

Supplemental W-1  
Filing

/Ad

CAROLINA WATER SERVICE, INC. OF NORTH  
CAROLINA  
NCUC FORM W-1  
RATE CASE INFORMATION REPORT  
DOCKET NO. W-354, SUB 344  
ITEM 7

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Apr 21 2015

NCUC FORM W-1  
RATE CASE INFORMATION REPORT  
Docket W-354, Sub 344

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7. The following information for each subdivision or utility system acquired or operated, whether owned or not, since the last rate case:

- (a) **Description of system,**  
Linville Ridge water system  
Public Water System ID Number 01-06-117
- (b) **Location,**  
Linville, Avery County NC
- (c) **Date purchased,**  
Utility Asset Purchase Agreement dated November 13, 2012  
Commission approval order W-354 sub 335 issued October 28, 2013  
Closing date / date of operations transfer December 3, 2013
- (d) **Cost,**  
\$225,000
- (e) **Number of customers currently being served,**  
332 active customers and 41 Availability
- (f) **Maximum number of customers that can be served by wells in place,**  
Approx. 637
- (g) **Maximum number of customers that can be served by water mains in place,**  
Approx. 490
- (h) **Maximum number of customers that can be served by storage tanks in place,**  
2500
- (i) **Maximum number of customers that can be served by sewer mains in place,**  
Not Applicable
- (j) **Maximum number of customers that can be served by sewer treatment plant in place,**  
Not Applicable
- (k) **State whether owned or managed.**  
Owned

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7. The following information for each subdivision or utility system acquired or operated, whether owned or not, since the last rate case:

- (a) **Description of system,**  
Cross State Development Company  
Ashe Lake "Beaver Creek" water system
- (b) **Location,**  
Ashe county
- (c) **Date purchased,**  
Not applicable
- (d) **Cost,**  
Not applicable
- (e) **Number of customers currently being served,**  
21
- (f) **Maximum number of customers that can be served by wells in place,**  
Unknown – system is non-compliant and unapproved
- (g) **Maximum number of customers that can be served by water mains in place,**  
Unknown – system is non-compliant and unapproved
- (h) **Maximum number of customers that can be served by storage tanks in place,**  
Unknown – system is non-compliant and unapproved
- (i) **Maximum number of customers that can be served by sewer mains in place,**  
Unknown – system is non-compliant and unapproved
- (j) **Maximum number of customers that can be served by sewer treatment plant in place,**  
Unknown – system is non-compliant and unapproved
- (k) **State whether owned or managed.**  
Managed. CWSNC was appointed as Emergency Operator in W-408 sub 9

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7. The following information for each subdivision or utility system acquired or operated, whether owned or not, since the last rate case:

- (a) **Description of system,**  
Cross State Development Company  
Ashe Lake "Holiday Lane" water system
- (b) **Location,**  
Ashe county
- (c) **Date purchased,**  
Not applicable
- (d) **Cost,**  
Not applicable
- (e) **Number of customers currently being served,**  
29
- (f) **Maximum number of customers that can be served by wells in place,**  
Unknown – system is non-compliant and unapproved
- (g) **Maximum number of customers that can be served by water mains in place,**  
Unknown – system is non-compliant and unapproved
- (h) **Maximum number of customers that can be served by storage tanks in place,**  
Unknown – system is non-compliant and unapproved
- (i) **Maximum number of customers that can be served by sewer mains in place,**  
Unknown – system is non-compliant and unapproved
- (j) **Maximum number of customers that can be served by sewer treatment plant in place,**  
Unknown – system is non-compliant and unapproved
- (k) **State whether owned or managed.**  
Managed. CWSNC was appointed as Emergency Operator in W-408 sub 9

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7. The following information for each subdivision or utility system acquired or operated, whether owned or not, since the last rate case:

- (a) **Description of system,**  
Cross State Development Company  
Nikanor water system
- (b) **Location,**  
Ashe county
- (c) **Date purchased,**  
Not applicable
- (d) **Cost,**  
Not applicable
- (e) **Number of customers currently being served,**  
127
- (f) **Maximum number of customers that can be served by wells in place,**  
Unknown – system is non-compliant and unapproved
- (g) **Maximum number of customers that can be served by water mains in place,**  
Unknown – system is non-compliant and unapproved
- (h) **Maximum number of customers that can be served by storage tanks in place,**  
Unknown – system is non-compliant and unapproved
- (i) **Maximum number of customers that can be served by sewer mains in place,**  
Unknown – system is non-compliant and unapproved
- (j) **Maximum number of customers that can be served by sewer treatment plant in place,**  
Unknown – system is non-compliant and unapproved
- (k) **State whether owned or managed.**  
Managed. CWSNC was appointed as Emergency Operator in W-408 sub 9

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7. The following information for each subdivision or utility system acquired or operated, whether owned or not, since the last rate case:

- (a) **Description of system,**  
Cross State Development Company  
Parkway East system
- (b) **Location,**  
Ashe and Wilkes counties
- (c) **Date purchased,**  
Not applicable
- (d) **Cost,**  
Not applicable
- (e) **Number of customers currently being served,**  
12
- (f) **Maximum number of customers that can be served by wells in place,**  
Unknown – system is non-compliant and unapproved
- (g) **Maximum number of customers that can be served by water mains in place,**  
Unknown – system is non-compliant and unapproved
- (h) **Maximum number of customers that can be served by storage tanks in place,**  
Unknown – system is non-compliant and unapproved
- (i) **Maximum number of customers that can be served by sewer mains in place,**  
Unknown – system is non-compliant and unapproved
- (j) **Maximum number of customers that can be served by sewer treatment plant in place,**  
Unknown – system is non-compliant and unapproved
- (k) **State whether owned or managed.**  
Managed. CWSNC was appointed as Emergency Operator in W-408 sub 9

CAROLINA WATER SERVICE, INC. OF NORTH  
CAROLINA  
NCUC FORM W-1  
RATE CASE INFORMATION REPORT  
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ITEM 9

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**NCUC FORM W-1-9a**  
**RATE CASE INFORMATION REPORT**  
**Docket W-354, Sub 344**

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**Apr 21 2015**



Batch #:	<u>171744</u>	Prepared By:	<u>Brian Halloran</u>
Document #:	<u>296488</u>	Reversing:	Yes <input type="checkbox"/>
Ledger Type	<u>AA</u>		No <input checked="" type="checkbox"/>
GL Date:	<u>12/03/13</u>	Posted Date:	<u>01/07/14</u>
Journal Description:	<u>LINVILLE RIDGE ACQUISITION</u>		

Account Number	Remark	Debit Amount	Credit Amount	Asset #
182.1050	LINVILLE RIDGE ACQUISITION	494.00		
182.1080	LINVILLE RIDGE ACQUISITION	848,090.00		
182.1100	LINVILLE RIDGE ACQUISITION	105,634.00		
182.1115	LINVILLE RIDGE ACQUISITION	7,530.00		
182.1120	LINVILLE RIDGE ACQUISITION	65,639.00		
182.1125	LINVILLE RIDGE ACQUISITION	37,400.00		
182.1130	LINVILLE RIDGE ACQUISITION	178,723.00		
182.1200	LINVILLE RIDGE ACQUISITION	41,105.00		
182.1845	LINVILLE RIDGE ACQUISITION		494.00	
182.1875	LINVILLE RIDGE ACQUISITION		348,832.00	
182.1895	LINVILLE RIDGE ACQUISITION		73,984.00	
182.1910	LINVILLE RIDGE ACQUISITION		6,252.00	
182.1915	LINVILLE RIDGE ACQUISITION		22,787.00	
182.1920	LINVILLE RIDGE ACQUISITION		29,397.00	
182.1925	LINVILLE RIDGE ACQUISITION		105,159.00	
182.1995	LINVILLE RIDGE ACQUISITION		21,106.00	
182.3295	LINVILLE RIDGE ACQUISITION		668,776.00	
182.3840	LINVILLE RIDGE ACQUISITION	217,172.00		
103.2640.11	LINVILLE RIDGE ACQUISITION		225,566.00	
182245.5825	LINVILLE RIDGE ACQUISITION	566.00		
		<u>1,502,353.00</u>	<u>1,502,353.00</u>	

**Carolina Water Service, Inc.**  
Docket No. W-354, Sub 335  
ORIGINAL COST RATE BASE  
As of December 31, 2012

Bradley Exhibit I  
Schedule 1

<u>Line No.</u>	<u>Item</u>	<u>Amount Per Public Staff (a)</u>
1.	Plant in service	\$1,284,615 [1]
2.	Accumulated depreciation	(390,839) [2]
3.	Contributions in aid of construction	<u>(668,776) [3]</u>
4.	Net plant in service	<u><u>\$225,000</u></u>
[1]	Schedule 1-1, Column (a), Line 150.	
[2]	Schedule 1-3, Column (a), Line 6.	
[3]	Schedule 1-2, Column (a), Line 7.	

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Row Labels	Values			
	Sum of Plant Amount	Average of Life (Years)	Sum of Accum Depr	Sum of Net
1065	494	3	494	-
1080	848,090	25	348,832	499,258.01
1100	105,634	20	73,984	31,650.50
1115	7,530	5	6,252	1,277.12
1120	65,639	7	22,787	42,852.00
1125	37,400	10	29,397	8,003.45
1130	178,723	50	105,159	73,564.50
1200	41,105	15	21,106	19,999.50
<b>Grand Total</b>	<b>1,284,614</b>	<b>18.43307087</b>	<b>608,009</b>	<b>676,605.08</b>

Totals 1,284,614  
 Check (1)

\* CREATE EAM # \*

Accum (Rounded)	Cost	Accum
494	1050 182.1050	1845 182.1845
348,832	1080 182.1080	1875 182.1875
73,984	1100 182.1100	1895 182.1895
6,252	1115 182.1115	1910 182.1910
22,787	1120 182.1120	1915 182.1915
29,397	1125 182.1125	1920 182.1920
105,159	1130 182.1130	1925 182.1925
21,106	1200 182.1200	1995 182.1995
<b>608,011</b>		

