

# OFFICIAL COPY

## INFORMATION SHEET

PRESIDING: Commissioner Brown-Bland, Presiding; and Chairman Finley,  
Commissioners Dockham, Patterson, Gray, Clodfelter, and Mitchell

PLACE: Dobbs Building, Room 2115, Raleigh, NC

DATE: Friday, September 21, 2018

TIME: 9:00 a.m - 11:32 a.m.

DOCKET NO.: W-218, Sub 497

COMPANY: Aqua North Carolina, Inc.

DESCRIPTION: Application for Authority to Adjust and Increase Rates for  
Water and Sewer Utility Service in All Service Areas  
in North Carolina

VOLUME: 13

### APPEARANCES

Please see attached.

### WITNESSES

Please see attached.

### EXHIBITS

Please see attached.

---

### EMAIL DISTRIBUTION

PUBLIC COPY: Jost

CONFIDENTIAL COPY: -0-

REPORTED BY: Linda S. Garrett

DATE FILED: September 26, 2018

TRANSCRIPT PAGES: 119

PREFILED PAGES: -31

TOTAL PAGES: 150

**FILED**

**SEP 26 2018**

Clerk's Office  
N.C. Utilities Commission

1 A P P E A R A N C E S:

2 FOR AQUA NORTH CAROLINA, INC.:

3 Jo Anne Sanford, Esq.

4 Sanford Law Office, PLLC

5 Post Office Box 28085

6 Raleigh, North Carolina 27611-8085

7

8 Robert H. Bennink, Jr., Esq.

9 Bennink Law Office

10 130 Murphy Drive

11 Cary, North Carolina 27513

12

13 Dwight W. Allen, Esq.

14 Britton Allen, Esq.

15 Brady Allen, Esq.

16 Allen Law Offices, PLLC

17 1514 Glenwood Avenue, Suite 200

18 Raleigh, North Carolina 27612

19

20

21

22

23

24

1    A P P E A R A N C E S    Cont'd.:  
2    FOR THE USING AND CONSUMING PUBLIC:  
3    Teresa L. Townsend, Esq.  
4    Special Deputy Attorney General  
5    Margaret Force, Esq.  
6    Assistant Attorney General  
7    North Carolina Department of Justice  
8    Post Office Box 629  
9    Raleigh, North Carolina 27602  
10  
11   Elizabeth D. Culpepper, Esq.  
12   William E. Grantmyre, Esq.  
13   Megan Jost, Esq.  
14   Public Staff - North Carolina Utilities Commission  
15   4326 Mail Service Center  
16   Raleigh, North Carolina 27699-4300  
17  
18  
19  
20  
21  
22  
23  
24

1	T A B L E O F C O N T E N T S	
2	E X A M I N A T I O N S	
3	WITNESS	PAGE
4	BERNARD F. THOMPSON (Rebuttal)	
5	Direct Examination by Mr. Bennink.....	6
6	Cross Examination by Mr. Grantmyre.....	28
7	Redirect Examination by Mr. Bennink.....	61
8	Examination by Commissioner Brown-Bland.....	84
9	Examination by Mr. Grantmyre.....	87
10		
11	DEAN R. GEARHART (Rebuttal)	
12	Direct Examination by Mr. Dwight Allen.....	92
13	Cross Examination by Ms. Culpepper.....	104
14	Redirect Examination by Mr. Dwight Allen.....	110
15		
16	JOSEPH PEARCE (Rebuttal)	
17	Direct Examination by Mr. Dwight Allen.....	117
18	Cross Examination by Ms. Jost.....	127
19	Redirect Examination by Mr. Dwight Allen.....	142
20	Examination by Chairman Finley.....	147
21		
22		
23		
24		

1	E X H I B I T S	
2		IDENTIFIED/ADMITTED
3	Thompson Exhibits 1-4.....	7/91
4	Public Staff Thompson Rebuttal	
5	Cross Exhibit 1.....	32/91
6	Public Staff Thompson Rebuttal	
7	Cross Exhibit 2.....	43/91
8	Public Staff Thompson Rebuttal	
9	Cross Exhibit 3.....	48/91
10	Public Staff Thompson Rebuttal	
11	Cross Exhibit 4.....	51/91
12	Public Staff Thompson Rebuttal	
13	Cross Exhibit 5.....	54/91
14	Aqua Thompson Rebuttal Redirect Exhibit 1.....	66/91
15	Aqua Thompson Rebuttal Redirect Exhibit 2.....	67/91
16	Public Staff Gearhart Rebuttal	
17	Cross Exhibit 1.....	106/116
18	Public Staff Pearce Rebuttal	
19	Cross Exhibit 1.....	140/149
20	Aqua Pearce Redirect Exhibit 1.....	144/149
21		
22		
23		
24		

NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 9-18-18  
DOCKET #: W 218 Sub 497  
NAME OF ATTORNEY Sanford (Op Anne)  
TITLE \_\_\_\_\_  
FIRM NAME Sanford Law Office, PLLC  
ADDRESS PO Box 28085  
CITY Raleigh NC 2  
ZIP 27611

APPEARING FOR: Agua

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

PLEASE NOTE: Electronic Copies of the regular transcript can be obtained from the NCUC website at [HTTP://NCUC.commerce.state.nc.us/docksrch.html](http://NCUC.commerce.state.nc.us/docksrch.html) under the respective docket number.

\*There will be a charge of \$5.00 for each emailed copy of transcript.\*

Please check for an electronic copy of the transcript.

\_\_\_\_ # of Copies

Email: Sanford@sanfordlawoffice.com  
(Required for distribution)

Please check for the confidential portion of the transcript, only if a confidentiality agreement has been signed.

\_\_\_\_ # of Copies

Signature: \_\_\_\_\_  
(Required for distribution)

NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 9/11/18  
DOCKET #: 1W-218 SUB 479  
NAME OF ATTORNEY ROBERT H. BENNINK, JR.  
TITLE ATTORNEY  
FIRM NAME BENNINK LAW OFFICE  
ADDRESS 130 MURPHY DRIVE  
CITY CARY, NC  
ZIP 27513

APPEARING FOR: AQUA NORTH CAROLINA, INC.

APPLICANT  COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

PLEASE NOTE: Electronic Copies of the regular transcript can be obtained from the NCUC website at [HTTP://NCUC.commerce.state.nc.us/docksr ch.html](http://NCUC.commerce.state.nc.us/docksr ch.html) under the respective docket number.

\*There will be a charge of \$5.00 for each emailed copy of transcript.\*

Please check for an electronic copy of the transcript.  
\_\_\_\_ # of Copies

Email: \_\_\_\_\_  
(Required for distribution)

Please check for the confidential portion of the transcript, only if a confidentiality agreement has been signed.  
\_\_\_\_ # of Copies

Signature: \_\_\_\_\_  
(Required for distribution)

NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 9-11-2018  
DOCKET #: W218 Sub 497  
NAME OF ATTORNEY Dwight Allen, Brian Allen, Brady Allen  
FIRM NAME Allen Law Offices, PLLC  
ADDRESS 1514 Glenwood Ave, Suite 200  
CITY Raleigh, NC  
ZIP 27612

APPEARING FOR:

APPLICANT \_\_\_\_\_  
COMPLAINANT \_\_\_\_\_  
RESPONDENT \_\_\_\_\_  
DEFENDANT \_\_\_\_\_  
INTERVENOR R \_\_\_\_\_

PLEASE NOTE: Electronic copies of the regular transcript can be obtained from the NCU website at [HTTP://NCUC.commerce.state.nc.us/docksr.ch.html](http://ncuc.commerce.state.nc.us/docksr.ch.html) under the respective docket number.

\*There will be a charge of \$5.00 for each emailed copy of transcript.\*

Please check for an electronic copy of the transcript.  
\_\_\_\_\_ # of Copies

Email:

\_\_\_\_\_  
(Required for distribution)

Please check for the confidential portion of the transcript, only if a confidentiality agreement has been signed.  
\_\_\_\_\_ # of Copies

Signature:

\_\_\_\_\_  
(Required for distribution)

NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 9/11/18  
DOCKET #: W-218, Sub 497  
NAME OF ATTORNEY Teresa Townsend and Margaret Force  
TITLE Special Deputy Attorney General + Assistant Attorney General  
FIRM NAME NC Dept. of Justice  
ADDRESS P O Box 629  
CITY Raleigh  
ZIP 27602

APPEARING FOR: the Using and Consuming public

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR   
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

PLEASE NOTE: Electronic Copies of the regular transcript can be obtained from the NCUC website at HTTP://NCUC.commerce.state.nc.us/docksr ch.html under the respective docket number.

\*There will be a charge of \$5.00 for each emailed copy of transcript.\*

Please check for an electronic copy of the transcript.

1 # of Copies (each)

Email: ttownsend@ncdoj.gov ; pforce@ncdoj.gov  
(Required for distribution)

Please check for the confidential portion of the transcript, only if a confidentiality agreement has been signed.

1 # of Copies (each)

Signature: Margaret Force  
(Required for distribution)

NORTH CAROLINA UTILITIES COMMISSION  
PUBLIC STAFF - APPEARANCE SLIP

DATE September 11, 2018 DOCKET #: W-218 Sub 497

PUBLIC STAFF MEMBER Elizabeth D. Culpepper, Megan Jost,  
and William E. Grantmyre

ORDER FOR TRANSCRIPT OF TESTIMONY TO BE **EMAILED** TO THE  
PUBLIC STAFF - PLEASE INDICATE YOUR DIVISION AS WELL AS  
YOUR EMAIL ADDRESS BELOW:

ACCOUNTING \_\_\_\_\_  
WATER \_\_\_\_\_  
COMMUNICATIONS \_\_\_\_\_  
ELECTRIC \_\_\_\_\_  
GAS \_\_\_\_\_  
TRANSPORTATION \_\_\_\_\_  
ECONOMICS \_\_\_\_\_  
LEGAL elizabeth.culpepper@psncuc.nc.gov  
CONSUMER SERVICES \_\_\_\_\_

PLEASE NOTE: Electronic Copies of the regular  
transcript can be obtained from the NCUC web site at  
HTTP://NCUC.commerce.state.nc.us/docksrch.html under  
the respective docket number.

\_\_\_\_\_ Number of copies of Confidential portion of  
regular transcript (assuming a confidentiality  
agreement has been signed). Confidential pages will  
still be received in paper copies.

\*\*\*PLEASE INDICATE BELOW WHO HAS SIGNED A  
CONFIDENTIALITY AGREEMENT. IF YOU DO NOT SIGN, YOU  
WILL NOT RECEIVE THE CONFIDENTIAL PORTIONS!!!!

ELIZABETH D. CULPEPPER, MEGAN JOST, WILLIAM E.  
GRANTMYRE

Elizabeth D. Culpepper Megan Jost William E. Grantmyre  
Signature of Public Staff Member

I/A

Thompson Exhibit 1  
W-218 Sub 497



# SALES QUOTATION

OFFICIAL COPY

Sep 04 2018

Phone (704) 278-2221  
Company Address 10210 Statesville Blvd  
Cleveland, NC 27013

Created Date 3/27/2017  
Quote # 00011768-01

Attn: Bernard Thompson  
Prepared For Aqua North Carolina - Eastern Office - Cary  
Address 202 Mackenan Ct.  
City,State,Zip Cary, NC 27511  
Phone: (610) 520-6382  
Fax: (610) 645-1165  
Account # 94068100

Quote Expires 4/26/2017  
Quote Name Aqua North Carolina - Eastern Office - Cary NC - Composite  
Payment Terms 2% 30 Days, NET 31 Days  
ARO Stock to 30 Days  
Freight Terms FOB - Cleveland, NC - Full Freight Allowed on Net Order of \$500.00 or more  
Territory 14  
Prepared By Jim Hendricks

### Comments & Considerations

Should you have any questions, please do not hesitate to contact Rossie Manning

### Quote Line Items

Units	Part Number	Line Item Description	Sale Price	Extended Net
12,000	VOGA204	5/8X3/4 420,CB,SG	\$44.64	\$535,680.00
100	VOKS201	1" 452HS,S1,IB,SG	\$113.95	\$11,395.00
1	W0NN201	562DI 1-1/2",NYL,SG,2B	\$272.16	\$272.16
1	W0PN201	572DI,2"NYL,SG,2B	\$345.00	\$345.00

### TOTAL

Tax Applied	Tax Exempt	Quote Total	\$547,692.16
-------------	------------	-------------	--------------

### Force Majeure

Mueller Systems shall not be liable to Customer, End User, or any other person, and Mueller Systems' performance under these terms and conditions shall be excused, if and to the extent that any failure or delay in Mueller Systems' performance of one or more of its obligations hereunder is caused by a Force Majeure Event (as defined below). A Force Majeure Event shall include without limitation acts of God or the public enemy; compliance with any order of any governmental authority; fire; flood; unusually severe weather; shortages or unavailability or other delay in delivery; lack of or delay in transportation; laws, rules, regulations, raw material price increases that exceed twenty percent or restrictions which apply to raw material purchases; war, acts of terrorism, rebellion, insurrection, epidemics; accidents, explosions, civil disorder; strikes, lockouts, or other labor disputes; or any other condition beyond the reasonable control of Mueller Systems.





