	1.19	0.0825	1.2	0.0536	0.184	0.134	0.151	0.0669		

Table 3 -Wakefield Customer Complaints									
SO	SO Type	CSR Notes	Date of SO	Completion Date	Premise	Address	City State Zip	Subdivision	FSR Notes
No water quality complaints for Q2-2018									