Line #	OBJ # (WATER)	Item	Plant Amount	Year Placed in Service	Life (Years)	Years in Service	Annual Depr	Accum Depr	Net
1.		1080 Pump Station	16,116.00	1981	25	31.5	-	16,116.00	-
2.		1200 Generator	3,886.00	1981	15	31.5	-	3,886.00	-
3.		1125 Pump	3,092.00	1981	10	31.5	-	3,092.00	-
4.		1100 Pump Control Panel	7,588.00	1981	20	31.5	-	7,588.00	-
5.		1130 Water Lines	137,455.00	1982	50	30.5	2,749.00	83,844.50	53,610.50
6.		1080 Valves	55,613.00	1982	25	30.5	-	55,613.00	-
7.		1080 Miscellaneous	8,432.00	1982	25	30.5	-	8,432.00	-
8.		1080 Consulting - Engineering	5,237.00	1982	25	30.5	-	5,237.00	-
9.		1080 Consulting - Engineering	1,395.00	1983	25	29.5	-	1,395.00	-
10.		1130 Water Main	7,521.00	1983	50	29.5	150.00	4,425.00	3,096.00
11.		1080 Valves	297.00	1983	25	29.5	-	297.00	-
12.		1080 Miscellaneous	1,442.00	1983	25	29.5	-	1,442.00	-
13.		1080 Engineering Consultant	2,484.00	1984	25	28.5	-	2,484.00	-
14.		1115 Miscellaneous Supplies	57.00	1984	5	28.5	-	57.00	-
15.		1125 Miscellaneous Supplies	380.00	1984	10	28.5	-	380.00	-
16.		1080 Miscellaneous Construction	33,810.00	1984	25	28.5	-	33,810.00	-
17.		1130 Wells	17,050.00	1987	50	25.5	341.00	8,695.50	8,354.50
18.		1080 Valves	473.00	1987	25	25.5	-	473.00	-
19.		1100 Work on Pumphouse	429.00	1987	20	25.5	-	429.00	-
20.		1080 Site Preparation	1,003.00	1987	25	25.5	-	1,003.00	-
21.		1080 Pump House	1,596.00	1987	25	25.5	-	1,596.00	-
22.		1115 Miscellaneous Supplies	105.00	1987	5	25.5	-	105.38	(0.38)
23.		1130 Wells	1,600.00	1987	50	25.5	32.00	816.00	784.00
24.		1125 Pump House	299.00	1987	10	25.5	-	299.00	-
25.		1100 Transformer	191.00	1987	20	25.5	-	191.00	-
26.		1130 Pump	11,077.00	1988	50	24.5	222.00	5,439.00	5,638.00
27.		1080 Pump valve	810.00	1988	25	24.5	-	810.00	-
28.		1125 Pumphouse	2,112.00	1988	10	24.5	-	2,112.00	-
29.		1130 Pipe	1,730.00	1988	50	24.5	35.00	857.50	872.50
30.		1100 cable to new well	161.00	1988	20	24.5	-	161.00	-
31.		1080 Electric line	11,808.00	1988	25	24.5	-	11,808.00	-
32.		1080 Well control	2,117.00	1988	25	24.5	-	2,117.00	-
33.		1080 Reducing Station	3,800.00	1988	25	24.5	-	3,800.00	-
34.		1130 Pipe	2,290.00	1989	50	23.5	46.00	1,081.00	1,209.00
35.		1080 Valves	310.00	1989	25	23.5	12.00	282.00	28.00
36.		1080 Miscellaneous	439.00	1989	25	23.5	18.00	423.00	16.00
37.		1100 Transformer	762.00	1988	20	24.5	-	762.00	-
38.		1115 Control	638.00	1991	5	21.5	-	638.00	-
39.		1120 Tank Painting	3,400.00	1991	7	21.5	-	3,400.00	-
40.		1080 Breaker	1,480.00	1991	25	21.5	59.00	1,268.50	211.50
41.		1080 Professional Fees	614.00	1991	25	21.5	25.00	537.50	76.50
43.		1080 Engineering Consulting	3,555.00	1999	25	13.5	142.00	1,917.00	1,638.00
44.		1080 Pressure Reducing Station	23,855.00	1999	25	13.5	954.00	12,879.00	10,976.00
45.		1120 Tank Painting	425.00	1999	7	13.5	-	425.00	-
46.		1125 Miscellaneous Supplies	3,564.00	1999	10	13.5	-	3,564.00	-
47.		1080 Wellhouse	6,978.00	1999	25	13.5	279.00	3,766.50	3,211.50
48.		1080 Electrical System for Well	2,842.00	1999	25	13.5	114.00	1,539.00	1,303.00
49.		1100 Work on Pumphouse	2,400.00	1999	20	13.5	120.00	1,620.00	780.00
50.		1200 Gauges for Pressure Reducing Station	300.00	1999	15	13.5	20.00	270.00	30.00
51.		1125 New Pump and Installation	18,315.00	1999	10	13.5	-	18,315.00	-
53.		1080 Engineering Consulting	648.00	1999	25	13.5	26.00	351.00	297.00
54.		1100 Water Storage Tank	44,982.00	1999	20	13.5	2,249.00	30,361.50	14,620.50
55.		1100 Electrical Work - Well	951.00	1999	20	13.5	48.00	648.00	303.00
57.		1080 Well	1,431.00	1999	25	13.5	57.00	769.50	661.50
58.		1100 Water Storage Tank	47,028.00	1999	20	13.5	2,351.00	31,738.50	15,289.50
61.		1080 Water Tank	194,219.00	2003	25	9.5	7,753.00	73,653.50	120,565.50
62.		1080 Pump Station	120,179.00	2003	25	9.5	4,807.00	45,666.50	74,512.50
63.		1080 Hydro-pneumatic Station	55,155.00	2003	25	9.5	2,206.00	20,957.00	34,198.00
66.		1080 Well Drilling	7,083.00	2004	25	8.5	283.00	2,405.50	4,677.50
67.		1080 Well	13,700.00	2004	25	8.5	548.00	4,658.00	9,042.00
68.		1080 Excavation	6,938.00	2004	25	8.5	278.00	2,363.00	4,575.00
69.		1080 Well	5,390.00	2004	25	8.5	216.00	1,836.00	3,554.00
70.		1100 Engineering Consulting	1,142.00	2004	20	8.5	57.00	484.50	657.50
73.		1200 Control Panel	24,568.00	2005	15	7.5	1,638.00	12,285.00	12,283.00
76.		1200 Booster Pump	2,067.00	2006	15	6.5	138.00	897.00	1,170.00
79.		1200 Control Panel	2,555.00	2007	15	5.5	170.00	935.00	1,620.00
80.		1120 Pump	2,936.00	2007	7	5.5	419.00	2,304.50	631.50
81.		1200 Pressure and tank upgrade	4,612.00	2007	15	5.5	307.00	1,688.50	2,923.50
82.		1200 Pressure Controls	3,117.00	2007	15	5.5	208.00	1,144.00	1,973.00
83.		1080 Pipe	575.00	2007	25	5.5	23.00	126.50	448.50
84.		1115 Chemical Feed Pump	1,075.00	2007	5	5.5	-	1,075.00	-
85.		1125 Pressure Switch	256.95	2007	10	5.5	26.00	143.00	113.95
86.		1065 Well House Heater	154.72	2007	3	5.5	-	154.72	-
87.		1080 Hydrant (Blow Valve)	2,760.01	2007	25	5.5	110.00	605.00	2,155.01
88.		1080 Well Drilling	14,900.00	2007	25	5.5	596.00	3,278.00	11,622.00
89.		1115 Chemical Feed Pump	2,187.52	2007	5	5.5	-	2,187.52	-
90.		1120 Motor	2,825.00	2007	7	5.5	404.00	2,222.00	603.00
91.		1080 Engineering Consultation	4,843.00	2007	25	5.5	194.00	1,067.00	3,776.00
96		1080 Well Drilling	12,880.00	2008	25	4.5	515.00	2,317.50	10,562.50
97		1120 SUD Pump - Belvedere Pool	-	2008	7	4.5	-	-	-
98		1120 Pump - Braswell # 5	4,955.00	2009	7	3.5	708.00	2,478.00	2,477.00
99		1080 Gate	1,746.00	2009	25	3.5	70.00	245.00	1,501.00
100		1080 Water Box	136.00	2009	25	3.5	5.00	17.50	118.50
101		1080 Gate	1,830.00	2009	25	3.5	73.00	255.50	1,574.50
102		1065 Heat Unit	339.00	2009	3	3.5	113.00	339.00	-
103		1115 Thermostat	-	2009	5	3.5	-	-	-
104		1120 Motor	4,919.00	2009	7	3.5	703.00	2,460.50	2,458.50
105		1080 Valves	5,217.00	2009	25	3.5	209.00	731.50	4,485.50

106	1080 Valves	-	-	2009	25	3.5	-	-	-	-
107	1080 Valves	-	-	2009	25	3.5	-	-	-	-
108	1115 Chemical Feed Pump	1,090.00	-	2009	5	3.5	218.00	763.00	-	327.00
109	1115 Cultivar Aline Trupr 4g*	-	-	2009	5	3.5	-	-	-	-
110	1115 Chemical Feed Pump	1,787.00	-	2009	5	3.5	357.00	1,249.50	1,749.50	537.50
111	1080 Pump Station - Chestnut Trail	164,550.00	-	2010	25	2.5	6,582.00	16,455.00	148,095.00	148,095.00
112	1125 Pressure Gauge	171.00	-	2010	10	2.5	17.00	42.50	128.50	128.50
113	1125 Analog Input Card	1,538.00	-	2010	10	2.5	154.00	385.00	1,153.00	1,153.00
114	1125 Pressure Transducer	366.00	-	2010	10	2.5	37.00	92.50	273.50	273.50
115	1125 Pressure Transducer	430.00	-	2010	10	2.5	43.00	107.50	322.50	322.50
116	1080 Valves	-	-	2010	25	2.5	-	-	-	-
117	1080 Valves	-	-	2010	25	2.5	-	-	-	-
118	1080 Coupling Grid	-	-	2010	25	2.5	-	-	-	-
119	1080 Oil Sawzall Blade, Rage	-	-	2010	25	2.5	-	-	-	-
120	1080 Valves	-	-	2010	25	2.5	-	-	-	-
123	1120 Subcol Motor	5,926.00	-	2011	7	1.5	847.00	1,270.50	4,655.50	4,655.50
124	1120 Pump - Braswell #1	4,151.00	-	2011	7	1.5	593.00	889.50	3,261.50	3,261.50
125	1120 Pump - Calwell # 5	10,478.00	-	2011	7	1.5	1,497.00	2,245.50	8,232.50	8,232.50
126	1120 Pump - Braswell # 4	9,998.00	-	2011	7	1.5	1,423.00	2,134.50	7,823.50	7,823.50
127	1120 Motor	3,931.00	-	2011	7	1.5	562.00	843.00	3,088.00	3,088.00
128	1080 Pump House	6,305.00	-	2011	25	1.5	252.00	378.00	5,927.00	5,927.00
129	1125 Pressure Switch	703.00	-	2011	10	1.5	70.00	105.00	598.00	598.00
130	1125 Labor	450.00	-	2011	10	1.5	45.00	67.50	382.50	382.50
131	1125 Lighting Arrestor	585.00	-	2011	10	1.5	59.00	88.50	496.50	496.50
132	1120 Timers	-	-	2011	7	1.5	-	-	-	-
133	1120 Pumps	6,119.00	-	2011	7	1.5	874.00	1,311.00	4,808.00	4,808.00
134	1120 Repairs and Timers	-	-	2011	7	1.5	-	-	-	-
135	1120 Valves and Timer	-	-	2011	7	1.5	-	-	-	-
136	1125 Relief Valves	1,777.00	-	2011	10	1.5	178.00	267.00	1,510.00	1,510.00
137	1115 Hook-up Temp Pump	-	-	2011	5	1.5	-	-	-	-
138	1115 Scapoint Display	590.00	-	2011	5	1.5	118.00	177.00	413.00	413.00
141	1080 GA Valves	2,206.00	-	2012	25	1	288.00	288.00	6,918.00	6,918.00
142	1125 Valves and Controls	3,361.00	-	2012	10	1	336.00	336.00	3,025.00	3,025.00
143	1120 Timers	-	-	2012	7	1	-	-	-	-
144	1120 Pump	1,959.00	-	2012	7	1	280.00	280.00	1,679.00	1,679.00
145	1120 Chemical Feed Pumps	1,532.00	-	2012	7	1	219.00	219.00	1,313.00	1,313.00
146	1120 Mixers	2,125.00	-	2012	7	1	304.00	304.00	1,821.00	1,821.00
147	1080 PRV Station - Cottage Court	34,052.00	-	2012	25	1	1,362.00	1,362.00	32,690.00	32,690.00
148	1080 RECONCILING ITEM (LINE 42)	(159.00)	-	2013	0		-	-	-	(159.00)
		1,284,614.20								