±1A

Market descriptions for three levels of a Meter Service Technician showing the current market rate for these jobs effective August 1, 2018 based on Payfactors which is one of our primary salary surveys. You will note that this specifically mentions gas meters, but the skill set and market rates would be very similar and we would use this information as the basis for determining our internal rates if we were to create internal jobs for these positions.

Meter Service Technician (Gas) I  
Family: Skilled Trades Level: I FLSA: Typically Non Exempt

Job Summary: Builds meter sets and installs, adjusts, disconnects, or removes gas meters and regulators. Job Duties: Addresses complaints regarding particularly high bills. Assists with maintaining gas distribution equipment. Investigates gas leaks and makes the necessary repairs. May take applications for gas services, meter relocation, and hard line changes. May collect security deposits. Experience and Education: Performs work under direct supervision. Handles basic issues and problems, and refers more complex issues to higher-level staff. Possesses beginning to working knowledge of subject matter. Typically requires accreditation from a technical school or an applicable skilled trades program and 0 to 2 years of experience. Reports to: Typically reports to a department head or manager. Competencies: Technical expertise. Problem-solving skills. Customer service skills. Detail oriented. Manual dexterity.

Base Salary			Total Cash Compensation		
<u>25%</u>	<u>50%</u>	<u>75%</u>	<u>25%</u>	<u>50%</u>	<u>75%</u>
45.3	49.0	64.5	46.2	49.3	66.0

Market Data Shown for All United States | All Industries | All Sizes | Effective Aug. 1, 2018

Meter Service Technician (Gas) II  
Family: Skilled Trades Level: II FLSA: Typically Non Exempt

Job Summary: Builds meter sets and installs, adjusts, disconnects, or removes gas meters and regulators. Job Duties: Addresses complaints regarding particularly high bills. Assists with maintaining gas distribution equipment. Investigates gas leaks and makes the necessary repairs. May take applications for gas services, meter relocation, and hard line changes. May collect security deposits. Experience and Education: Performs work under general supervision. Handles moderately complex issues and problems, and refers more complex issues to higher-level staff. Possesses solid working knowledge of subject matter. May provide leadership, coaching, and/or mentoring to a subordinate group. Typically requires accreditation from a technical school or an applicable skilled trades program and 2 to 4 years of experience. Reports to: Typically reports to a department head or manager. Competencies: Technical expertise. Problem-solving skills. Customer service skills. Detail oriented. Manual dexterity.

Base Salary			Total Cash Compensation		
<u>25%</u>	<u>50%</u>	<u>75%</u>	<u>25%</u>	<u>50%</u>	<u>75%</u>
58.6	66.0	71.6	60.4	66.7	73.6

Market Data Shown for All United States | All Industries | All Sizes | Effective Aug. 1, 2018

Meter Service Technician (Gas) III  
Family: Skilled Trades Level: III FLSA: Typically Non Exempt

**Job Summary:** Builds meter sets and installs, adjusts, disconnects, or removes gas meters and regulators.  
**Job Duties:** Addresses complaints regarding particularly high bills. Assists with maintaining gas distribution equipment. Investigates gas leaks and makes the necessary repairs. May take applications for gas services, meter relocation, and hard line changes. May collect security deposits. Experience and Education: Performs work under minimal supervision. Handles complex issues and problems, and refers only the most complex issues to higher-level staff. Possesses comprehensive knowledge of subject matter. Provides leadership, coaching, and/or mentoring to a subordinate group. May act as a lead or first-level supervisor. Typically requires accreditation from a technical school or an applicable skilled trades program and 4 to 6 years of experience. Reports to: Typically reports to a department head or manager. Competencies: Technical expertise. Problem-solving skills. Customer service skills. Detail oriented. Manual dexterity.

Base Salary			Total Cash Compensation		
<u>25%</u>	<u>50%</u>	<u>75%</u>	<u>25%</u>	<u>50%</u>	<u>75%</u>
67.5	74.5	89.7	69.2	75.1	91.9

Market Data Shown for All United States | All Industries | All Sizes | Effective Aug. 1, 2018



(800)835-5461  
www.Itron.com

Thompson Exhibit 4  
W-218 Sub 497  
Page 1 of 2

I/A

**INVOICE**

OFFICIAL COPY

Sep 04 2018

Invoice #:	458947
Invoice Date:	25-AUG-17
Customer #:	4170
Project Name:	Aqua NC-Mobile AMR/AMI-Install
Itron Project #:	18521
Terms:	Net 30

<b>TO:</b>	Aqua North Carolina, Inc 202 MacKenan Ct. Cary, NC 27511-6447	<b>SHIP TO:</b>	Aqua North Carolina, Inc 202 MacKenan Ct. Cary, NC 27511-6447
------------	---	-----------------	---

Notes : Subdivision: Woodcreek

**TASK : 07\_Meter Change and ERT Install, 1" or smaller Meter**  
**CATEGORY : Labor-Installation**

Name	Date	Type	Description	Qty	Rate	Ext. Amount
	31-AUG-17	Labor-Installation	Woodcreek - 63 Installs @ 44.51000000000	63	44.51	2,804.13

**07\_Meter Change and ERT Install, 1" or smaller Meter Sub Total : 2,804.13**

**TASK : ERT Module Retrofit**  
**CATEGORY : Labor-Installation**

Name	Date	Type	Description	Qty	Rate	Ext. Amount
	31-AUG-17	Labor-Installation	Woodcreek - 6 Installs @ 31.22000000000	6	31.22	187.32

**ERT Module Retrofit Sub Total : 187.32**

**TASK : Remove Existing Pit box and replace with FORD Meter Box**  
**CATEGORY : Labor-Installation**

Name	Date	Type	Description	Qty	Rate	Ext. Amount
	31-AUG-17	Labor-Installation	Woodcreek - 2 Installs @ 36.59000000000	2	36.59	73.18

**Remove Existing Pit box and replace with FORD Meter Box Sub Total : 73.18**

**TASK : Pit Lid or Pit Ring Replacement**  
**CATEGORY : Labor-Installation**

Name	Date	Type	Description	Qty	Rate	Ext. Amount
	31-AUG-17	Labor-Installation	Woodcreek - 2 Installs @ 3.66000000000	2	3.66	7.32

**Pit Lid or Pit Ring Replacement Sub Total : 7.32**

# INVOICE



(800)535-5461  
www.itron.com

Invoice #:	458947
Invoice Date:	25-AUG-17
Customer #:	4170
Project Name:	Aqua NC-Mobile AMR/AMI-Install
Itron Project #:	18521
Terms:	Net 30

**Terms and Conditions:**

Absent a written agreement between us to the contrary, the purchase of goods or services described herein is governed by the terms of sale at [www.itron.com/termsofsale](http://www.itron.com/termsofsale). Receipt of this document, without written objection within 7 days, constitutes acceptance of these terms.

<b>TO:</b> Aqua North Carolina, Inc 202 MacKenan Ct. Cary, NC 27511-6447	<b>SHIP TO:</b> Aqua North Carolina, Inc 202 MacKenan Ct. Cary, NC 27511-6447
---	--

Notes : Subdivision: Woodscreek

**Banking Information: Please Include Your Invoice Number On Check.**

Wire payment to:  
Itron, Inc.  
Wells Fargo Bank  
420 Montgomery Street  
San Francisco, CA 94105  
ABA # 121000248  
ACCOUNT # 4375686983

Remit-to :  
Itron, Inc.  
P.O. Box 200209  
Dallas, TX 75320-0209

SubTotal Amount	3,071.95
Tax Amount	222.72
Total Amount	3,294.67
Currency	USD

PUBLIC STAFF THOMPSON  
REBUTTAL CROSS EXAM  
EXHIBIT 1

I/A

Aqua North Carolina, Inc.  
Docket No. W-218, Sub 497  
Aqua North Carolina, Inc.

Public Staff Engineering Data Request No. 59

Requested by: Charles Junis Email: charles.junis@psncuc.nc.gov  
Date requested: September 5, 2018 Phone: 919-733-0891  
Due date: ASAP

Subject of Data Request: Rebuttal Thompson

For spreadsheet responses, please provide in Excel format, if possible, and include all links to other files and working formulas. For other documents, please provide in Microsoft Word format or in searchable PDF format if possible. In addition, please include (1) the name and title of the individual who has the responsibility for the subject matter addressed therein, and (2) the identity of the person making the response by name, occupation, and job title.

Q2. On page 5, lines 11-22, please provide a chronological summary, including dates, of the "sharp drop in well capacity", the meter read data captured, including address, start/end reads, start/end dates, and any indicators/flags, a list of the customer addresses which were contacted, and a list of the addresses at which service was shut off for repairs. In addition, were there any other contributing factors to the "sharp drop" besides customer usage?

A. The date of the drop in well capacity was first noted on August 21<sup>st</sup>, 2018. Aqua dispatched a crew to the subdivision to investigate for any visible leaks that could be noted by driving the subdivision. Aqua also checked well production, as the runtimes had been steadily climbing. August 22<sup>nd</sup>, 2018 Aqua revisited Stonehenge again to look for a leak. Around 1 PM on August 22<sup>nd</sup> a leak was found in the Wildwood Green section of Stonehenge. The leak was from an 8-inch water main running into a storm drain which made it difficult to detect. The repair was made at once and run times at the Stonehenge/Wildwood Green wells runtimes returned to normal.

Below you will find information provided on the leaks noted at Stonehenge along with all other information requested:

Address	Read Time	Prev Read	Reading	Prev Rdg	Indicator	How Aqua addressed
8008 New London Ln Raleigh, NC	8/22/2018	7/24/2018	81,300	62,780	Leak	Dr Tag left at customer home indicating leak found
8301 Morgans Way Raleigh, NC	8/22/2018	7/24/2018	265,620	220,750	Leak	Phoned cust about leak , asked if we could turn off mtr -yes
8801 Tempest Rdg Raleigh, NC	8/22/2018	7/24/2018	97,280	80,590	Leak	Left cust vm about leak and Dr tag was left at property indicating leak
8604 Wellsley Way Raliegh, NC	8/22/2018	7/24/2018	73,700	12,430	Leak	Left cust vm about very large leak , advised we turned off meter and left dr tag
8400 Wellsley Way Raleigh , NC	8/22/2018	7/24/2018	8158	6497	Leak	Mtr reader spoke to cust on site at home, they were aware of the leak they have under house.

Prepared by:  
Paula Frost  
Supervisor Customer Care  
Aqua North Carolina, Inc.  
Meter Data Information

Roger Tupps  
Field Supervisor II  
Aqua North Carolina, Inc.  
System Information

I/A

Aqua North Carolina, Inc.  
Docket No. W-218, Sub 497  
Aqua North Carolina, Inc.

Public Staff Engineering Data Request No. 59

Requested by: Charles Junis Email: charles.junis@psncuc.nc.gov  
Date requested: September 5, 2018 Phone: 919-733-0891  
Due date: ASAP

Subject of Data Request: Rebuttal Thompson

**For spreadsheet responses, please provide in Excel format, if possible, and include all links to other files and working formulas. For other documents, please provide in Microsoft Word format or in searchable PDF format if possible. In addition, please include (1) the name and title of the individual who has the responsibility for the subject matter addressed therein, and (2) the identity of the person making the response by name, occupation, and job title.**

Q6. On page 8, lines 1-16, Mr. Thompson discusses additional benefits of AMR technology. For the period of October 2015 through August 2018, please provide the following for Aqua NC meter reading accidents "both onsite and in transit":

- a. The date of the accident;
- b. The type of accident such as vehicular in transit or onsite bite, slip, trip, or fall;
- c. If a bite, whether it was by a snake, dog, or spider;
- d. The water system where the accident occurred;
- e. The name and position of the person involved in the accident.

A. Aqua does not track accidents at the meter reader level.

Prepared by:  
Bernard F. Thompson  
Director, Procurement  
Aqua Services, Inc.

I/A

Aqua North Carolina, Inc.  
Docket No. W-218, Sub 497  
Aqua North Carolina, Inc.  
Public Staff Engineering Data Request No. 59

Requested by: Charles Junis Email: charles.junis@psncuc.nc.gov  
Date requested: September 5, 2018 Phone: 919-733-0891  
Due date: ASAP

Subject of Data Request: Rebuttal Thompson

For spreadsheet responses, please provide in Excel format, if possible, and include all links to other files and working formulas. For other documents, please provide in Microsoft Word format or in searchable PDF format if possible. In addition, please include (1) the name and title of the individual who has the responsibility for the subject matter addressed therein, and (2) the identity of the person making the response by name, occupation, and job title.

Q13. For each Aqua-NC newly approved position from July 1, 2016 through June 30, 2018, please provide the following:

a. Date of apposition approval;

b. Position/job title;

c. Aqua region.

A. Aqua does not have this data readily available and would like further clarification on the relevance to AMR Meter Installation and Mr. Thompson's Rebuttal Testimony.

Prepared by:  
Bernard F. Thompson  
Director, Procurement  
Aqua Services, Inc.

**Grantmyre, William**

---

**From:** Grantmyre, William  
**Sent:** Friday, September 07, 2018 5:14 PM  
**To:** Jo Anne Sanford (sanford@sanfordlawoffice.com); 'BenninkLawOffice@aol.com'  
**Subject:** Aqua Sub 497 Engineering DR 59 Item 3

~~The Public Staff Engineering DR 59 Item 13 for Mr. Thompson's rebuttal requested the Aqua newly approved positions from July 1, 2016 through June 30, 2018.~~

~~The response was: "Aqua does not have this data readily available and would like further clarification on the relevance to AMR Meter install and Mr. Thompson's Rebuttal Testimony"~~

~~The relevance is Mr. Thompson's Rebuttal page 14 line 7 through line 11 where he describes Aqua's need to hire additional persons if Aqua performed the meter replacements in house.~~

~~We request that Aqua provide this response for which the information should be readily accessible to Aqua's HR dept.~~

Thanks.  
Bill Grantmyre  
919-733-0977

J/A

Aqua Internal Labor Meter Replacement Program

If Aqua intended to replace every ANC Water meter in an “organized and efficient manner” over a 5-year deployment period.

735,804 pro forma bills according to Public Staff witness Junis’ Supplemental Exhibit 7, Revised Junis Exhibit 25.

$$735,804 \text{ bills} \div 12 \text{ months} = 61,317 \text{ meters}$$

Annual number of meter replacements during the 5-year deployment period.

$$61,317 \text{ meters} \div 5 \text{ years} = 12,264 \text{ meters}$$

The number of working days necessary to replacement 12,264 meters.

$$12,264 \text{ meters} \div 14.89 \frac{\text{meters}}{\text{day}} = 824 \text{ working days}$$

Determination of working days in a year.

$$260 \text{ weekdays} - 13 \text{ holidays} - 10 \text{ vac.} - 5 \text{ sick} - 5 \text{ personal} = 227 \text{ working days}$$

Number of employees necessary to perform work.

$$824 \text{ working days} \div 227 \frac{\text{working days}}{\text{employee}} = 3.63 \text{ employees rounded up to 4 FTEs}$$

	Units	% of all Meters Installed
ERT and Install 5/8", 3/4", or 1" Meter	17,429	99.93%
ERT and Install 1.5" Meter	6	0.03%
ERT and Install 2" Meter	4	0.02%
ERT and Install 3" Meter	2	0.01%
ERT and Install 4" Meter	0	0.00%
Retrofit* (ERT Only Installation)	1,270	6.79%
Remove Exist. Pit	1,699	9.74%
Pit Lid Drill	0	0.00%
Pit Ring Replace	287	1.65%
Ford MB Replace	1,262	7.24%
Dual Meter Box	61	0.35%
Separate Boxes	0	0.00%
Direct Connect	118	0.68%
Setter Replace	14	0.08%
<b>Total Meters Installed</b>	<b>17,441</b>	
<b>Total ERTS Installed</b>	<b>18,711</b>	

\* Retrofit % was based on % of total ERTS installed since it was an ERT only installation.

Public Staff Thompson Rebuttal  
 Cross Exam Exhibit 5

J/A

I/A

**Public Staff Total Price Per Meter**

<b>\$8.18</b>	<b>+ \$7.61</b>	<b>= \$15.80</b>
<b>Public Staff Labor</b>	<b>Public Staff Overhead</b>	<b>Public Staff Total Price Per Meter</b>

<b>Examples of Costs included in Aqua Overhead Allocation:</b>	<b>Examples of Items <u>NOT</u> included in Aqua Overhead Cost and <u>NOT</u> included in Public Staff \$15.80</b>
Payroll taxes	See Itron Scope of Work Contract
Medical, dental, life insurance	
Car / property insurance	Cost of performing background checks
Fuel	Confirming qualifications and skill sets
Indirect costs	Cost of recruiting
Non-productive time (vacation, sick, holiday)	Supervisor costs
Corporate service company allocation and corporate executive spread	Training
Meter labor spread	Equipment including laptop computers
	Trucks / vehicles
	Cost of hiring
	Recruiting
	Safety training
	Other insurances
	Turnover and proficiency turnover

**Iron**

---

## **Attachment B**

# **Statement of Work**

**MOBILE AMR/AMI PROJECT**

**AQUA NC**

*Author: John Glenn*

*Date: April 4, 2017*

*Version: 1.4*



- A. About this Document..... 3
- B. Document Controls ..... 4
  - B.1. Change Record ..... 4
  - B.2. Reviewers ..... 4
  - B.3. Document Storage ..... 4
  - B.4. Document Owner ..... 4
- C. AMR System and Project Overview..... 5
- D. General Project Requirements..... 6
- E. AMR System Deliverable: ERT and Meter Installations ..... 7
  - E.1. Installation Planning for Equipment..... 7
    - E.1.1. Description, Strategy and Completion Criteria ..... 7
    - E.1.2. Deliverable Requirements..... 7
    - E.1.3. Deliverable Tasks..... 7
  - E.2. Field Deployment Manager..... 8
    - E.2.1. Description, Strategy and Completion Criteria ..... 8
    - E.2.2. Deliverable Requirements..... 8
    - E.2.3. Deliverable Tasks..... 9
  - E.3. AMR System Deliverable: Meter and ERT Installations ..... 10
    - E.3.1. Description, Strategy and Completion Criteria ..... 10
    - E.3.2. Deliverable Requirements..... 10
    - E.3.3. Deliverable Tasks..... 13
  - E.4. Deliverable: Training ..... 17
    - E.4.1. Description, Strategy and Completion Criteria ..... 17
    - E.4.2. Deliverable Requirements..... 17
    - E.4.3. Deliverable Tasks..... 17
- F. AMR System Deliverable: Route and System Acceptance ..... 19
  - F.1. Installation and Project Acceptance..... 19
    - F.1.1. Description, Strategy and Completion Criteria ..... 19
    - F.1.3. Deliverable Tasks..... 20
- G. Deliverable: System Operations ..... 21
  - G.1. Deliverable: System Operations..... 21
    - G.1.1. Description, Strategy and Completion Criteria..... 21
    - G.1.2. Deliverable Assumptions..... 21
    - G.1.3. Deliverable Requirements..... 21
- H. Project Close..... 22
  - H.1. AMR Solution Deliverable: Project Transfer and Close..... 22
    - H.1.1. Description, Strategy and Completion Criteria ..... 22
    - H.1.2. Deliverable Requirements..... 22
    - H.1.3. Deliverable Tasks..... 22
- I. Service Fees ..... 24
  - I.1. Billing Information..... 27
  - I.2. Change Control..... 27
- J. Signature Page ..... 28
- K. Change Control Process..... 29
  - K.1. Change Request Form..... 30
  - K.2. Change Order Form..... 31
- Appendix A – Milestones (DRAFT)..... 33
- Appendix B – Definitions..... 34

This Statement of Work (SOW) document is governed by the terms and conditions of the Itron Sales Agreement dated 4/6/2017 by and between Aqua NC and Itron as amended ("Agreement") and Pricing Summary BMR 11973-17 Ver. 3 April 4, 2017 and shall be attached thereto as SOW dated 4/21/2017. This SOW defines the services and responsibilities required of Aqua NC (hereinafter Aqua NC) and Itron to deploy Itron's Choice Connect, 100W water AMR/AMI solution for Aqua NC in and around communities of Fayetteville, Gastonia, Greensboro, Hickory-Statesville, Mount Airy and Raleigh, NC. If there is any conflict between the terms and conditions of this SOW and the Agreement, the terms and conditions of the Agreement shall prevail.

This SOW shall be updated under the change control process throughout the duration of the Agreement as necessary.

Definitions for this document are contained in Appendix B.

### B.1. Change Record

Date	Author	Version	Change Reference
March 7, 2017	John Glenn	1.0	Initial Draft
March 20, 2017	John Glenn	1.1	Added Aqua NC Project Manager Changes to BMR reference, quantities and cities being installed Modified language on storage and salvage process
March 21, 2017	John Glenn	1.2	Added comments based on March 21 <sup>st</sup> meeting with Aqua NC and Iron teams
March 27, 2017	John Glenn	1.3	Removed T&E and Professional Services Added Meter Access Requirements verbiage
April 4, 2017	John Glenn	1.4	Discussed internet connection to be submitted ASAP Confirmed and modified showing Aqua is mailing letters Additional work (re Ford meter boxes, pit lids etc.) to be completed thru Change Orders. Modified CIS access to be a contact person at Aqua and not access for Iron Confirmed refresh FromHost file be done daily

### B.2. Reviewers

Name	Sign-off?	Position
Brad Balzer	No	Iron Solution Delivery Director, East
John Glenn	No	Iron Project Manager
Paula Frost	No	Aqua NC OH Project Manager
Bernie Thompson	No	Aqua Purchasing Dept
Juliette Grant	No	Aqua Purchasing Dept

### B.3. Document Storage

This document was created using MS Word and will be stored on the Iron Solutions Delivery SharePoint site.

### B.4. Document Owner

This document contains information that is confidential and proprietary to Iron, who is the owner and responsible for developing and maintaining it. It is understood that this document is for the purposes of the AMR/AMI project. This document, or portions thereof, should not be referred to, distributed or utilized in any other way outside of the project's needs without prior approval of Iron.

The Project is a Mobile radio-based AMR/AMI Solution and includes completion of approximately 15,796 unique work orders (ERT or ERT and Meter installations) in Aqua NC service territory at properties located in or around the following locations: Raleigh, NC. Itron shall install and configure the Field Deployment Manager (FDM) work order application at its Cloud Services Facility located in Liberty Lake, WA. The Project is estimated to be a 7 month duration commencing in 2nd Quarter 2017. The solution is comprised of the following Services, Hardware and Software Applications

- 100W-R+ remote mount Encoder ERTs with 10 inch cable and mounting kits
- 100W+ direct mount Encoder ERTs with integral connectors and antenna connectors
- 100W-R mounting kit for remote installations
- Standard 5' cable with In-Line connector with .135" diameter protective cover
- Field Deployment Manager (FDM) software implementation services
- Meter Change and ERT install 1" or smaller meter, pit set
  - ~13,785 Pit set
- ERT module retrofit 1" or smaller meter, pit set
  - ~2,011 Pit set (1 inch or smaller)
- FC300SR: hand held computers to be used by the Project team for the duration of the Project
- Mobile Collectors (1) to be used for mobile meter reading
- Cloud Services
  - Annual Cloud Service fees commencing when FDM application installed and configured on server

#	Requirements
1.	The level of the Services as defined in the Agreement included herein is predicated on a mutually agreeable Project schedule.
2.	The Iron Solution Delivery Manager will have overall Project responsibility, sponsorship and executive level support for Iron.
3.	Iron has primary responsibility for project planning, management and delivery of the AMR Solution. All Iron Project resources will report to the Iron Project Manager.
4.	Iron and Aqua NC will provide qualified personnel to staff the Project to ensure Project success and will use reasonable efforts to maintain the continuity of personnel assigned.
5.	Aqua NC will assign a Project Manager and appropriate staff for the duration of the Project.
6.	Aqua NC will furnish reasonable working accommodations at Aqua NC facilities where Project Operations centers/cross docks will be set-up to complete the work in each service area. Facilities shall include furniture; desks, chairs, tables, to support a minimum of 4 employees, and internet access to support connections to the FDM application.
	Aqua NC will provide secure warehouse facilities to be used to store Project materials and equipment and a parking area to park a minimum of 10 Project team vehicles.