Accumulated Contribution in Aid of Construction	Total (122,200) [1]	[1]	Per Docket No. W-766, Sub 3.
Contribution in Aid of Construction from December 31, 2007 to December 31, 2012	<u>(3,950) [2]</u>	[2]	Based on information provided by the Company.
Accumulated Contribution in Aid of Construction per Public Staff (Line 1 + 2)	(126,150)		
Utility Plant Contributed through Lot Sales as CIAC prior case	(369,161) [1]		
Adjustment to Reclassify Utility Plant Contributed through Lot Sales as CIAC From December 31, 2007 to December 31, 2012	<u>(173,465) [2]</u>		
Total Utility Plant Contributed through Lot Sales as CIAC (L 4 + L5)	<u>(542,626)</u>		
Total Accumulated Contribution in Aid of Construction per Public Staff ( L3 + L6 )	<u>(668,776)</u>		
	Check		
Additions	303,162		
Less: Tax Asset Detail	<u>(129,697)</u>		
CIAC through lot sales	<u>173,465</u>		

Line No.	Item	Total [a]	
1.	Accumulated Depreciation per Public Staff	608,011	[1]
2.	Removal of Accumulated Depreciation related to CIAC	(59,725)	[2]
3.	Removal of Accumulated Depreciation Related to Utility Plant Contributed Through Lot Sales From prior rate case	(140,277)	[3]
4.	Removal of Accumulated Depreciation Related to Utility Plant Contributed Through Lot Sales From December 31, 2007 to December 31, 2012	(17,171)	[4]
5.	Total Accumulated Depreciation Related to Utility Plant Contributed Through Lot Sales (L3 + L4)	<u>(157,448)</u>	
6.	Total Accumulated Depreciation per Public Staff (L5 - L1)	<u>390,839</u>	217,173
		<u>CHECK</u>	

[1] Bradley Exhibit 1-1, Column (f), Line 150.

[2] Removal of portion of Accumulated Depreciation Related to CIAC, calculated as Line 1 x (total CIAC, excluding lot sales / total Plant in Service).

[3] Bradley Exhibit 1-1, Column (f), Line 64.

[4] Bradley Exhibit 1-1, Column (f), Sum of Lines 110, 112, 113, and 141.

DETAILS		
[1]	Accum (Rounded)	OBJ #
	494.00	1065
	348,832.00	1080
	73,984.00	1100
	6,252.00	1115
	22,787.00	1120
	29,397.00	1125
	105,159.00	1130
	<u>21,106.00</u>	1200
	<u>608,011.00</u>	

[2] Total CIAC	(668,776.00)
Lot Sales	369,161.00
	173,465.00
Total Lot Sales	542,626.00
CIAC Less lots	(126,150.00)

Plant	<u>1,284,222.00</u>
REMOVE CIAC ACCU	<u>(59,725.00)</u>

NCUC FORM W-1-9b  
RATE CASE INFORMATION REPORT  
Docket W-354, Sub 344

BU	Description	PAA Water - 2400	PAA Sewer - 2410	PAA Water Amort - 2420	PAA Sewer Amort - 2425	Grand Total
182100	CWS - NC Cost Center	(1,709,191.53)	-	162,011.42	-	(1,547,180.11)
182102	Brandywine Bay S	-	3,065.00	-	(1,463.11)	1,601.89
182109	Saddlewood W	(58,621.00)	-	32,243.40	-	(26,377.60)
182110	Saddlewood S	-	(42,954.00)	-	23,191.34	(19,762.66)
182112	Sherwood Forest CWS	(23,812.00)	-	13,177.14	-	(10,634.86)
182113	Woodhaven	(39,368.00)	-	20,904.10	-	(18,463.90)
182114	Zemosa Acres	(123,204.00)	-	65,695.35	-	(57,508.65)
182115	Ashley Hills CWS NC	-	(187,813.00)	-	98,094.98	(89,718.02)
182122	Hound Ears W	(59,716.54)	-	151.49	-	(59,565.05)
182123	Hound Ears S	-	(21,122.00)	-	11,959.06	(9,162.94)
182128	Grandview At T-Square	(238,245.00)	-	111,997.11	-	(126,247.89)
182129	Wolf Laurel W	(410,214.00)	-	239,982.07	-	(170,231.93)
182132	Vander	31,042.00	-	(16,386.91)	-	14,655.09
182133	White Oak Plantation W	(64,574.00)	-	34,282.74	-	(30,291.26)
182134	White Oak Plantation S	-	(172,482.00)	-	89,871.72	(82,610.28)
182136	Kings Grant - Raleigh	-	(108,896.00)	-	56,937.93	(51,958.07)
182137	Bent Creek/Mt Carmel W	(75,593.00)	-	68,508.88	-	(7,084.12)
182138	Bent Creek S	-	(77,639.00)	-	77,639.00	-
182140	Mt Carmel	-	(72,502.00)	-	31,138.16	(41,363.84)
182141	Whispering Pines	(47,199.00)	-	33,190.82	-	(14,008.18)
182142	Crest View Estates	3,873.00	-	(2,537.94)	-	1,335.06
182143	Sherwood Park	(51,681.00)	-	35,245.59	-	(16,435.41)
182144	Misty Mountain	(91,413.00)	-	62,897.10	-	(28,515.90)
182145	Crystal Mountain	(50,048.00)	-	33,126.13	-	(16,921.87)
182146	Ski Mountain	(5,838.00)	-	4,073.87	-	(1,764.13)
182147	Mt Mitchell	(239,769.00)	-	149,613.23	-	(90,155.77)
182148	Bear Paw Resort W	(67,593.00)	-	41,001.77	-	(26,591.23)
182149	Bear Paw Resort S	-	(38,011.00)	-	22,407.88	(15,603.12)
182151	Forest Brook/Ole Lamp Place	(14,838.00)	-	9,002.44	-	(5,835.56)
182152	Carolina Forest	1,500.00	-	(969.02)	-	530.98
182153	Woodrun	1,656.00	-	(1,072.94)	-	583.06
182154	Kings Grant - Charlotte W	(52,141.00)	-	35,347.68	-	(16,793.32)
182155	Kings Grant - Charlotte S	-	(97,579.00)	-	97,579.00	-
182157	Quail Ridge CWS	7,915.00	-	(4,776.36)	-	3,138.64
182158	Beechbrook	9.00	-	(20.99)	-	(11.99)
182159	College Park W	(3,098.00)	-	1,103.17	-	(1,994.83)
182160	College Park S	-	(50.00)	-	6.35	(43.65)
182162	Country Club Annex	64.00	-	(56.45)	-	7.55
182163	Country Hills	(140.00)	-	15.65	-	(124.35)
182164	Harbor House Estates	229.00	-	(113.44)	-	115.56
182165	Holly Acres	105.00	-	(65.73)	-	39.27
182166	Oakdale Terrace	79.00	-	(88.94)	-	(9.94)
182167	Suburban Heights	91.00	-	(68.89)	-	22.11
182170	Yorktown	64.00	-	(82.45)	-	(18.45)
182171	Powder Horn Mountain	11,515.00	-	(5,584.68)	-	5,930.32
182175	Olde Point W	(223,271.00)	-	104,955.97	-	(118,315.03)
182176	Olde Point S	-	(222,833.00)	-	103,982.15	(118,850.85)
182178	Independent/Hemby	-	(65,761.00)	-	65,761.00	-
182179	High Meadows	13,682.00	-	(7,945.16)	-	5,736.84
182180	Chapel Hills	4,439.00	-	(2,577.20)	-	1,861.80
182190	Danby S	-	(8,082.82)	-	8,082.82	-
182206	Wood Trace	35,894.31	-	(9,286.84)	-	26,607.47
182209	Nags Head	-	(32,776.62)	-	(30,982.57)	(63,759.19)
182214	High Vista	(53,110.54)	-	13,563.74	-	(39,546.80)
182218	White Oak Estates	-	142,350.00	-	(30,917.96)	111,432.04
182231	Brandywine Bay W	1,107.00	-	(623.29)	-	483.71
182241	Carolina Pines Utilities Inc	-	4,143.00	-	(36.30)	4,106.70
182242	Nero Utility Services Inc W	22,250.10	-	(6,194.31)	-	16,055.79
182243	Nero Utility Services Inc S	-	27,749.90	-	(8,044.81)	19,705.09
#N/A	Unexplained	(81,860.00)	(211,605.00)	1,179.30	25,005.27	(267,280.43)
<b>Grand Total</b>		<b>(3,649,024.20)</b>	<b>(1,182,798.54)</b>	<b>1,214,818.62</b>	<b>640,211.91</b>	<b>(2,976,792.21)</b>