## E.1. Installation Planning for Equipment

### E.1.1. Description, Strategy and Completion Criteria

Resources, facilities, equipment and processes must be planned for, developed and procured to support the deployment of the ERTs and other equipment.

At the completion of this deliverable, Itron and Aqua NC will be ready to start the deployment process.

### E.1.2. Deliverable Requirements

#	Requirements
1.	Itron will provide management oversight and field staff for the installation of meters and ERTs
2.	Aqua NC and Itron will mutually agree on data flow to be used to manage work orders. Consideration must be given to both Itron and Aqua NC installed meters and ERTs.
3.	Aqua NC will provide "read only" access to their CIS to ensure call center reps have timely access to customer information. Aqua NC will provide limited training to employees needing access to the system. In the event access to the CIS cannot be made available because of technical or legal reasons, Aqua NC and Itron will agree on an alternative approach to securing the necessary data to minimize unresolved FDM data exceptions.
4.	Itron will have accountability, operational and financial, for managing and tracking inventory. Aqua NC will provide approximately eight (8) week supply of inventory (meters and ERTs) to prevent work stoppage. Inventory will be staged at agreed upon Aqua NC facilities. Itron will provide a rolling 12 week forecast of product needs to allow the necessary time for Aqua NC to order the required products.
5.	Aqua NC will provide Customer Communication notifications and premise materials.
6.	Aqua NC will identify blackout periods for deployment areas; Itron will comply with agreed upon blackout schedules

### E.1.3. Deliverable Tasks

#	Deliverable Task(s) and/or Description of Deliverable Task(s)	Itron Responsibility	Aqua NC Responsibility
1.	Create Deployment Plan. Order Meters and ERTs in accordance to schedule. Maintain an 8 week supply.	Primary responsibility for creating and managing Deployment Plan.	Primary responsibility for purchasing 8-week inventory supply.
2.	Procure warehouse and office facility.		Primary responsibility
3.	Finalize agreements with Meter/ERT Installation subcontractor(s)	Primary responsibility	
4.	Order vehicles, uniforms, tools, and other installation equipment for ERT installation technicians	Primary responsibility	
5.	Design communications program and customer communications material including Initial Letter, door hanger for uncompleted work orders, second letter and a customer survey card if applicable.	Support	Primary responsible for developing and providing all communications materials.

#	Deliverable Task(s) and/or Description of Deliverable Task(s)	Iron Responsibility	Aqua NC Responsibility
6	Order customer communications materials; communications as required.		Primary responsibility.
7	Define, review and finalize installation procedures for Meters and ERTs.	Primary responsibility	Support
8	Training of Iron and Aqua NC FSRs	Primary responsibility	

## E.2. Field Deployment Manager

### E.2.1. Description, Strategy and Completion Criteria

Iron's Field Deployment Manager (FDM) will be used for the deployment work order system during the Build, Operate and Transfer phases. Iron and Aqua NC will work together to develop requirements for the work order file layouts (FromHost and ToHost), work order logic and data collected.

At the completion of this deliverable, FDM will be fully tested and operational. When a FromHost file is sent from Aqua NC's CIS, work orders can be dispatched to commence installations.

### E.2.2. Deliverable Requirements

#	Requirements
1.	Iron will host FDM production servers with software required for the Project at their Liberty Lake, WA Cloud Services center.
2.	Iron will install, configure, and test system. FDM will be used by Iron for Meter and ERT installation; audit and maintenance work orders for the duration of the Project.
3.	Interface files between Aqua NC's CIS and the Iron FDM system will be developed as defined during FDM requirements work-shop.
4.	Aqua NC/America will be responsible to execute the interface process to create work orders in accordance with the agreed upon schedule.
5.	FDM work order exceptions will be initially managed through FDM. Iron will provide Aqua NC access to FDM to review data exceptions.
6.	Iron and Aqua NC will mutually define the FDM workflow and report requirements. Aqua NC will sign-off on the requirements before development begins.
7.	Iron will provide a list and review standard FDM reports with Aqua NC. Custom reports will be outside the scope of the Agreement.
8.	FDM will be configured to support the acquisition of GPS coordinates and digital images. Bar code scanning will also be used during the field process. FDM will store GPS coordinates and digital images during the Project with Aqua NC having access to this information.
9.	Iron will provide Iron FSRs with handheld units as required for the Project.

## E.2.3. Deliverable Tasks

	Deliverable Task(s) and/or Description of Deliverable Task(s)	Itron Responsibility	Aqua NC Responsibility
1.	Requirements work-shop and create FDM design document.	Primary responsibility.	Participate in meetings and sign-off on final document.
2.	Create FDM test plan.	Primary responsibility.	Review test plan.
3.	Procure FDM hardware	Primary responsibility.	
4.	Procure FDM software	Primary responsibility.	
5.	Develop install, audit and maintenance work orders, translation files and pre/post processing scripts. Work orders will be developed for meters and ERTs	Primary responsibility.	
6.	Develop test From host file	Primary responsibility to develop, test and manage the CIS to FDM FromHost file.	Aqua NC to support design and test of the CIS to FDM FromHost file.
7.	Install and configure FDM servers.	Primary responsibility.	
8.	Define communications and security requirements allowing Aqua NC to access FDM data	Joint responsibility	Joint responsibility.
9.	Install and configure handhelds and other install equipment.	Primary responsibility	
10.	Perform FDM test – test FromHost file with work orders. Send completed work order file to Aqua NC	Primary responsibility	Provide support to Itron
11.	Perform FDM ToHost test. Post to Billing and/or Infrastructure Systems to validate format and updates.	Itron to create test ToHost file from FDM and post to the agreed upon FTP site; Primary responsibility to develop, test and manage the CIS ToHost Interface.	Aqua NC to support the testing of the FDM to CIS ToHost interface file.
12.	Aqua NC and Itron will define IT controls required to successfully manage the System implementation during the Project design phase. IT Controls include the following: <ul style="list-style-type: none"> <li>• Work order data received and disposition (posted, exceptions)</li> <li>• Billing and/or Infrastructure Systems exceptions pending action</li> <li>• ERT inventory records received and disposition (posted / exception)</li> <li>• RF reads received and disposition (billed / exception)</li> <li>• Route saturation report</li> </ul>	Shared responsibility to define controls; support implementation of controls.	Shared responsibility to define controls; primary responsibility to implement controls.
13.	FDM Administrator, Manager, Dispatcher and Itron FSR training	Primary responsibility	
14.	Maintain and operate FDM through the Build and Transition phase of the Project.	Primary responsibility	

### E.3. AMR System Deliverable: Meter and ERT Installations

#### E.3.1. Description, Strategy and Completion Criteria

At the completion of this deliverable, all Meter and ERT Installation work orders will be complete and System Acceptance Initiated.

#### E.3.2. Deliverable Requirements

#	Requirements
1.	Iron will conduct installation by geographic territory and meter reading route. Routes will be based upon existing meter reading route structure and are in geographic proximity to one another.
2.	Iron and Aqua NC will build deployment schedule. Iron will conduct installation in accordance with Aqua NC's specified project completion schedule taking into account geography, routes, location of meter and available inventory. Designated sequence of routes or groups of routes will consider geographic proximity from one to the next and afford an ample supply of pending work orders to sustain the workforce.
3.	Iron will review weekly with Aqua NC the targeted geographic areas planned for upcoming weeks (3-weeks in advance). Iron will work closely with Aqua NC Project Manager to ensure that Aqua NC receives updates as to the progress of the installation schedule.
4.	Iron will attempt to complete the majority of the ERT installations during normal work hours consisting of Monday – Friday 8 AM to 6 PM and Saturday as necessary from 8 AM to 5 PM EST. Where necessary Iron will work additional hours. Sufficient staff will be available to meet customer appointment schedule outside normal work hours including Saturday.
5.	The call center should be staffed between the hours of 8:00 a.m. and 6:00 pm for appointments, Eastern Time, Monday through Friday with a limited staff on Saturday as necessary.
6.	Work shall not take place on Aqua NC holidays except by mutual agreement.
7.	The call center will be support both English and Spanish speaking customers if required.
8.	All customer contacts, including both inbound and outbound calls, letters, and field attempts will be documented and made available to Aqua NC in a digital format.
9.	Iron shall provide reports on caller wait time, hang ups and time of day activity.
10.	Iron will provide a daily work schedule report electronically to Aqua NC each morning (prior to 9:00 am) for work scheduled for that day. The daily work schedule will include scheduled appointments for that day and a list of general areas/routes in which crews will be working. Appointments will be scheduled as requested by the customer with a Two-hour window unless the customer approves a larger appointment window.
11.	Iron will provide a report to Aqua NC detailing the completed work from the prior day. The report will be made available to Aqua NC by 10:00AM the following business day.
12.	Iron will deliver a daily installation ToHost file that will be placed on the FTP site or other agreed upon location one day following the completion of the work orders. This file will be processed through FDM to ensure all exceptions are addressed before the file is delivered to Aqua NC. Work orders with exceptions will not be sent until the exception is resolved.
13.	Iron will resolve work order data exceptions identified through FDM or by Aqua NC in a timely and efficient manner. Work order exceptions will be cleared within five business days unless in conflict with blackout window and/or customer access. Examples of exceptions are: Duplicate ERT or meter numbers, Meter manufacturer exceptions, Meter number mismatches, Meter size exceptions, Meter multiplier, High-Low exceptions, Dial mismatch, Meters found in field but not in work order file, Meter location exceptions. The exception process will be managed through the FDM system.
14.	Iron will use the electronic files (FromHost) provided by Aqua NC to feed FDM. Iron will maintain installation records electronically in the work order system.
15.	Iron's subcontractors will be fully trained in the installation of Meters and ERTs. Aqua NC reserves the right to require Iron to refrain, reassign, or remove from the Project any employee or subcontractor who fails to perform workmanlike and competent work. In addition, all installation

No.	Requirements
	employees are required to comply with the local codes of the jurisdiction where the work is taking place.
16.	Itron will subject all employees to a background check and drug screen. Itron and its subcontractors will not employ convicted felons or persons failing the drug screen unless individual is pre-approved by Aqua NC. Aqua NC reserves the right to review all background checks and prevent any such employee from working on Aqua NC Projects.
17.	Itron will employ a stringent quality program, including 100% follow-up quality audit attempts for new employees during their probation period (two-week period after hiring) and 5% subsequent audit percentage after an employee completes his/her probation period.
18.	Field personnel shall wear easily recognizable uniforms identifying Itron's contractor as well as prominently displayed picture identification badges containing the employee name and employee picture. Employees shall be issued and carry contractor identification cards issued by Aqua NC if required. The identification cards will only be worn during Work covered by this Agreement. Itron shall control the issuance and retrieval of ID cards so that only active installation employees have them.
19.	Itron shall obtain any required government and/or other security clearances that are necessary for gaining entry into the various properties identified for provision of the AMR System. Itron shall be responsible for determining which locations require special security clearance, what clearance is required at those locations and obtaining those clearances.
20.	No Itron contractor shall enter a residence without the permission of the owner, tenant or authorized representative. Additionally, no Itron contractor shall enter a residence without an adult present (18 years or older)
21.	Itron will supply the following components and aspects of installation: overall Project management; training and direct supervision of Itron FSRs; appointment scheduling; problem solving and complaint handling; and inspection, testing, and quality control.
22.	Itron be responsible for all vehicles it uses on the Project. Itron and Aqua NC will mutually agree on vehicle logo before start of field work; Itron will ensure Project vehicles have the agreed upon logo prominently displayed on both sides of the vehicle. Any employee of Itron or its subcontractors who drives a vehicle in connection with this Project must have a valid driver's license for the class of vehicle being driven, and must be insured as set forth in the Agreement.
23.	Itron shall deploy vehicles to minimize parking problems and avoid blocking any streets. Itron is required to follow all parking laws and is responsible for all parking violations.
24.	Aqua NC shall provide maintain an insured office and warehouse within the Project service territory.
25.	Itron will provide a call center and a toll-free number that customers can call to schedule installation appointments, to ask questions concerning the Project, or to report problems concerning installations.
26.	Itron's FSRs, auditors, and supervisory personnel shall be equipped with communication devices so that problems or questions can be addressed immediately with timely feedback to the Project Managers.
27.	Aqua NC will mail 1 <sup>st</sup> letter to customers 1 week prior to working the route using Aqua NC's format but not more than two weeks prior to route installation. The notice will be double sided, in both English and Spanish if necessary, and include (a) work is being done on Aqua NC's behalf, (b) information on Itron and its contractor, (c) description of the work, (d) how to identify an Itron approved contractor, (e) call center telephone number, (f) period work is to be performed in the area; and (g) if access is required, a request for the customer to call for an appointment. Itron will leave a door hanger on uncompleted work orders.
28.	Should Itron encounter a vacant property or an Itron FSR safety issue, Itron will validate the condition prior to returning the work order to the utility. Itron will provide an image or comments that describe what the issue is and the appropriate action required by utility to resolve it.
29.	Before Itron can complete a work order as a return to utility (RTU), it must be approved as an acceptable RTU by an Itron field supervisor or designee and Aqua NC Project Manager or designee. If a work order is returned to Aqua NC because Itron met its access attempt requirements, Aqua NC will have 10 business days to schedule an appointment and return the work order to Itron for completion.