NCUC FORM W-1-9b  
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Business Unit	Description	Water PAA - 6960	Sewer PAA - 6965	Grand Total
182	CWS NC			-
182100	CWS - NC Cost Center	(42,202.32)		(42,202.32)
182102	Brandywine Bay S		108.24	108.24
182109	Saddlewood W	(1,447.44)		(1,447.44)
182110	Saddlewood S		(1,516.08)	(1,516.08)
182112	Sherwood Forest CWS	(588.00)		(588.00)
182113	Woodhaven	(972.00)		(972.00)
182114	Zemosa Acres	(3,042.12)		(3,042.12)
182115	Ashley Hills CWS NC		(6,628.68)	(6,628.68)
182122	Hound Ears W	(1,205.60)		(1,205.60)
182123	Hound Ears S		(745.44)	(745.44)
182128	Grandview At T-Square	(5,882.64)		(5,882.64)
182129	Wolf Laurel W	(10,128.72)		(10,128.72)
182132	Vander	766.44		766.44
182133	White Oak Plantation W	(1,594.44)		(1,594.44)
182134	White Oak Plantation S		(6,087.60)	(6,087.60)
182136	Kings Grant - Raleigh		(3,843.36)	(3,843.36)
182137	Bent Creek/Mt Carmel W	(1,866.48)		(1,866.48)
182140	Mt Carmel		(2,558.88)	(2,558.88)
182141	Whispering Pines	(1,165.44)		(1,165.44)
182142	Crest View Estates	95.64		95.64
182143	Sherwood Park	(1,276.08)		(1,276.08)
182144	Misty Mountain	(2,257.08)		(2,257.08)
182145	Crystal Mountain	(1,235.76)		(1,235.76)
182146	Ski Mountain	(144.12)		(144.12)
182147	Mt Mitchell	(5,920.20)		(5,920.20)
182148	Bear Paw Resort W	(1,668.96)		(1,668.96)
182149	Bear Paw Resort S		(1,341.60)	(1,341.60)
182151	Forest Brook/Ole Lamp Place	(366.36)		(366.36)
182152	Carolina Forest	37.08		37.08
182153	Woodrun	40.92		40.92
182154	Kings Grant - Charlotte W	(1,287.48)		(1,287.48)
182157	Quail Ridge CWS	195.48		195.48
182158	Beechbrook	0.24		0.24
182159	College Park W	(76.44)		(76.44)
182160	College Park S		(1.80)	(1.80)
182162	Country Club Annex	1.56		1.56
182163	Country Hills	(3.48)		(3.48)
182164	Harbor House Estates	5.64		5.64
182165	Holly Acres	2.64		2.64
182166	Oakdale Terrace	1.92		1.92
182167	Suburban Heights	2.28		2.28
182170	Yorktown	1.56		1.56
182171	Powder Horn Mountain	284.28		284.28
182175	Olde Point W	(5,512.92)		(5,512.92)
182176	Olde Point S		(7,864.68)	(7,864.68)
182179	High Meadows	337.80		337.80
182180	Chapel Hills	109.56		109.56
182190	Danby S		(3,482.75)	(3,482.75)
182206	Wood Trace	886.32		886.32
182209	Nags Head		(184.54)	(184.54)
182214	High Vista	(1,311.36)		(1,311.36)
182218	White Oak Estates		5,024.16	5,024.16
182231	Brandywine Bay W	27.36		27.36
182242	Nero Utility Services Inc W	549.36		549.36
182243	Nero Utility Services Inc S		979.44	979.44
Grand Total		(87,809.36)	(28,143.57)	(115,952.93)

\* The Remaining pages of this filing  
can be seen in the docket system  
as filed on April 10, 2015. KTM

CAROLINA WATER SERVICE, INC. OF NORTH  
CAROLINA  
NCUC FORM W-1  
RATE CASE INFORMATION REPORT  
DOCKET NO. W-354, SUB 344  
ITEM 10

OFFICIAL COPY

Apr 10 2015

1Ad

DOCKET NO. W-354, SUB 344

Carolina Water Service, Inc.  
of North Carolina

- ) APPLICATION FOR AUTHORITY
- ) TO INCREASE RATES FOR  
WATER AND SEWER UTILITY
- ) SERVICE IN ALL SERVICE
- ) AREAS OF NORTH CAROLINA,

OFFICIAL COPY

May 06 2015

# REVISED APPENDIX A

SCHEDULE OF RATES

for

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

for providing water and sewer utility service in

IN ALL OF ITS SERVICE AREAS IN NORTH CAROLINA  
(Excluding Corolla Light, Monteray Shores, and Nags Head)

**WATER RATES AND CHARGES**

MONTHLY METERED SERVICE (Residential and Commercial)

Base Facilities Charges (zero usage)

< 1" meter	\$ 22.47
1" meter	\$ 56.19
1-1/2" meter	\$ 112.37
2" meter	\$ 179.80
3" meter	\$ 337.12
4" meter	\$ 561.87
6" meter	\$1,123.74

Usage Charge, per 1,000 gallons

Treated Water \$ 6.70

Untreated Water  
(Brandywine Bay Irrigation Water) \$ 3.60

Purchased Water for Resale Usage Charge/

<u>Service Area</u>	<u>Bulk Provider</u>	<u>1,000 gallons</u>
Carolina Forest	Montgomery County	\$ 3.19

Usage Charge/

<u>Service Area</u>	<u>Bulk Provider</u>	<u>1,000 gallons</u>
High Vista Estates	City of Hendersonville	\$ 3.15
Riverpointe	Charlotte- Mecklenburg Utilities	\$ 6.30
Whispering Pines	Town of Southern Pines	\$ 2.23
White Oak Planation/ Lee Forest	Johnston County	\$ 3.25
Winston Plantation	Johnston County	\$ 3.25

Winston Pointe	Johnston County	\$	3.25
Woodrun	Montgomery County	\$	3.19
Yorktown	City of Winston-Salem	\$	5.01
Zemosa Acres	City of Concord	\$	5.27

MONTHLY FLAT RATE SERVICE \$ 42.51

AVAILABILITY RATES (semi-annual):

Applicable only to property owners in Carolina Forest  
and Woodrun Subdivision in Montgomery County \$ 26.60

Meter Testing Fee: <sup>1/</sup> \$ 20.00

New Water Customer Charge: \$ 27.00

Reconnection Charges: <sup>2/</sup>

If water service cut off by utility for good cause \$27.00

If water service is discontinued at customer's request \$27.00

Management Fee: (in the following subdivision only)

Wolf Laurel \$ 150.00

Oversizing Fee: (in the following subdivision only)

Winghurst \$ 400.00

Meter Fee:

For <1" meters \$ 50.00

For meters 1" or larger Actual Cost

Irrigation Meter Installation: Actual Cost

Uniform Connection Fees: <sup>3/</sup>

The following uniform connection fees apply unless specified differently by contract approved by and on file with the North Carolina Utilities Commission.

Connection Charge (CC), per SFE (Single Family Equivalent)	\$ 100.00
Plant Modification Fee (PMF), per SFE	\$ 400.00

<u>Subdivision</u>	<u>CC</u>	<u>PMF</u>
Abington	\$ 0.00	\$ 0.00
Abington, Phase 14	\$ 0.00	\$ 0.00
Amherst	\$ 250.00	\$ 0.00
Bent Creek	\$ 0.00	\$ 0.00
Blue Mountain at Wolf Laurel	\$ 925.00	\$ 0.00
Buffalo Creek, Phase I, II, III, IV	\$ 825.00	\$ 0.00
Carolina Forest	\$ 0.00	\$ 0.00
Chapel Hills	\$ 150.00	\$ 400.00
Eagle Crossing	\$ 0.00	\$ 0.00
Forest Brook/Old Lamp Place	\$ 0.00	\$ 0.00
Harbour	\$ 75.00	\$ 0.00
Hestron Park	\$ 0.00	\$ 0.00
Hound Ears	\$ 300.00	\$ 0.00
Kings Grant/Willow Run	\$ 0.00	\$ 0.00
Lemmond Acres	\$ 0.00	\$ 0.00
Monterrey (Monterrey LLC)	\$ 0.00	\$ 0.00
Quail Ridge	\$ 750.00	\$ 0.00
Queens Harbour/Yachtsman	\$ 0.00	\$ 0.00
Riverpointe	\$ 300.00	\$ 0.00
Riverpointe (Simonini Bldrs.)	\$ 0.00	\$ 0.00
Riverwood, Phase 6E (Johnston County)	\$ 825.00	\$ 0.00
Saddlewood/Oak Hollow (Summey Bldrs.)	\$ 0.00	\$ 0.00
Sherwood Forest	\$ 950.00	\$ 0.00
Ski Country	\$ 100.00	\$ 0.00
White Oak Plantation	\$ 0.00	\$ 0.00
Wildlife Bay	\$ 870.00	\$ 0.00
Willowbrook	\$ 0.00	\$ 0.00
Winston Plantation	\$1,100.00	\$ 0.00
Winston Pointe, Phase 1A	\$ 500.00	\$ 0.00
Wolf Laurel	\$ 925.00	\$ 0.00
Woodrun	\$ 0.00	\$ 0.00
Woodside Falls	\$ 500.00	\$ 0.00

LINVILLE RIDGE SUBDIVISION:

MONTHLY METERED SERVICE (Residential and Commercial):

Base Facilities Charges (zero usage)

Common facility only

< 1" meter	\$ 22.47
1" meter	\$ 56.19
1-1/2" meter	\$ 112.37
2" meter	\$ 179.80
3" meter	\$ 337.12
4" meter	\$ 561.87
6" meter	\$1,123.74

Usage Charge, per 1,000 gallons

Treated Water	\$ 6.70
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<u>MONTHLY FLAT RATE SERVICE:</u>	\$ 42.51
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<u>MONTHLY AVAILABILITY RATES:</u>	\$ 10.80
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**SEWER RATES AND CHARGES**

MONTHLY METERED SERVICE:

Base Facility Charges (based on meter size with zero usage)

Residential	\$ 39.57
-------------	----------

Commerical

<1" meter	\$ 39.57
1" meter	\$ 98.92
1-1/2" meter	\$ 197.84
2" meter	\$ 316.55
3" meter	\$ 593.53
4" meter	\$ 989.21
6" meter	\$1,978.42

Usage charge, per 1,000 gallons \$ 2.95

MONTHLY METERED PURCHASED SEWER SERVICE:

Collection charge (residential and commercial/SFE) \$ 30.86

Usage charge, per 1,000 gal based on purchased water Usage Charge/

<u>Service Area</u>	<u>Bulk Provider</u>	<u>1,000 gallons</u>
White oak Plantation/		
Lee Forest/Winston Point	Johnston County	\$ 4.55
Kings Grant	Two Rivers Utilities	\$ 3.80
College Park	Town of Dallas	\$ 5.70

MONTHLY FLAT RATE SERVICE \$ 53.56

MT. CARMEL SUBDIVISION SERVICE AREA:

Monthly Base Facility Charge \$ 6.44

Usage Charge/1,000 gallons  
(based on metered water usage) \$ 5.60

Monthly Collection Charge (residential and commercial/SFE) \$ 24.42

REGALWOOD AND WHITE OAK ESTATES SUBDIVISION SERVICE AREAS:

A. Monthly Flat Rate Sewer Service:

Residential Service	\$ 53.56
White Oak High School	\$ 1,661.95
Child Castle Daycare	\$ 206.59
Pantry	\$ 110.07

New Sewer Customer Charge: <sup>4/</sup> \$ 22.00

Reconnection Charge: <sup>5/</sup>

If sewer service cut off by utility for good cause Actual Cost



Carolina Pines Subdivision Connection Fees: (sewer only)

Residential	\$1,350.00 per unit (including single family homes, condominiums, apartments, and mobile homes)
Hotels	\$750.00 per unit
Nonresidential	\$3.57 per gallon of daily design of discharge or \$900.00 per unit, whichever is greater.