No.	Requirements
	<p>Iron shall make at least three field attempts (the last being a Final Notice) within the predefined period as defined in the schedule. At least one attempt will be made outside of normal business hours. Aqua NC provided door hangers will be left after each field attempt. In addition, Iron will make at least 2 phone attempts, with one being after hours. Each attempt to contact a customer will be documented in FDM. Documentation shall include, at a minimum, customer name, account number, address, date and time of attempt, notification method, name of individual making the attempt, and (if applicable) name of customer spoken to and reason for refusal.</p> <p>Should the customer call Aqua NC to schedule the installation, the Call Center REP will transfer the customer to an Iron Call Center REP to schedule an appointment in FDM. The Iron FSR will be assigned the work order through FDM and complete the installation.</p>
30.	At any point should the RTU rate go above 10% Iron and Aqua NC will develop an action plan to improve RTU rate.
31.	Iron will be responsible for scheduling and handling all installation appointments. Iron will try to set appointments within a two-hour window.
32.	<p>Iron shall make at least three field attempts (the last being a Final Notice) within the predefined period as defined in the schedule. At least one attempt will be made outside of normal business hours. Aqua NC provided door hangers will be left after each field attempt. In addition, Iron will make at least 2 phone attempts, with one being after hours. Each attempt to contact a customer will be documented in FDM. Documentation shall include, at a minimum, customer name, account number, address, date and time of attempt, notification method, name of individual making the attempt, and (if applicable) name of customer spoken to and reason for refusal.</p>
33.	Electronic work order record provided by Aqua NC from CIS to FDM will include, at a minimum, the customer's address, premises identification number, customer phone numbers (if available), meter location, meter access notes, designation of replacement or retrofit, existing meter number, existing register number, meter make, model and size, and most recent meter reading, location information. Where telephone number is not available, Iron will attempt to locate telephone number using a reverse directory.
34.	For each ERT installed in an outdoor vault, the Iron FSR shall capture GPS coordinates. For each meter located inside a building, the Iron FSR will attempt to capture GPS coordinates at the location of the ERT or will manually enter a pre-established location code and a description of the location of ERT if GPS coordinates are not available. The FDM work order will be updated with the new ERT location information.
35.	Digital images will be taken on all completed installations. The images will have an accurate date and time stamp and be stored as a data element of the work order. Aqua NC will have access to the digital images.
36.	Digital images will be taken at problematic installations both before and after the work to document pre-existing site conditions. The images will have an accurate date and time stamp and be stored as a data element of the work order. Access to these digital images will be available to Aqua NC.
37.	Field validation rules against old meter readings will be used during the installation process. Old readings falling outside the high / low parameters will require reentry by the Iron FSR. Additionally, a digital image will be captured for completed work orders falling validation. In all cases, Iron will record the number of dials and the found reading on the work order.
38.	ERTs located in vaults will utilize RF friendly lids or through-the-lid antennas to enhance read performance as needed. Iron and Aqua NC will jointly address installation method for all vault meters in which the through the lid antenna or RF friendly lid is not practical.
39.	Iron will be responsible for removing dirt needed to access a meter in a meter vault. In situations where excessive dirt where the FSR can't see the top of the meter Aqua NC will provide a vacuum truck or alternative measure to clean out vault.
40.	If existing wire is at least three strands and in good condition, it can be reused. Iron shall route wire through existing touchpad hole if possible.
41.	Remote ERTs should be installed where existing Touch pad was removed
42.	Aqua NC will provide wire
43.	Plumbing issues will be addressed with Aqua NC on case by case basis. It is anticipated that Iron will contact Aqua NC for approval and this service will be reimbursed at agreed upon T&M rate.
44.	Aqua NC will install all 2 inch and greater meters

#	Requirements
45.	Aqua NC will provide probes to collect touch pad reads
46.	Some locations may have vertical meters. It is understood that there is no available info on quantity or location at this time. These meters will require plumbing work to install horizontal. Agreed upon T&M rates will apply.
47.	Pit ERTs will be installed under lid in Aqua NC provided under-the-lid mount shelf. Aqua NC will provide pit lid with 2inch hole for mounting. Some drilling may be required on private lids.
48.	If a vault meter is potted to touch pad wire, the ERT will be installed with an Aqua NC supplied splice kit. If meter screw terminals were used, ERT will be attached to terminals and Itron will apply gel supplied by Aqua NC over the terminals.

E.3.3. Deliverable Tasks

#	Deliverable Task(s) and/or Description of Deliverable Task(s)	Itron Responsibility	Aqua NC Responsibility
1.	Product Ordering	Support	Primary Responsibility to provide installation materials in accordance with deployment Plan
2.	Test integration points between Itron and Aqua NC's systems	Primary Responsibility	Support testing effort
3.	Provide an overview of the installation and scheduling process	Primary Responsibility	Approval responsibility
4.	Provide agreed upon daily, weekly, and monthly reports	Primary responsibility	Review, comment, approve as necessary
5.	Itron is responsible to manage the field deployment of AMR Project. <ul style="list-style-type: none"> <li>▪ Manage field deployment activities</li> <li>▪ Manage field deployment quality and quality audits</li> <li>▪ Manage ERT and water meter inventory control process</li> <li>▪ Manage work order scheduling, completion and work order data integrity</li> <li>▪ Manage customer appointment administration</li> <li>▪ Coordinate customer contact program</li> <li>▪ Manage customer claims administration</li> <li>▪ Manage Itron FSR hiring, training and safety program</li> </ul>	Primary Responsibility	
	Itron will provide installation services in accordance with requirements defined above, established procedures and adherence to mutually defined schedules. <ul style="list-style-type: none"> <li>▪ Field deployment activities</li> <li>▪ Field deployment quality and quality audits</li> <li>▪ ERT inventory control process</li> <li>▪ Work order scheduling, completion and work order data integrity</li> <li>▪ Coordinate customer contact program</li> <li>▪ Coordinate and complete customer appointments</li> <li>▪ Administer and track customer claims</li> </ul>	Primary Responsibility	

	Deliverable Task(s) and/or Description of Deliverable Task(s)	Itron Responsibility	Aqua NC Responsibility
6.	Aqua NC will provide Project facilities with adequate parking that are centrally located within the meter deployment areas as required to support the ERT deployment. Facilities to include space for Administration, Inventory storage and parking.		Primary Responsibility
7.	Itron will provide vehicles to support the Project. Vehicles will be marked with wording mutually agreeable to Aqua NC and Itron.	Primary Responsibility	Support
8.	Itron will provide the necessary personnel to meet the ERT and meter installation commitments	Primary Responsibility	
9.	<p>Field deployment personnel are subject to police record check to determine employee eligibility. The background check will include:</p> <ul style="list-style-type: none"> <li>▪ Check of social security to verify address/addresses for the past five years.</li> <li>▪ Check for any criminal activity during the past five years in any county of residence.</li> <li>▪ Check for any federal criminal activity during the past five years.</li> <li>▪ Check for any statewide criminal activity during the past five years.</li> <li>▪ Check to verify valid driver's license if employee will be operating a motor vehicle while performing Project work</li> </ul> <p>In cases where the results from the background check are of some concern to Itron or the Contractor, Aqua NC and Itron will review the case to determine the appropriate course of action. Names will not be shared during the review process; only specifics related to the case.</p>	Primary Responsibility	
10.	Itron will train and qualify the field deployment personnel based on the Job requirements for each employee. A combination of classroom training, written testing and practical performance testing shall be used. Field deployment work shall be completed in compliance with all applicable standards. Aqua NC	Primary Responsibility	
11.	Ensure each field employee has proper photo identification badges when performing field work. ID badge will include, at a minimum, employee name, company name and telephone number. Employees will be required to visibly display badge while performing field work.	Primary responsibility to ensure each employee has an ID card when in the field.	Approve the ID badge format.
12.	Itron will provide photo identification badges to Itron staff and its contractor's employees.	Financial responsibility for replacement of lost ID's	Approve the ID badge format
13.	Mail the introduction letter explaining the Project and introducing the contractor to their customers	Primary	Support

	Deliverable/Task (s) and/or Description of Deliverable/Task(s)	Itron Responsibility	Aqua NC Responsibility
14.			
15.	Itron will be responsible to deliver the appropriate door tag to Customer after each installation attempt	Primary Responsibility	
16.	Itron will implement an asset management program to control consigned materials and supplies. All major materials, i.e., ERTs and meters will be accounted for weekly. A signed record of receipt or release is required for any major material component transfer. ERTs that are installed in the field will be tracked via the work order system. Smaller materials and supplies will be accounted for weekly via a general lot count. Itron shall provide an asset management and inventory control report as part of its weekly reporting.	Primary Responsibility	
17.	Itron will utilize the FDM work order system for field deployment work order scheduling, processing, and reporting.	Primary Responsibility	
18.	Aqua NC will provide a readily available contact that can access the CIS and provide/confirm the necessary information.		Primary Responsibility
19.	Itron to request work order data at least thirty (30) days in advance.	Primary Responsibility.	
20.	On a daily basis, Aqua NC will refresh uncompleted work orders previously delivered to Itron.	Update FDM with updates.	Primary responsibility
21.	Itron will implement a deployment plan to meet Project goals. The schedule and plan will be synchronized with the following: <ul style="list-style-type: none"> <li>▪ Meter Reading deployment goals and schedules</li> <li>▪ Black out schedule</li> <li>▪ Availability of meters and ERTs</li> <li>▪ Available quantity of work orders</li> </ul>	Primary Responsibility	
22.	Aqua NC will review, modify and approve (as necessary) field deployment schedule submitted by Itron.		Primary Responsibility
23.	Itron will staff for installations during normal business work hours as defined herein. As required, but with prior approval from Aqua NC, Itron will schedule off hour installation appointments. Off-hours are defined as hours outside normal business hours.	Primary Responsibility	
24.	Itron shall install ERTs in accordance with the procedures defined in the Itron ERT installation manuals.	Primary Responsibility	
25.	Itron shall install Meters in accordance with mutually agreed upon procedures to be provided prior to the commencement of installation work.	Primary Responsibility	
26.	Aqua NC and Itron will mutually agree on the procedures for ERT or meter installations that cannot be completed in accordance with the established procedures.	Mutual responsibility	Mutual Responsibility