Uniform Connection Fees: <sup>3/</sup>

The following uniform connection fees apply unless specified differently by contract approved by and on file with the North Carolina Utilities Commission.

Connection Charge (CC), per SFE (Single Family Equivalent)	\$100.00
Plant Modification Fee (PMF), per SFE	\$1,000.00

The systems where connection fees other than the uniform fees have been approved by the North Carolina Utilities Commission are as follows:

<u>Subdivision</u>	<u>CC</u>	<u>PMF</u>
Abington	\$ 0.00	\$ 0.00
Abington, Phase 14	\$ 0.00	\$ 0.00
Amber Acres North (Phases II & IV)	\$ 815.00	\$ 0.00
Ashley Hills	\$ 0.00	\$ 0.00
Amherst	\$ 500.00	\$ 0.00
Bent Creek	\$ 0.00	\$ 0.00
Brandywine Bay	\$ 100.00	\$1,456.00
Camp Morehead by the Sea	\$ 100.00	\$1,456.00
Hammock Place	\$ 100.00	\$1,456.00
Hestron Park	\$ 0.00	\$ 0.00
Hound Ears	\$ 30.00	\$ 0.00
Huntwick	\$ 0.00	\$ 0.00
Independent/Hemby Acres/Beacon Hills (Griffin Bldrs.)	\$ 0.00	\$ 0.00
Kings Grant/Willow Run	\$ 0.00	\$ 0.00
Kynwood	\$ 0.00	\$ 0.00

Mt. Carmel/Section 5A	\$ 500.00	\$ 0.00
Queens Harbor/Yachtsman	\$ 0.00	\$ 0.00
Riverpointe	\$ 300.00	\$ 0.00
Riverpointe (Simonini Bldrs.)	\$ 0.00	\$ 0.00
Steeplechase (Spartabrook)	\$ 0.00	\$ 0.00
White Oak Plantation	\$ 0.00	\$ 0.00
Willowbrook	\$ 0.00	\$ 0.00
Willowbrook (Phase 3)	\$ 0.00	\$ 0.00
Winston Pointe, Phase 1A	\$2,000.00	\$ 0.00
Woodside Falls	\$ 0.00	\$ 0.00

#### MISCELLANEOUS UTILITY MATTERS

Charge for Processing NSF Checks: \$ 25.00

Bills Due: On billing date

Bills Past Due: 21 days after billing date

Billing Frequency: Bills shall be rendered monthly in all service areas, except for Mt. Carmel, which will be billed bimonthly and the availability charges in Carolina Forest and Woodrun Subdivisions, which will be billed semiannually.

Finance Charge for Late Payment: 1% per month will be applied to the unpaid balance of all bills still past due 25 days after billing date.

#### NOTES:

<sup>1/</sup> If a customer requests a test of a water meter more frequently than once in a 24-month period, the Company will collect a \$20.00 service charge to defray the cost of the test. If the meter is found to register in excess of the prescribed accuracy limits, the meter testing charge will be waived. If the meter is found to register accurately or below prescribed accuracy limits, the charge shall be retained by the Company. Regardless of the test results, customers may request a meter test once in a 24-month period without charge.

<sup>2/</sup> Customers who request to be reconnected within nine months of disconnection at the same address shall be charged the base facility charge for the service period they were disconnected.

- <sup>3/</sup> These fees are only applicable one time, when the unit is initially connected to the system.
- <sup>4/</sup> These charges shall be waived if customer is also a water customer within the same service area.
- <sup>5/</sup> The utility shall itemize the estimated cost of disconnecting and reconnecting service and shall furnish this estimate to customer with cut-off notice. This charge will be waived if customer also receives water service from Carolina Water Service within the same service area.

**SANFORD LAW OFFICE, PLLC**

Jo Anne Sanford, Attorney at Law

July 1, 2015

Ms. Gail L. Mount, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: Carolina Water Service, Inc. of North Carolina - Ongoing Three-Year  
WSIC/SSIC Plan  
Docket Nos. W-354, Sub 336A and 344

Dear Ms. Mount:

Pursuant to Commission Rules R7-39(m) and R10-26(m), Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company") is required to file an Ongoing Three-Year WSIC/SSIC Plan within 60 days of the end of each water system and sewer system improvement charge period containing the following information:

a. A detailed description of all proposed eligible water [sewer] system improvements expected to be completed in the WSIC [SSIC] Period and an estimate of the cost of the improvements and dates when the improvements will be placed into service; and

b. A brief description of the proposed eligible water [sewer] system improvements, estimated costs, and completion dates for improvements that the Company plans to complete during the two years following the WSIC [SSIC] Period.

On May 22, 2015, CWSNC filed a Request for Extension of Time to File Ongoing Three-Year WSIC/SSIC Plan. On May 27, 2015, the Commission issued an Order Granting Extension of Time to File Ongoing Three-Year WSIC/SSIC Plan,

giving CWSNC until Wednesday, July 1, 2015, to file the Ongoing Three-Year Plan.

Attached please find for filing CWSNC's Ongoing Three-Year WSIC/SSIC Plan. CWSNC has no sewer system improvement projects to submit at this time, but will update this Plan, as necessary, if the Company subsequently determines that a SSIC project should be submitted for review and approval.

As always, thank you and your staff for your assistance; please feel free to contact me if there are questions or suggestions.

Sincerely,

Electronically Submitted

/s/Jo Anne Sanford

State Bar # 6831

Attorney for Carolina Water Service,  
Inc. of North Carolina

c: Parties of Record

**DOCKET NO. W-354, SUB 336A  
DOCKET NO. W-354, SUB 344**

**Carolina Water Service, Inc. of North Carolina**

**Ongoing Three-Year Plan for Projects Proposed for "Water and  
Sewer System Improvement Charge" Eligibility**

**Initial Period WSIC/SSIC Projects (2015 and 2016)  
Year Two WSIC/SSIC Projects (2017)  
Year Three WSIC/SSIC Projects (2018)**

**OFFICIAL COPY**

**JUL 01 2015**

**Carolina Water Service, Inc. of North Carolina**

**Docket No. W-354, Sub 336A**

**Docket No. W-354 Sub 344**

Ongoing Three-Year Plan for Projects Proposed for "Water and Sewer  
System Improvement Charge" Eligibility

Narrative Discussion for Initial Period 2015 and 2016 WSIC/SSIC Projects

**2015 - Whispering Pines (Water) - Bridge Replacement.** NCDOT-required bridge relocation at S. Lakeshore Drive.

Description: NCDOT is rebuilding a bridge, and the CWSNC water main currently suspended on the bridge has to be relocated at utility expense. A directional bore under the lake is required.

**2015 - Hound Ears (Water) - Bridge Replacement.** NCDOT-required relocation at Shulls Mill Road.

Description: NCDOT is rebuilding a bridge, and the CWSNC water main currently suspended on the bridge has to be relocated at utility expense.

**2015 - Misty Mountain (Water) – 2,000 feet water main replacement at Gorge View Road.**

Description: The existing water main is a small, 2-inch diameter, galvanized main and must be replaced with larger, 4-inch PVC main to eliminate water quality problems and leaks.

**2015 - Wildlife Bay (Water) – Replace approximately 1,500 feet of water main, because of main breaks.**

Description: The existing water main between wells 1 and 2 must be replaced due to excessive leak/break history.

**2015 - High Meadows (Water) – Replace sections of water main along Rabbit Run with ductile iron because of main breaks.**

Description: The existing water main has experienced a high frequency of breaks and leaks, and the main needs to be replaced to reduce water loss and customer complaints.

**2015 - Watauga Vista (Water) – Water main replacement to help reduce unaccounted-for water loss.**

Description: The existing water main has experienced a high frequency of breaks and leaks, and the main needs to be replaced to reduce water loss and customer complaints.

**2015 - Zemosa Acres (Water)** – Relocate water main due to City of Concord's replacement of storm drains in City DOT right-of-way.

Description: The City is replacing storm water culverts, and existing water main must be relocated at utility expense.

**2016 – Wolf Laurel (Water)** – Water main replacement to help reduce unaccounted-for water loss.

Description: The existing water main has experienced a high frequency of breaks and leaks, and the main needs to be replaced to reduce water loss and customer complaints.

**2016 – Whispering Pines (Water)** – Water main replacement to help reduce unaccounted-for water loss.

Description: The existing water main has experienced a high frequency of breaks and leaks, and the main needs to be replaced to reduce water loss and customer complaints.

**2016 – High Meadows (Water)** – Water main extension to remove dead end line and connecting Ridge Road and Shady Lane.

Description: The existing water mains are not connected and water quality and system hydraulics would be improved by main extension interconnection.



Carolina Water Service, Inc. of North Carolina  
Docket No. W-354, Sub 336A  
Docket No. W-354, Sub 344  
WSIC-SSIC Projects 2015-2018

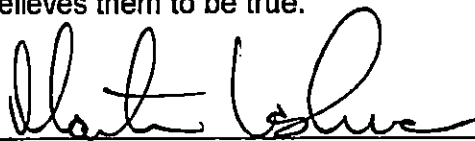
Sub Name	Business Unit	Project	Statutory eligibility section	Year	Water / Sewer	Total Estimated Water	Total Estimated / Actual Sewer	Estimated/ Actual Start Date	Estimated / Actual Completion Date
Whispering Pines (1)	182141	Bridge Replacement NCDOT required relocation S. Lakeshore Drive	62-133.12[c][5]	2015	W	53,300		7/1/2015	9/30/2015
Hound Ears	182122	Bridge Replacement NCDOT required relocation Shulls Mill Road	62-133.12[c][5]	2015	W	37,200		11/1/2015	12/31/2015
Misty Mountain	182144	2000 feet main replacement Gorge View Road	62-133.12[c][1]	2015	W	106,600	-	8/30/2015	11/30/2015
Wildlife Bay	182208	Replace approximately 1,500' of raw water main because of main breaks.	62-133.12[c][1]	2015	W	119,400	-	10/1/2015	12/31/2015
High Meadows	182179	Replace sections of main along Rabbit Run with ductile iron because of main breaks. Customer complaints	62-133.12[c][1]	2015	W	58,650	-	10/1/2015	12/31/2015
Watauga Vista	182238	Water main replacement to help reduce unaccounted for water loss	62-133.12[c][1]	2015	W	79,950	-	10/1/2015	12/31/2015
Zemosa Acres	182114	Relocate due to City of Concord replacing storm drains in DOT ROW.	62-133.12[c][5]	2015	W	37,300		10/1/2015	12/31/2015
Wolf Laurel W	182129	Water main replacement to help reduce unaccounted for water loss	62-133.12[c][1]	2016	W	107,750	-	4/1/2016	9/30/2016
Whispering Pines	182141	Water water main replacement Identified by engineering assessment.	62-133.12[c][1]	2016	W	215,500	-	4/1/2016	9/30/2016
High Meadows	182179	Main extension to remove dead end line connecting Ridge Rd and Shady Ln.	62-133.12[c][1]	2016	W	59,300	-	4/1/2016	9/30/2016
Wolf Laurel W	182129	water main replacement to replace high frequency repair area	62-133.12[c][1]	2017	W	107,750	-	4/1/2017	9/30/2017
Whispering Pines	182141	water main replacement to replace high frequency repair area	62-133.12[c][1]	2017	W	215,500	-	4/1/2017	9/30/2017
Watauga Vista	182238	water main replacement to replace high frequency repair area	62-133.12[c][1]	2017	W	80,850	-	4/1/2017	9/30/2017
Hound Ears W	182122	water main replacement to replace high frequency repair area	62-133.12[c][1]	2018	W	107,750	-	4/1/2018	9/30/2018
Wolf Laurel W	182129	water main replacement to replace high frequency repair area	62-133.12[c][1]	2018	W	107,750	-	4/1/2018	9/30/2018
Whispering Pines	182141	water main replacement to replace high frequency repair area	62-133.12[c][1]	2018	W	215,500	-	4/1/2018	9/30/2018
Watauga Vista	182238	water main replacement to replace high frequency repair area	62-133.12[c][1]	2018	W	80,850	-	4/1/2018	9/30/2018
						\$ 1,790,900	\$ -		