	Deliverable/Task(s) and/or Description of Deliverable/Task(s)	Itron Responsibility	Aqua NC Responsibility
27.	Itron shall not install hardware where safe and reliable operation cannot be assured. Upon discovering an occurrence where a safe and reliable installation cannot be assured, Itron shall contact Aqua NC to report condition and update the work order accordingly.	Notify Aqua NC of found condition and update work order.	Primary Responsibility to address condition with the customer.
28.	If safe access cannot be provided for ERT or Meter installation, Itron may return order to Aqua NC in accordance with the RTU process.	Complete the installation if Aqua NC secures an appointment and safe and reliable operation can be assured within 10 days of receiving written or electronic notice from Itron.	Primary Responsibility
29.	Itron to create a ToHost file that includes completed work order data in the agreed upon format. Work orders without data exceptions will be uploaded by 10:00AM the next morning. Work orders with exceptions will be addressed with the goal of uploaded accurate data within 48 hours but no later than 5 business days unless permission granted by Aqua NC.	Primary Responsibility	
30.	Aqua NC will confirm receipt of the ToHost file and post to CIS. Aqua NC will validate the completion data in each file and notify Itron of any exceptions.		Primary Responsibility
31.	Aqua NC will notify Itron of completed work orders received/processed daily in the CIS. Totals will be segregated by work orders posting directly to CIS and those creating an exception.		Primary Responsibility
32.	Aqua NC will validate work orders posting to its CIS against records included in the work order system ToHost file. Itron and Aqua NC will work together to identify the out of balance condition with Itron having responsibility to update the work order as required.	Mutual responsibility for resolving out of balance conditions.	Primary responsibility for posting to CIS; mutual responsibility for resolving out of balance conditions
33.	Aqua NC and Itron shall jointly work to resolve work order data exceptions in a timely and efficient manner. Data exceptions will be resolved within 5 business days or less.	Itron will support Aqua NC's effort to resolve issues	Primary Responsibility
34.	Itron will address all customer complaints and claims pertaining to work performed by Itron. Itron will document each customer complaint and notify Aqua NC Project Manager, as mutually agreed. Aqua NC Project Manager will provide assistance to Itron for claims that cannot be resolved.	Primary Responsibility	
35.	Itron will report theft of service issues and water leaks to the appropriate Aqua NC department.	Primary Responsibility	
36.	Aqua NC will be responsible for storage and salvaging of meters retained during the installation.  Itron and Aqua NC will define a Salvage Meter process.		Primary Responsibility

#	Deliverable Task(s) and/or Description of Deliverable Task(s)	Itron Responsibility	Aqua NC Responsibility
37.	Aqua NC will be responsible for disposal of Project related trash/debris and meter salvage unless otherwise agreed upon.		Primary Responsibility

#### E.4. Deliverable: Training

##### E.4.1. Description, Strategy and Completion Criteria

Training will be performed throughout the Project to ensure that users have appropriate knowledge to install and operate the System. Note that some training efforts are included in other deliverables and noted below.

##### E.4.2. Deliverable Requirements

#	Requirements
1.	Unless otherwise agreed to by Aqua NC and Itron, all training will take place at an Aqua NC facility or via web based conferencing. A minimum of thirty days prior to training, Itron will provide training facility requirements to Aqua NC so the appropriate preparations can be made. Training class size will be between 8 and 12. Aqua NC will make appropriate staff and facilities available for training.
2.	Aqua NC and Itron will mutually agree on training schedule; consideration will be given to the Itron staffing plan defined herein.
3.	A minimum of two weeks prior to a training session, Itron to provide a detailed outline of each training session that includes both the objective of the course and identifies the target training audience (e.g. Aqua NC FSRs, billing, supervisors, etc....)
4.	Initial training will be scheduled and completed prior to the System going into production.
5.	Itron will provide standard documentation and training aids electronically to support of training activities.
6.	Itron to provide experienced and trained instructors focused on delivering training as scheduled to Aqua NC.
7.	ERT and Meter training to include: <ul style="list-style-type: none"> <li>• Installation process and procedures</li> <li>• Troubleshooting</li> <li>• How to audit installs</li> <li>• Maintenance tips</li> <li>• Compatibility</li> </ul>
8.	FC300SR training to include: <ul style="list-style-type: none"> <li>• FDM training</li> <li>• Field configuration of ERT using FC300SR</li> <li>• Meter and ERT types (FDM Configuration file)</li> </ul>

##### E.4.3. Deliverable Tasks

#	Deliverable Task(s) and/or Description of Deliverable Task(s)	Itron Responsibility	Aqua NC Responsibility
1.	FDM Administrator and Manager training for installation contractor	Primary responsibility to schedule and conduct training.	Aqua NC to provide facility and optional participation in this training if desired
2.	FDM Dispatcher training for installation contractor	Primary responsibility to schedule and conduct training.	Aqua NC to provide facility and optional

#	Deliverable Task(s) and/or Description of Deliverable Task(s)	Iron Responsibility	Aqua NC Responsibility
			participation in this training if desired
3.	FDM workflow and FC300 training for installation contractor	Primary responsibility to schedule and conduct training.	Aqua NC to provide facility and optional participation in this training if desired
4.	Customer service training for installation contractor meter/ERT installers and call center reps.	Primary responsibility	Aqua NC to provide facility and optional participation in this training if desired
5.	ERT Programmer training for installation contractor	Primary responsibility to schedule and conduct training.	Aqua NC to provide facility and optional participation in this training if desired.
6.	ERT installation, configuration, troubleshooting and maintenance training for installation contractor	Primary responsibility to schedule and conduct training.	Aqua NC to provide facility and optional participation in this training if desired
7.	MV-RS Mobile Collector and reading operations training for installation contractor for Route Acceptance.	Primary responsibility to schedule and conduct training.	Aqua NC to provide facility and optional participation in this training if desired

## G.1. Installation and Project Acceptance

### F.1.1. Description, Strategy and Completion Criteria

This section defines route and system acceptance criteria.

### G.1.2. Deliverable Requirements

#	Requirements
1.	<p><b>ERT Radio Functionality Confirmation</b> ERTs will be installed and programmed in Mobile Reading mode, subject to Installation Acceptance. The FDM workflow will confirm the ERT is programmed and transmitting data at the conclusion of the installation. The information will be captured electronically in FDM and provided to Aqua NC via the ToHost file.</p>
2	<p><b>Route Structure</b> Route acceptance will utilize existing meter reading route structure; re-routing will not be required for this project.</p>
3	<p><b>Route Acceptance</b> Aqua NC will generate the meter reading file from CIS ensuring data integrity on the system of record (CIS). Route acceptance will occur when 99.0% of the accounts within a route have an Iron ERT (meter module) installed and are read with the mobile collector. Iron will provide route acceptance signature approval process to track progress. Iron and Aqua NC Project Managers will formally accept routes using FDM application as they are completed throughout the build phase of project.</p> <p>A meter and / or endpoint exchange is defined as "installed" upon the successful monthly route read and cycle bill, based on that (actual) read in the normal course of Aqua America business.</p> <p>Aqua will evaluate and provide confirmation to Iron as to the validity of route read for all field completed changes within seven (7) days of the blackout period for all routes in process. Meter and endpoint detail for all exchanges that fail the read qualification will be provided to Iron for remediation.</p> <p>Cycle billing files will be evaluated on a weekly basis. All exchanges that bill based on an estimated read will be evaluated within seven (7) days of the respective monthly cycle bill and returned to Iron for remediation.</p>
4	<p><b>System Acceptance</b> System Acceptance will occur after the following deliverables have been met:</p> <ul style="list-style-type: none"> <li>• All area work orders are complete</li> <li>• Iron shall demonstrate using data in FDM that the meter access program commitment has been achieved for each work order that is Returned to Utility (RTU) based upon inability to make contact with the customer to facilitate the work order completion.</li> <li>• Route acceptance completed and documented for all routes.</li> <li>• All claims/complaints resolved.</li> <li>• QA documentation complete and delivered.</li> <li>• Field investigations complete and deficiencies corrected.</li> <li>• Open project related issues that are assigned to Iron are satisfactorily resolved or an acceptable resolution identified.</li> </ul>

#	Requirements
	<ul style="list-style-type: none"> <li>All Meter scrap has been returned to Aqua NC.</li> </ul>

### G.1.3. Deliverable Tasks

#	Task and Description	Itron Responsibility	Aqua NC Responsibility
1.	Install Meters/ERTs and deliver FDM installation data to CIS	Primary responsibility	Support as required, including resolution of exceptions
2.	Notify Aqua NC Project Manager that meter access commitments for a given route have been met. Non-completed and Return to Utility work orders will be reviewed.	Primary responsibility	Support as required
3.	Identify Routes ready for acceptance	Primary responsibility	Review and approve
4.	Read route with MC to validate radio read performance at or above 99%	Primary	Support
5.	Using standard reports available through Aqua NC meter reading system generate report showing ERTs not read or generating exception	Support	Primary
6.	Investigate exceptions (missed or inaccurate reads) and rectify condition or identify and document cause of exception	Primary	Support
7.	Confirm route meets performance requirements as defined in this document	Primary	Support
8.	Route Acceptance	Submit approval request	Approval
9.	System Acceptance	Submit approval request	Approval

## G.1. Deliverable. System Operations

### G.1.1. Description, Strategy and Completion Criteria

Upon Route Acceptance, both parties agree that the AMR/AMI meters in the route are performing as expected as part of the AMR/AMI Solution. This deliverable assumes that Aqua NC will monitor the route performance and perform maintenance activities as required.

This is an ongoing effort during and after the Build Phase (as hereinafter defined).

### G.1.2. Deliverable Assumptions

#	Assumption
1.	To provide support for system operations, Aqua NC may allow authorized Itron staff to have access to the AMR/AMI system for operation, monitoring, troubleshooting and reporting.

### G.1.3. Deliverable Requirements

#	Task and Description	Itron Responsibility	Aqua NC Responsibility
1.	Investigation of missed reads in Aqua NC meter reading system and non-responding ERTs during the project duration.	Primary responsibility prior to route acceptance	Primary responsibility after route acceptance
2.	Field investigation of non-responding ERTs.	Primary responsibility prior to route acceptance.	Primary responsibility after route acceptance
3.	ERT/Meter maintenance		Perform normal meter maintenance activities such as ERT or meter exchanges due to vandalism, fire, natural disaster, or customer requirement
4.	Meter Reading Performance Create a baseline read performance metric for each accepted route and track and manage monthly meter reading statistics henceforth. Notify Itron's Project Manager if abnormal or unexpected deviation occurs during the Project.		Primary



## H.1.AMR Solution Deliverable: Project Transfer and Close

### H.1.1.Description, Strategy and Completion Criteria

To provide a smooth transition and Project close, Iron and Aqua NC will perform closeout and transition to Iron support activities when the Installation (Build Phase) and Project Acceptance is complete.

This deliverable will be completed when operations have transferred to Aqua NC and the Project is closed.

### H.1.2.Deliverable Requirements

#	Requirements
1.	Aqua NC will provide facilities and staff for transfer training and other efforts.
2.	Aqua NC and Iron will validate Aqua NC ability to manage and support the AMR/AMI System and address operational gaps as necessary.

### H.1.3.Deliverable Tasks

	Task and Description	Iron Responsibility	Aqua NC Responsibility
1.	Review Aqua NC readiness to assume AMR System ownership. Consider the following: <ul style="list-style-type: none"> <li>• Business case expectations</li> <li>• Operations and maintenance procedures</li> <li>• Tools &amp; systems</li> <li>• Knowledge and experience of staff</li> </ul>	Support	Primary responsibility
2.	Inventory reconciliation	Primary responsibility	Support
3.	Return or transfer of inventory and installation materials	Shared Responsibility	Shared Responsibility
4.	Complaints and claims satisfactorily resolved	Primary responsibility	Support/Approval
5.	Field investigations complete or returned	Primary responsibility	Support
6.	Release of Project facility and resources	Primary responsibility	
7.	Open Project Issues satisfactorily resolved	Shared Responsibility	Shared Responsibility
8.	FDM database transfer to Aqua NC upon request	Primary responsibility	Support
9.	Final Project billing	Primary responsibility	Approval/Payment
10.	Utility ID badges or any Utility logo name items returned	Primary responsibility	Participate
11.	All Aqua NC owned keys and tools are returned	Primary responsibility	Participate
12.	Transition to Support Plan Initiated (meeting scheduled with Iron Support Services to	Primary responsibility	Participate

	Task and Description	Iron Responsibility	Agua NC Responsibility
	discuss designed solution and support plans).		
13.	Transition to Support Plan Completed and Transition meeting conducted.	Primary responsibility	Participate
14.	Sign-off on Contract Completion Sign-off document	Iron will prepare the document and submit for review/sign-off.	Acceptance Signature

Itron will invoice Aqua NC on a monthly basis for work performed and for costs incurred unless noted otherwise in the Agreement. If at any point, there is reason to believe that this amount will be exceeded, Itron will immediately notify Aqua NC as to the cause with both parties working together to define how to proceed.

Aqua NC shall pay all taxes, if any, due for Services provided by Itron to Aqua NC under this SOW.

Payment terms are net 30 unless other terms are specified in the Agreement.

If Aqua NC issues a purchase order, the terms of the Services Agreement will supersede the terms of the PO. All purchase orders documents will specify the applicable hourly services rates and expense provisions, the effective period of the PO, and invoice instructions containing at a minimum, the billing information requested below.