(1) Whispering Pines: Bridge Replacement NCDOT required relocation S. Lakeshore Drive project is included as a pro forma project in CWS NC rate case W-354, Sub 344.

**VERIFICATION**

**Martin J. Lashua**, being duly sworn, deposes and says:

That he is the Vice-President of Operations for Carolina Water Service, Inc. of North Carolina; that he is familiar with the facts set out in the attached **Ongoing Three-Year WSIC/SSIC Plan** filed in NCUC Docket Nos. W-354, Subs 336A and 344; that he has read the foregoing Plan and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.




Martin J. Lashua

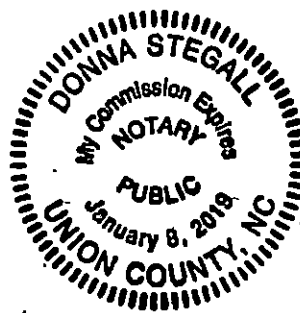
North Carolina

Mecklenburg County

Sworn to and subscribed before me this the 1 day of July, 2015.

  
Notary Public

Donna Stegall  
Printed Name



My Commission Expires:

01/08/2019

Date

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that she has served a copy of the attached **ONGOING THREE-YEAR WISC/SSIC PLAN** filed by Carolina Water Service, Inc. of North Carolina in Docket Nos. W-354, Subs 336A and 344, on the parties of record, either by: hand-delivery; United States mail, first-class postage prepaid; or electronic transmission.

This the 1st day of July, 2015.

**Attorney for Carolina Water Service, Inc of North Carolina**

**Electronically Submitted  
/s/Jo Anne Sanford**

Sanford Law Office, PLLC  
P.O. Box 28085  
Raleigh, NC 27611-8085  
State Bar # 6831  
Tel: 919.829.0018  
Fax: 919.829.8139  
sanford@sanfordlawoffice.com

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

**DOCKET NO. W-354, SUB 344**

**OFFICIAL COPY**

<p>In the Matter of Carolina Water Service, Inc. of North Carolina, 2335 Sanders Road, Northbrook, Illinois 60062, for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All of Its Service Areas in North Carolina</p>	<p>) ) ) ) ) ) )</p>	<p><b>REPORT ON CUSTOMER SERVICE QUALITY ISSUES FROM PUBLIC HEARING IN JACKSONVILLE, NORTH CAROLINA</b></p>
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**Jul 16 2015**

**NOW COMES** Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company") and files this report regarding any customer service quality issues raised at the Jacksonville, North Carolina public hearing.

Specifically, a public hearing was held beginning at 7:00 p.m., on June 23, 2015, in Jacksonville, North Carolina at the Onslow County Courthouse. Chairman Edward S. Finley, Jr., presided and was joined by Commissioners Don M. Bailey and Jerry C. Dockham. Staff Attorney Dianna W. Downey appeared for the Public Staff on behalf of the using and consuming public, accompanied by Public Staff Water Engineer, Gina Casselberry. Robert H. Bennink, Jr. of the Bennink Law Office appeared on behalf of CWSNC, accompanied by Martin J. Lashua, the Company's Vice President of Operations.

Only one witness testified at the Jacksonville public hearing. That witness, Larry Campbell, is a CWSNC sewer customer who primarily testified regarding his concerns related to the magnitude of the requested rate increase and some

confusion caused by certain specific language contained on his utility bill.<sup>1</sup> Mr. Campbell, who resides at 156 White Oak Boulevard in Jacksonville, raised no service-related complaints or issues in his testimony.

**CWSNC Response:** The Company met with Mr. Campbell after the hearing and responded to his questions and concerns. CWSNC also provided a more in-depth clarification and explanation regarding Mr. Campbell's billing questions by letter dated July 2, 2015. A copy of the Company's July 2<sup>nd</sup> letter to Mr. Campbell is attached hereto as part of this report.

Respectfully submitted, this the 16th day of July, 2015.

**SANFORD LAW OFFICE, PLLC**

**Electronically Submitted**

**/s/Jo Anne Sanford**

North Carolina State Bar No. 6831

P.O. Box 28085

Raleigh, NC 27611-8085

Phone: 919-829-0018

Fax: 919-829-8139

E-mail: [sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)

**ATTORNEY FOR CAROLINA WATER  
SERVICE, INC. OF NORTH CAROLINA**

---

<sup>1</sup> CWSNC has a billing arrangement with Mr. Campbell's water provider (ONWASA) whereby ONWASA bills and collects for sewer utility service provided by CWSNC to its customers, such as Mr. Campbell. ONWASA then remits those sewer service revenues to CWSNC.



July 2, 2015

Mr. Larry Campbell  
156 White Oak Boulevard  
Jacksonville, NC 28546

Re: Carolina Water Service, Inc. of North Carolina  
Rate Increase Request Public Hearing, Jacksonville NC  
W-354, Sub 344

Dear Mr. Campbell,

It was a pleasure to meet you last Tuesday night, June 23rd in Jacksonville, at the public hearing held before the North Carolina Utilities Commission ("NCUC" or "Commission") concerning our request for rate relief. In your testimony, you expressed concern about the utility rates that you were being charged and I wanted to write to provide better clarity. As we discussed after the hearing, Carolina Water Service has a billing arrangement with your water provider, ONWASA. ONWASA includes a line item on their bill abbreviated as "Car water" which is short for Carolina Water Service and shows the NCUC's approved flat rate for sewer service. ONWASA collects Carolina Water Service's approved sewer rate on our behalf and forwards the amounts collected from our customers, such as you, to the Company. Carolina Water Service entered into this billing arrangement with ONWASA because we believe it is better and more efficient to have both utilities utilize one bill.

In our last rate relief request in NCUC Docket W-354, Sub 336, a series of orders were issued by the Commission in 2014, which allowed for adjustment of the rates to our customers.

Effective Date of Rates

02/10/2011 - \$40.14 (rate case W-354, Sub 324)

03/10/2014 - \$56.45 (rate case W-354, Sub 336)

Adjusted Rate as part of Refund Plan - 03/10/2014 - 06/30/2014 - \$47.38

07/01/2014 - \$44.70 final rate (this rate is still in effect)

ONWASA Billing:

January - June 2014 - Billed \$40.14 (3/10/14 NCUC-approved new rate of \$56.45 was not implemented due to lack of notice to ONWASA from Carolina Water Service)

July 2014 - Billed \$44.70

August 2014 - Billed \$71.56 (\$44.70 rate plus adjusted amount of \$26.86 for under-billing described below\*\*)

September 2014 to current - Billed \$44.70

\*\*In August 2014, ONWASA back billed on our behalf based on an adjustment file we provided them. Since the approved 3/10/14 rate of \$56.45 was not implemented, the August adjustment was based on the "adjusted" Refund Plan rate of \$47.38.

03/10/2014 - 03/31/2014 - Prorated on 22 days = **\$5.14**

04/01/2014 - 04/30/2014 - Difference of \$47.38 - \$40.14 = **\$7.24**

A Utilities, Inc. company Carolina Water Service, Inc. of North Carolina

P.O. Box 240908 • Charlotte, NC 28224 • P: 704-525-7990 • F: 704-525-8174  
5701 Westpark Dr., Suite 101 • Charlotte, NC 28217 • www.uiwater.com

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JUL 16 2015

● Page 2

July 2, 2015

05/01/2014 – 05/31/2014 – Difference of \$47.38 - \$40.14 = \$7.24

06/01/2014 – 06/30/2014 – Difference of \$47.38 - \$40.14 = \$7.24

Total Adjustment = \$26.86

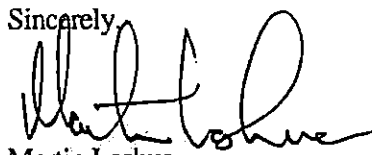
From looking at the utility invoices you shared with me at the public hearing, the ONWASA billing explained above matches what you were billed and I would appreciate if you would review your invoices and make sure the line items were appropriate for the periods shown.

I realize this billing scenario is very confusing due to the above-described multiple changes in rates which occurred in the Company's last rate case. The billing situation was further complicated because of the delay in notifying ONWASA of the rate changes, which then resulted in a need to make the billing adjustment in August 2014. We sincerely apologize for the confusion created by this situation and understand your frustration and need to seek clarification of your bill.

If we can be of any further assistance, please do not hesitate to contact our Customer Service Department at 1-800-525-7990.

Thank you again for taking time to speak at the hearing; your comments are appreciated.

Sincerely,



Martin Lashua  
Vice President of Operations

Cc: Customer Service  
Danny Lassiter  
Eddie Baldwin

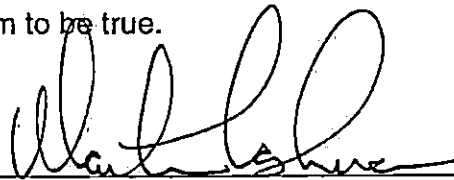
OFFICIAL COPY

JUL 16 2015

**VERIFICATION**

**Martin J. Lashua**, being duly sworn, deposes and says:

That he is the Vice-President of Operations for Carolina Water Service, Inc. of North Carolina; that he is familiar with the facts set out in the attached **Report On Customer Service Quality Issues from Public Hearing in Jacksonville, North Carolina** filed in Docket No. W-354, Sub 344; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.



Martin J. Lashua

North Carolina

Mecklenburg County

Sworn to and subscribed before me this the 15 day of July, 2015.

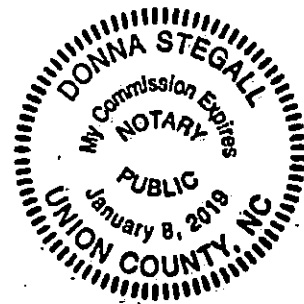
  
Notary Public

Donna Stegall  
Printed Name

My Commission Expires:

01/08/2019

Date





**CERTIFICATE OF SERVICE**

I hereby certify that on this the 16th day of July, 2015, a copy of the foregoing **Report On Customer Service Quality Issues from Public Hearing in Jacksonville, North Carolina** has been duly served upon all parties of record by electronic service, as follows:

Gina C. Holt  
William E. Grantmyre  
Dianna W. Downey  
Staff Attorneys  
Legal Division  
North Carolina Utilities Commission Public Staff  
[gina.holt@psncuc.nc.gov](mailto:gina.holt@psncuc.nc.gov)  
[william.grantmyre@psncuc.nc.gov](mailto:william.grantmyre@psncuc.nc.gov)  
[dianna.downey@psncuc.nc.gov](mailto:dianna.downey@psncuc.nc.gov)

Dwight W. Allen  
Britton H. Allen  
Brady W. Allen  
The Allen Law Offices  
[dallen@theallenlawoffices.com](mailto:dallen@theallenlawoffices.com)  
[bhallen@theallenlawoffices.com](mailto:bhallen@theallenlawoffices.com)  
[brady.allen@theallenlawoffices.com](mailto:brady.allen@theallenlawoffices.com)  
Attorneys for Corolla Light Community Association, Inc.

**Electronically Submitted**  
**/s/Jo Anne Sanford**

State Bar No. 6831  
SANFORD LAW OFFICE, PLLC  
Post Office Box 28085  
Raleigh, North Carolina 27611-8085  
Tel: (919) 829-0018  
[sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)  
**Attorney for Carolina Water Service,**  
**Inc. of North Carolina**

1 Ad

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Aug 06 2015

STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH

DOCKET NO. W-354, SUB 344

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	)	
Carolina Water Service, Inc. of North	)	
Carolina, 2335 Sanders Road,	)	
Northbrook, Illinois 60062, for Authority	)	
to Adjust and Increase Rates for Water	)	<b>REPORT ON CUSTOMER</b>
and Sewer Utility Service in All of its	)	<b>COMMENTS FROM JULY 6</b>
Service Areas of North Carolina	)	<b>HEARING IN RALEIGH, NORTH</b>
	)	<b>CAROLINA</b>
	)	

**NOW COMES** Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company") and files this report, which is one in a series of reports on all customer service complaints raised at the public hearing in this docket.

An opportunity for public witnesses to speak was provided at the Raleigh public hearing on July 7, 2015 in Room 2115 of the Dobbs Building, Salisbury Street, Raleigh, North Carolina. Chairman Edward S. Finley, Jr. presided, joined by Commissioners Bryan E. Beatty, ToNola D. Brown-Bland, Don M. Bailey, Jerry C. Dockham, and James G. Patterson. Staff Attorney Gina C. Holt appeared for the Public Staff on behalf of the using and consuming public, accompanied by Public Staff Water Engineer, Gina Casselberry. Appearing on behalf of CWSNC was Jo Anne Sanford of Sanford Law Office, PLLC, joined at counsel table by: Carl Daniel, former State President of CWSNC; Matthew Klein, State President of CWSNC for North Carolina and Tennessee; and Martin Lashua, Vice-President of Operations, North Carolina and Tennessee.

One public witness testified, as follows:

- **Ms. Eleanora Tate, 213 Dwelling Place, Knightdale, North Carolina, Ashley Hills Subdivision (*Raleigh Public Hearing, Tr. Vol. 3, pp. 8-19*)**

Ms. Tate spoke on her own behalf and as a senior citizen on a fixed income, expressing concerns about rate increases---about "grayish brown" water and about "sour" odors emanating both from the nearby wastewater treatment plant and from the appliances internal to her house. She also expressed concern about the last rate increase and about the "system improvement charges," expressing concern that she has seen no improvement in her system.

Ms. Tate's water is provided by CWS Systems, not by CWSNC. Recognizing that both are part of the same ownership, CWSNC will address her complaint about "grayish" water and her concern about odor.

**CWSNC Response:**

Company representatives met Public Staff Engineer Mrs. Gina Casselberry on site July 16 for a tour and inspection of the Ashley Hills wastewater treatment plant and community. Attempt was made during that visit to speak with Mrs. Tate, but she was not home.

Company representative Area Manager Stephen Harrell made contact with Mrs. Tate and met her at her home on August 5. The water was found clear and within normal field parameter testing range. No odor was detected at the time of visit; however, Mrs. Tate's home is only a few hundred feet away from the treatment facility, as illustrated by the attached Google Earth aerial photograph.

Mr. Harrell left his contact information with Mrs. Tate and encouraged her to contact him for help, offering to help investigate any concern in a timely manner. Mrs. Tate appreciated the visit and the focus on her concerns. The Company has invested recently in the Ashley Hills wastewater treatment facility, is committed to operational excellence, and will continue to investigate and hopefully remedy any odor or other concerns.

Respectfully submitted, this the 6th day of August, 2015.

SANFORD LAW OFFICE, PLLC

**Electronically Submitted**

s/Jo Anne Sanford  
State Bar No. 6831  
P.O. Box 28085  
Raleigh, North Carolina 27611-8085  
Tel.: 919.829.0018  
sanford@sanfordlawoffice.com

ATTORNEY FOR CAROLINA WATER SERVICE,  
INC. OF NORTH CAROLINA



Google earth

feet  
meters



ATTACHMENT A

Aug 06 2015

OFFICIAL COPY

**VERIFICATION**


Martin J. Lashua, being duly sworn, deposes and says:

That he is the Vice President of Operations for Carolina Water Service, Inc. of North Carolina; that he is familiar with the facts set out in this **REPORT ON CUSTOMER SERVICE ISSUES FROM JULY 7, 2015 HEARING IN RALEIGH, NORTH CAROLINA**, in Docket No. W-354, Sub 344; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

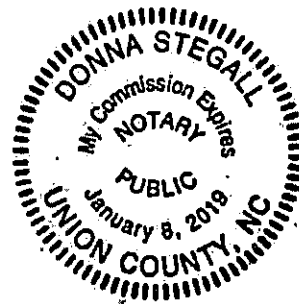


Martin J. Lashua

Sworn to and subscribed before me this  
the 6 day of August, 2015.

  
Donna Stegall

Notary Public



My commission expires: 01/08/2019

### CERTIFICATE OF SERVICE

I hereby certify that on this the 6<sup>th</sup> day of August, 2015, a copy of the foregoing REPORT has been duly served upon all parties of record by electronic service, pursuant to Rule R1-39, as follows:

Gina C. Holt  
Staff Attorney  
Legal Division  
North Carolina Utilities Commission Public Staff  
[gina.holt@psncuc.nc.gov](mailto:gina.holt@psncuc.nc.gov)

Dwight W. Allen  
The Allen Law Offices  
[dallen@theallenlawoffices.com](mailto:dallen@theallenlawoffices.com)

**Electronically Submitted**  
s/Jo Anne Sanford  
State Bar # 6831  
Sanford Law Office, PLLC  
Post Office Box 28085  
Raleigh, NC 27611-8085  
Tel: (919) 829-0018  
[sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)

1 Ad

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Aug 07 2015

**SANFORD LAW OFFICE, PLLC**

Jo Anne Sanford, Attorney at Law

August 7, 2015

Ms. Gail L. Mount, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: Docket No. W-354, Sub 344 - Carolina Water Service, Inc. of  
North Carolina  
Report on Customer Service Quality Issues from Public  
Hearing in Currituck, North Carolina

Dear Ms. Mount:

Please accept for filing on behalf of Carolina Water Service, Inc. of North Carolina the attached Report on Customer Service Quality Issues from Public Hearing in Currituck, North Carolina.

As always, thank you and your staff for your assistance; please feel free to contact me if there are questions or suggestions.

Sincerely,

Electronically Submitted

/s/Jo Anne Sanford

State Bar # 6831

Attorney for Carolina Water Service,  
Inc. of North Carolina

c: Parties of Record



**DOCKET NO. W-354, SUB 344**

**OFFICIAL COPY**

**Aug 07 2015**

Specifically, a public hearing was held beginning at 7:00 p.m., on June 24, 2015, in Currituck, North Carolina at the Currituck County Courthouse. Commissioner Don M. Bailey, who served as the Presiding Commissioner, was joined by Commissioner Jerry C. Dockham. Staff Attorney William E. Grantmyre appeared for the Public Staff on behalf of the using and consuming public, accompanied by Public Staff Water Engineer Gina Casselberry. Robert H. Bennink, Jr., of the Bennink Law Office, appeared on behalf of CWSNC, accompanied by Martin J. Lashua, the Company's Vice President of Operations. Britton H. Allen and Brady Allen, of the Allen Law Offices, PLLC, appeared on behalf of the Corolla Light Community Association, Inc. ("CLCA"). CLCA is an intervenor in this proceeding.

A total of ten witnesses testified at the Currituck public hearing. Five of those witnesses voiced service quality complaints.

### **Corolla Light and Monterey Shores Service Area**

Six of the ten witnesses who testified at the Currituck public hearing are CWSNC sewer utility customers who reside in the Company's Monterey Shores/Corolla Light service area in Currituck County. Those six witnesses (Teresa Blaxton, Hugh McCain, Lynn Hoffman, Karen Galganski, Don Cheek, and Dave Phillips) testified primarily in opposition to the proposed rate increase. They generally voiced no service quality complaints. The one exception was witness Galganski, who testified regarding her perceptions of the Company's reputation for customer service.<sup>1</sup> Otherwise, the customers from the Company's Corolla Light/Monterey Shores service area primarily testified about their objections and opposition to the magnitude of CWSNC's proposed rate increase;<sup>2</sup> testified that they had observed only minimal, if any, investment by CWSNC to maintain or

---

<sup>1</sup> Witness Galganski testified, in pertinent part, that CWSNC:

"...has an unhealthy reputation for not answering their telephone, replying to telephone messages, or providing useful information when called upon to answer questions. I know this, as I served as President of Monterey Shores PUD for 8 years and have served as General Manager for the last 6 years. In both positions, I have fielded many phone calls from contractors and homeowners requesting an insight as to how to get Carolina Water to assist them in sewer taps or adding or repairing lines. I myself have had two occasions that applicant proved more than frustrating when called upon to deal with customer service issues."