Itron is responsible to maintain a 90% work order completion target based upon the installation schedule established and agreed upon in the agreement. Aqua NC will provide work orders in accordance with the installation schedule. Itron is responsible to complete and report work order details within 45 days of expected completion date. Aqua NC will reimburse Itron for completed work orders on a per "installed" unit basis however it is understood by both parties that some completed work orders will include Return to Utility (RTU) orders for which there is no unit charge to Aqua NC.

RTUs are defined as: customer refusal; inaccessible meter; unsafe condition; and plumbing in disrepair or poor condition galvanized or lead. To the extent the actual completed work orders falls behind schedule by 10% as a direct result of Itron's performance, then Aqua NC may withhold payment equivalent to the number of completed work orders below the 90% threshold until such time Itron reestablishes the completion rate above 90% of agreed upon schedule. Aqua NC agrees to make payment in the amount of the retainage within 15 days after the parties agree Itron exceeds the 90% threshold for completed work.

Aqua NC shall not retain payment when work order completion rate shortfall is caused by Aqua NC, its contractors or Acts of God.

Itron and Aqua NC agree to review the project schedule and RTU work order rate regularly to avoid schedule delays and excessive RTU work orders.

All final reconciliations and approval of any retention release will be done as part of section x of Statement of Work



Encoder / Gas / Water  
Infrared detector, analysis and application

2111L Power Kit  
Utility Line W&W RTW  
Case # 2014024  
www.hydrax.com

Pricing Summary for  
Aqua, NC

April 4, 2017  
2:10:51 PM EST

9-Month Deployment

Item	Part Number	Description	Qty	Unit Price	Extended Price	Notes
<b>ERT's</b>						
<b>PI ERT's</b>						
1	ERW-1500-402	150V4. Encoder with Integral Connector & Antenna Connector	16,437	\$57.00	\$928,909.00	(1)
2	CFG-0161-010	Standard B cable with In-Line connector with .167" diameter protective cover	TBD	\$10.00	TBD	(1)
3	OE12-0034-002	Inco Splice Kit	TBD	\$5.00	TBD	(1)
4	CFG-1300-054	100W Through Lid Mount Kit	TBD	\$3.00	TBD	(1)
<b>ERT Total</b>					<b>\$936,909.00</b>	
5	MCS - Mobile Collection System		1	\$33,600.00	\$33,600.00	
<b>&gt;100K ERT's</b>						
	DCU-SS10-011	Mobile Collection 3 (No Laptop) - (RF Unit)				
	DCU-SS02-021	MCS RF Unit				
	CFG-0152-031	Standard Accessory Kit				
		Wiring Kit - Permanent				
<b>Hardware Total</b>					<b>\$33,600.00</b>	
<b>Professional Services</b>						
6	Professional Services	Training Services	1	\$14,300.00	\$14,300.00	
7	Installation Services	Meter Change and ERT Install, 1" or smaller meter	13,708	\$44.51	\$611,613.06	(3)
8	Installation Services	Meter Change and ERT Install, 1.5" meter	11	\$203.54	\$2,239.54	(3)
9	Installation Services	Meter Change and ERT Install, 2" meter	3	\$231.76	\$701.28	(3)
10	Installation Services	Meter Change and ERT Install, 3" meter	1	\$400.61	\$400.61	(3)
11	Installation Services	Meter Change and ERT Install, 4" meter	2	\$552.44	\$1,104.88	(3)
12	Installation Services	ERT Module Rebill	2,651	\$31.22	\$82,764.22	(3)
13	Installation Services	Remove existing pit box and replace with FORD meter box (over, shallow, cast iron). Labor only, materials provided by others	TBD	\$36.50	TBD	(3)
14	Installation Services	Pit Lid Drilling	TBD	\$3.70	TBD	(3)
15	Installation Services	Pit Lid or Pit Ring Replacement	TBD	\$3.68	TBD	(3)
<b>Professional Services and Install Totals</b>					<b>\$714,540.51</b>	
<b>FDMA Software</b>						
16	Professional Services	FDMA Installation	1	\$2,200.00	\$2,200.00	(2)
				Annual Fee	Annual Fee	
				(Per Point)		
17	Annual Services	FDMA SaaS Managed Services	16,437	\$0.41	\$6,773.88	(4)
<b>FDMA SaaS Managed Services Total</b>					<b>\$9,053.36</b>	
<b>Aqua One-Time Grant</b>					<b>\$10,000.00</b>	
<b>Total</b>					<b>\$1,654,102.87</b>	



**1.1. Billing Information**

To ensure that Itron has all the correct billing information, please verify the following billing information:

Requested	Aqua NC Data
Billing Contact Name	Carolyn Fields
Billing Contact Phone #(s)	919-653-5769
Billing Contact Email Address	CAFields@aquaamerica.com
Billing Address	202 Mackenon Ct. Cary, NC 27511
Special Billing Requirements?	Bill By Subdivision
Purchase Order Numbers	

**1.2. Change Control**

A Project change order (Change Order) will be the vehicle for communicating changes. The Change Order must describe the change requested, the rationale for the change, the estimated price and the effect the change will have on the Project. All Change Orders must be approved by Aqua NC and Itron.



<b>Aqua NC</b>	<b>Iron, Inc.</b>
Authorized Signature <i>Shannon V. Becker</i>	Authorized Signature <i>James Schroath</i>
Printed Name <i>Shannon V. Becker</i>	Printed Name <b>James Schroath</b>
Title <i>President</i>	Title <b>Global Revenue Controller</b>
Date <i>May 15<sup>th</sup>, 2017</i>	Date <i>5/19/2017</i>

Aqua NC agrees to the deliverables and responsibilities as described in this SOW.

SOW Author: Brad Balzer

Please return this signed SOW to:

Iron, Inc.

2111 N. Moller Rd.

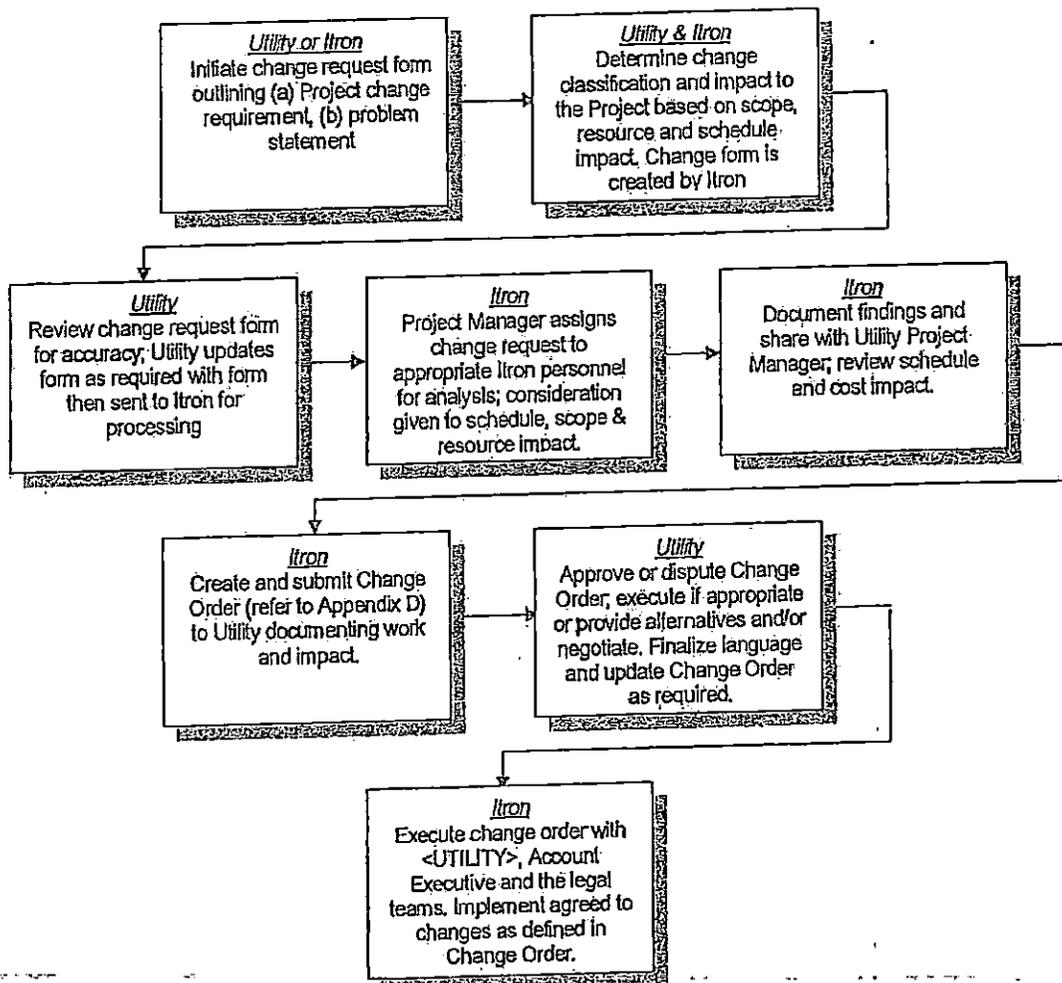
Liberty Lake, WA 99019

Attn: Contract Administration

Fax: (509) 891-3331 or pdf and email to [contract.request@iron.com](mailto:contract.request@iron.com). - A fully executed version will be returned.



The change control process ("Change Control Process") is described below.



K.1.Change Request Form

<b>Need:</b>  <input type="checkbox"/> Urgent  <input type="checkbox"/> Essential  <input type="checkbox"/> Desirable	<b>Change Request Description:</b>      	
<b>Justification for Change:</b>      		
<b>Change Requested By:</b>  		
<b>Name and Title</b>	<b>Signature</b>	<b>Date</b>
<b>Impact Summary:</b>    		
<b>Impact to Schedule:</b>  	<b>Impact to Resources:</b>  \$	<b>Requester Informed of Impact</b> <b>Project Manager</b>  <b>Date:</b>
<b>Approval:</b>  <b>Ifron Project Manager:</b>		<b>Date:</b>
<b>Aqua NC Project Manager:</b>  <b>Project Manager:</b>		



Order Processing:

PO/Contract #: \_\_\_\_\_

Comments: \_\_\_\_\_

Software Changes:

- Modifications
- Meter Licenses
- Other

Description	Unit Price

Implementation Labor and Expense:

- Billable
  - Non-billable
- Charge to: \_\_\_\_\_

Purpose	Description	Days	Cost	
	Labor			
	Per Diem			
	Misc.			
	Total			

Other Changes

Milestones to begin at Project start date.

Iron will work with Aqua NC to create Project schedule that meets the Project schedule deliverables and measurements below.

Deliverable	Measurement	Due Date
Baseline Project Plan	Baseline Project Plan reviewed and approved by Aqua NC	One (1) month after Project start
FDM Requirements Document	FDM requirements document reviewed and approved by Aqua NC	Thirty (30) calendar days after requirements workshop
Training Plan	Complete training plan meeting the training requirements as defined herein.	Two (2) months after Project start
Test Plan	End to end and functionality Test Plans will be reviewed and approved by Aqua NC for the following: <ul style="list-style-type: none"> <li>FDM</li> <li>Integration Test (FDM and Banner)</li> </ul>	Two (2) months after Project start
Project Governance	Project Governance document reviewed and approved by Aqua NC that includes: <ul style="list-style-type: none"> <li>Project Framework</li> <li>Team communications</li> <li>Reporting &amp; Project reporting</li> <li>Initial Risk Plan</li> <li>Initial Issues Tracking List</li> </ul>	Two (2) months after Project start
Integrated Project Plan	Iron to complete and Aqua NC to review and approve the baseline Integrated Project plan.	Two (2) months after Project start
Baseline Deployment Plan	ERT baseline Deployment schedule reviewed and approved by Aqua NC. Includes meter and ERT delivery schedules, meter and ERT installation schedules, and route acceptance schedule.	Two (2) months after Project start
	Route Acceptance reports will be used to track performance against plan.	Seven (7) months after Project start with finish no later than 10/31/2017 date contingent upon contract execution by 2/1/17
	Route Acceptance reports will be used to track performance against plan	Nine (9) months after Project start with finish no later than 10/31/2017 date contingent upon contract execution date by 2/1/2017
Final System Acceptance	Final System Acceptance performance criteria are achieved	Nine (9) months after Project start

**Appendix B - Definitions**

This section provides a listing and definition of the key terms referred to in this document.

Term	Definition
100W or 100 - R+	The Itron Water ERT which communicates using the 900 MHz frequency. The 100W ERTs are high-powered radio frequency two-way devices. When attached to a water meter, the ERT obtains consumption, data logging and tamper information from the meter then communicates the data via radio to a Handheld computer, Mobile Collector or a 900 MHz Network Device.
AMI	Advanced Metering Infrastructure
AMR	Automated Meter Reading
API	Application Programming Interface
Available ERT	Water ERT: (i) that is not damaged or vandalized by a third party; (ii) for which Aqua NC has provided Itron with accurate and up-to-date account information via the FDM FromHost Interface; (iii) Aqua NC(iv) ERT without a pending investigation or maintenance work order (previously reported non-responding ERT); (v) exclusion of ERTs in which unanticipated RF blocking has occurred since installation; examples are limited to permanent structures added after the ERTs were accepted.
Billing Read	Is defined as delivering one standard consumption meter read to the MV-RS application.
CIS	Customer Information System
CSR	Customer Service Representative. A person that works in the utility call center.
Deployment Plan	Using input from Aqua NC, the Deployment Plan is developed by the Itron Project Manager and approved by Aqua NC. It is the schedule that defines order in which routes will be assigned to Itron. The Deployment Plan will include the following: <ul style="list-style-type: none"> <li>• build schedule – used by Itron manufacturing</li> <li>• delivery schedule – used to define product delivery schedule</li> <li>• ERT Installation schedule – used by Itron to install and manage the ERT installation process</li> <li>• Route acceptance schedule – schedule used by the Project Team to manage route saturation and acceptance expectations</li> </ul>
ERT	See 100W or 100 - R+ above
Equipment	As described in Schedule A.
Field Deployment Manager (FDM)	FDM is the tool used to manage work orders for the Project. Work order types in FDM include installation, quality assurance and maintenance. FDM is also the tool used to manage inventory and for the purpose of the Project.
FSR	Field Service Representative. Another name for a meter or ERT installer.
FTP	File Transfer Protocol

Term	Definition
GPRS	General Packet Radio Service. Cell phone carriers offer this service. Packet-based, always-on, Internet Protocol (IP) based, data service utilized by Water ChoiceConnect and OpenWay systems.
HDL	Host Download file. File from the Customer CIS/billing system to the Itron MV-RS meter reading system.
HUL	Host Upload file. File from the Itron MV-RS meter reading system to the Customer CIS/billing system.
ICS	Initial Configuration Set-up. Process of initializing the Collector configuration including the back-haul method.
Infrastructure System (ITX)	Meter and other asset management system used by Aqua NC.
IT	Information Technology
Integrated Project Plan	Is the overall plan used by the Project Team to deliver the Work. The Integrated Project Plan identifies both Aqua NC and Itron required tasks and deliverables.
Interval Read	Is defined as hourly message received at the ChoiceConnect Application Software. Each Available ERT is expected to deliver 24 (or more) Interval Read messages daily.
Itron Project Team	Includes all Project resources under the responsibility of Itron including staff from Itron, and both the ERT and Network Device Installation contractors. Itron resources, including subcontractors, will be defined in Schedule F of the Agreement.
Meter Access Program	<p>Itron will attempt to replace a ERT or document reasons why this could not be accomplished on each meter for which it receives a work order. Itron will document steps within the FDM application. Steps include:</p> <ul style="list-style-type: none"> <li>(a) Initial notice or letter mailed by Utility</li> <li>(b) Cold call or door knock; if meter is accessible, customer does not have to be at home to complete order. If meter is not accessible a door hanger is left if install cannot be completed.</li> <li>(c) Another cold call or door knock with a second door hanger left. Note: Phone attempt(s) and cold calls are not subject a specific order but rather driven by operational efficiency and completion success rate.</li> <li>(d) Phone attempts; a minimum of two documented attempts are made when a valid phone number is provided. At least 1 attempt will occur after normal business hours or on Saturday.</li> <li>(e) Third and final cold call or door knock with a final door hanger left if unsuccessful</li> <li>(f) At least 1 cold call attempt will occur after normal business hours or on Saturday.</li> <li>(g) If utility chooses to implement a service shut-off program, Itron may "hold" order in FDM for 10 Business days (or duration mutually agreed upon) pending service shut-off and/or customer contact. If no contact is made, the order will be returned to utility (RTU) as a "cannot complete" (CC) order.</li> </ul> <p>If at any time in the process the FSR identifies a service issue or an account that appears to have been tampered with, the work order will be completed as an RTU and returned to RGC.</p>
Non-Production	Environments of Software Instances defined by Aqua NC not used for customer billing. Examples include Test, Development, Training, Backup, or Business Intelligence.
Project Team	Consist of representatives from both Aqua NC and Itron responsible to deliver on the requirements of the Project. Job responsibilities and resource names are defined in Schedule F of the Agreement.

Term	Definition
Provision	The processes and acts employed by Itron to supply, install, configure, test and activate an Automated Water Meter Reading System for Aqua NC pursuant to this Agreement.
RMA	Return Material Authorization is an approval received from Itron's customer support group to return Itron product under warranty.
Route Acceptance	Route Acceptance is defined as the "completion" of all assigned work orders within an existing Aqua NC meter reading route. "Completion" is defined as each work order in a route having an ERT installed or the work order returned to Aqua NC in accordance with the agreed upon RTU process.  Route Acceptance is important as Itron builds their baseline Deployment Plan with a focus towards route saturation and Route Acceptance. The purpose is to ensure routes are completed timely and against defined and measureable schedule.
RTU	Return to Utility work order. This is a work order that is returned to Aqua NC because the install was not able to be completed.
S/N's	Serial Numbers
VPN	Virtual Private Network
Work Order Data	Is the FDM meter deployment data
XML	Extensible Markup Language

PUBLIC STAFF GEARHART REBUTTAL CROSS EXHIBIT 1

I/A

Aqua North Carolina, Inc.  
Docket No. W-218, Sub 497  
Aqua North Carolina, Inc.  
Public Staff Engineering Data Request No. 60

Requested by: Charles Junis Email: charles.junis@psncuc.nc.gov  
Date requested: September 5, 2018 Phone: 919-733-0891  
Due date: ASAP

Subject of Data Request: Rebuttal Gearhart

**For spreadsheet responses, please provide in Excel format, if possible, and include all links to other files and working formulas. For other documents, please provide in Microsoft Word format or in searchable PDF format if possible. In addition, please include (1) the name and title of the individual who has the responsibility for the subject matter addressed therein, and (2) the identity of the person making the response by name, occupation, and job title.**

1. On page 4, lines 15-18, please provide the basis for Mr. Gearhart's contentions that "variable expenses for these sewer entities is primarily customer driven" and that "the consumption factor is designed to apply to only water rate entities." When preparing your response, please produce all documents which you contend support these conclusions, including, but not limited to, all workpapers and analyses prepared by Mr. Gearhart.

**R. The basis for this contention was the fact that the consumption factor used in this adjustment is based on customer gallons billed. Applying that factor to sewer entities where the vast majority of customers are flat rate and have no billed consumption would seem to be inappropriate.**

**This factor has not been applied to sewer entities for any Aqua NC rate cases dating back to at least 2007 and neither the company nor the Public Staff have disagreed on this concept.**

**Attached please find the following three files:**

**EDR60 Q1-Aqua NC W-218 Sub 274 A&C Adjustments (TY 12/31/07)**

**EDR60 Q1-Aqua NC W-218 Sub 319 A&C Adjustments (TY 7/31/10)**

**EDR60 Q1-Aqua NC W-218 Sub 363 A&C Adjustments (TY 3/31/07)**

**In each, the PS Exhibits are included that all have "—" or a blank under Consumption Factor for the sewer rate entities.**

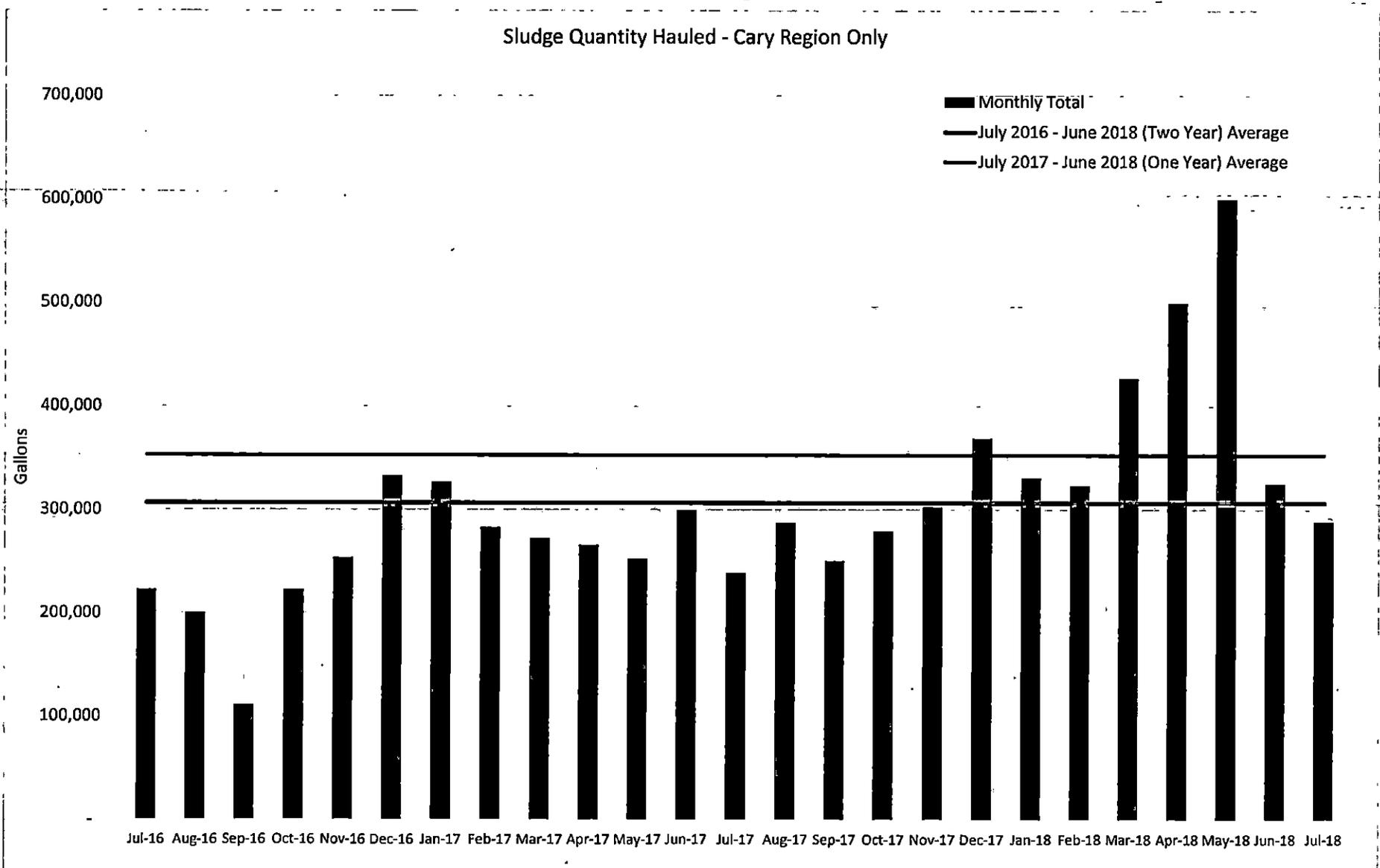
2. On page 6, line 2, please provide the detailed workpapers used to calculate the sewer customer growth of 4.2%.

**R. Please see attached file "EDR60 Q2-Aqua NC Active Customer Count 06.17-06.18.xlsx"**

3. On page 7, line 7, please provide the detailed workpapers used to calculate the amount of \$73,732.

**R. Please see attached file "EDR60 Q3-Aqua NC Proposed Update to Annualization and Consumption.xlsx". This is a company update to Cooper Exhibit I 3-5 (a), 3-5(a)(1) & 3-5(b). All items that have been updated by the company are hi-lited in yellow for easy comparison to the NC Public Staff amounts.**

**NOTE - due to the update to the Annualization Factor in column c on the latest version of Cooper Exhibit I, Schedule 3-5(a)(1) the amount of the requested adjustment is now \$75,298.**



### Sludge Quantity Hauled - Cary Region Only