<sup>2</sup> Witness Blaxton read into the record and introduced in evidence a Resolution adopted by the Board of Directors of the Corolla Light Community Association, Inc. on June 12, 2015, in opposition to CWSNC's proposed sewer rate increase. Witness Blaxton is a member of the CLCA Board. Witness McCain, who is the President of the Monterey Shores Homeowners Association ("MS HOA"), read into the record and introduced in evidence a letter submitted by the MS HOA in opposition to the proposed rate increase.

improve their sewer system; objected to paying for sewage treatment for water used for purposes such as washing cars, watering lawns, etc. which, when used, does not enter the sewer system; asserted that they had not been given timely notice of the hearing; and objected to the location of the public hearing. For instance, witness Blaxton testified that customers received the notice of hearing only about two weeks before the hearing was held on June 24, 2015, which made it impossible for many customers to attend the hearing. Witness McCain questioned why the hearing was scheduled on the mainland of Currituck County rather than on the Northern Outer Banks (in Corolla, for instance), which would have been much more convenient for affected customers.

**CWSNC RESPONSE:** Only one of the six customers from the Company's Corolla Light/Monteray Shores service area voiced any service quality complaints. Not surprisingly, customer testimony focused primarily on opposition to CWSNC's proposed rate increase, which is one of the primary issues to be decided by the Commission based upon careful consideration of all the evidence, including customer testimony, offered in this proceeding. As to allegations that customers failed to receive timely notice of the June 24<sup>th</sup> public hearing and their stated objections to the location of the hearing, CWSNC notes that the Company provided public notice in compliance with the directives of the Commission as to the date, time, and location.

In specific reference to the testimony offered by customer Galganski, the Company reviewed her customer service account and found no recent communications of record; the last notation of person-to-person contact by witness Galganski with CWSNC's Customer Service was in 2010. CWSNC's Regional Operations Manager, Danny Lassiter, recently left a voice message with customer Galganski to be sure that she has his personal contact information and to encourage her to contact him directly if there are any situations in the future that the Company needs to address in a timely fashion.

#### **Nags Head Service Area**

Three of the ten witnesses who testified at the Currituck public hearing are CWSNC sewer utility customers who reside in the Company's Nags Head service area in Dare County. The fourth Nags Head area witness who testified is not a CWSNC customer, but serves as the Town Manager for the Town of Nags Head. These four witnesses (Barbara Gernat, Meade Gwinn, John Ratzenberger, and Cliff Ogburn<sup>3</sup>) testified regarding customer service quality complaints experienced primarily during peak tourist season months related to (1) sewer system odor problems and (2) perceived wastewater treatment plant ("WWTP") capacity issues. They also testified in opposition to the proposed rate increase and expressed a concern or observation that the flat rate charged by CWSNC may be inequitable

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<sup>3</sup> Witness Ogburn is the Town Manager for the Town of Nags Head. The Town has a fire station in the Village of Nags Head service area which is located immediately adjacent to the wastewater treatment plant site and also is a sewer customer of CWSNC.

because it applies to all customer residences in the service area no matter the size.

**CWSNC RESPONSE:** On April 21, 2015, CWSNC contracted with an engineering firm, Diehl & Phillips, P.A. of Cary North Carolina, to complete an investigation and evaluation of odor and odor sources at the Village of Nags Head wastewater collection and treatment systems ("Odor Investigation Report"). The consulting engineer was on site May 28, 29 and 30, 2015, and the consultant's Odor Investigation Report is dated June 25, 2015. A copy of the report has been forwarded to Public Staff Engineer Gina Casselberry. Subsequent to the NCUC public hearing, the Company also sent a letter to the Nags Head Town Manager, Cliff Ogburn, dated July 31, 2015 (copy attached hereto as Appendix A), addressing the capacity and odor issues raised by Mr. Ogburn during his testimony at the public hearing. A copy of the full Odor Investigation Report was provided to Mr. Ogburn. The narrative portion of the Report is attached hereto as Appendix B. The Report had a number of large figures that have not been included due to size considerations.

As a matter of follow-up to the public hearing, CWSNC has scheduled a tour of the Nags Head wastewater treatment facility for August 19, 2015. Customers Gernat and Gwinn, who testified at the public hearing, have been invited and will attend the tour, as well as representatives from the Town of Nag Head.

Public Staff Engineer Gina Casselberry toured the Village of Nags Head wastewater facility before the Currituck public hearing on June 24.

With regard to the odor complaints addressed at the public hearing, CWSNC notes that the Village of Nags Head wastewater treatment site is located in close proximity to homes and businesses in a very confined area on a barrier island. WWTP odors are challenging under the best of circumstances and can be difficult to address and resolve, but CWSNC will continue to explore any and all reasonable, prudent, and cost-effective options to minimize potentially objectionable odors. Odors can often be fleeting and brief and individually subjective. That is why CWSNC considers the use of analytical equipment to be extremely important in assessing the nature, severity and origin of odor complaints.<sup>4</sup> This is not said to in any way minimize or denigrate odor complaints, but merely to add context to the difficult situation CWSNC faces in identifying and confirming a source to take appropriate action.

As recommended by the Company's consulting engineer, CWSNC will proceed with a period of additional sampling to investigate and better understand odor issues using a stationary gas monitoring data logger. The Company will also implement the other recommendations made by the consulting engineer in an attempt to mitigate potentially objectionable odors. The Company has already relocated one chemical dispersion fan as recommended and purchased and installed a fourth fan unit. CWSNC is also adding a chemical product at all lift

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<sup>4</sup> For instance, CWSNC's consulting engineer was on site May 28-30, 2015, but sampling did not confirm the severity of the odor issues about which customer Gernat testified during the investigation period.

stations to help with any problems of odors as they reach the facility. CWSNC is taking these actions in a good faith attempt to further investigate, address, and mitigate potentially objectionable WWTP odor issues.

In summary, CWSNC is fully committed to being responsible and attentive to odor complaints and other concerns expressed by its customers and the Town of Nags Head. The Company sincerely values these relationships and will continue to work closely with customers and the Town to resolve any such issues.

**ADDITIONAL CWSNC RESPONSE:** CWSNC appreciates and takes seriously this opportunity to respond to the complaints and concerns expressed by the Company's customers. While some customers from the Company's Corolla Light/Monteray Shores service area testified that they had not seen visible signs of any improvements or repairs being made to their sewer system, CWSNC notes that investments made by the Company in the various systems are not always obvious to customers, given the nature of some of the work. Additionally, should there be a need for major investment for upgrades or repairs—as there will inevitably be for every system—CWSNC has an obligation arising from its status as a regulated public utility to make necessary capital investments to ensure that consumers receive reliable and adequate utility service.

Furthermore, objections to the proposed rate increase request and rate design matters (flat rate versus metered rate, charging for sewage treatment of water which does not enter the sewer system, etc.) raised by some customers involve complex issues to be decided by the Commission based upon careful

consideration of all the evidence, including customer testimony, offered in this proceeding.

Respectfully submitted, this the 7th day of August, 2015.

**SANFORD LAW OFFICE, PLLC**

**Electronically Submitted**

**/s/Jo Anne Sanford**

North Carolina State Bar No. 6831

P.O. Box 28085

Raleigh, NC 27611-8085

Phone: 919-829-0018

Fax: 919-829-8139

E-mail: [sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)

**Robert H. Bennink, Jr.**

Bennink Law Office

130 Murphy Drive

Cary, North Carolina 27513

Phone: 919-760-3185

E-Mail: [BenninkLawOffice@aol.com](mailto:BenninkLawOffice@aol.com)

North Carolina State Bar No. 6502

**ATTORNEYS FOR CAROLINA WATER  
SERVICE, INC. OF NORTH CAROLINA**



# APPENDIX A

Aug 07 2015

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## APPENDIX A



July 31, 2015

Mr. Cliff Ogburn, Town Manager  
Town of Nags Head  
5401 S. Croatan Hwy.  
Nags Head, North Carolina 27959

Re: Village of Nags Head Wastewater Treatment System

Dear Mr. Ogburn,

It was a pleasure to see you again on June 24, 2015, at the Currituck evening public hearing conducted by the North Carolina Utilities Commission ("NCUC") to consider the general rate case filed by Carolina Water Service, Inc. of North Carolina ("CWSNC").

Town of Nags Head Commissioner John Ratzenberger and you, in your capacity as Town Manager, both attended the NCUC public hearing and testified with regard to certain matters of concern to the Town. On behalf of CWSNC, I want to take this opportunity to address the concerns expressed on behalf of the Town.

First, let me clarify the issue of capacity of the Village of Nags Head wastewater treatment plant ("WWTP") or facility. The official State environmental permit for the facility establishes a capacity for the WWTP of an average of 400,000 gallons per day ("GPD"). I am attaching a flow tracking spreadsheet showing the average daily and peak daily flows from the facility for January 2013 through June 2015. At no time during that period did the average flow exceed the permit limit of 400,000 GPD. We are confident that the WWTP is capable of handling the current and any proposed connections in CWSNC's Village of Nags Head service area.

The permitted capacity of the Village of Nags Head wastewater treatment system was, prior to December 11, 2009, set at 500,000 GPD, and consisted of five (5) parallel treatment units of 100,000 gallons each. At that time, the WWTP had proprietary AeroMod brand treatment equipment installed that was not capable of providing reliable treatment at the flow rate the manufacturer originally specified. Thus, the State "de-rated" each of the five units from 100,000 GPD to 75,000 GPD. In one unit, we removed the AeroMod modules and installed another type of treatment equipment rated at 100,000 GPD, taking the capacity of the total plant to 400,000 GPD  $[(4 \times 75,000) + (100,000)]$  as set forth in a permit issued December 11, 2009. After CWSNC completed substantial improvements at the plant, including investment of over \$500,000, the wastewater treatment facility was successfully restored to full compliance and a moratorium on new connections was lifted by the State on October 1, 2010. I am pleased to report that the facility has been in substantial compliance since that time with only two exceptions because of flooding during Tropical Storm Beryl in late May 2012.

Since 2010, CWSNC has continued to invest heavily, both financially and through operational commitment at the facility, to ensure proper operation of the Village of Nags Head wastewater treatment system. The original design AeroMod modules design were inadequate and had reached the end of their usable life with heavy corrosion from the salt air environment, CWSNC has now replaced all of the original AeroMod units with new low maintenance, revised

A Utilities, Inc. company Carolina Water Service, Inc. of North Carolina

P.O. Box 240908 • Charlotte, NC 28224 • P: 704-525-7990 • F: 704-525-8174  
5701 Westpark Dr., Suite 101 • Charlotte, NC 28217 • [www.uiwater.com](http://www.uiwater.com)

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design units that are performing very well. As CWSNC continues to demonstrate a strong environmental and operational compliance history to the State environmental regulatory agency, the Company may, after further evaluation, request that the capacity rating of the wastewater treatment facility be restored to 500,000 GPD by the State.

In addition to the new AeroMod modules, CWSNC is adding new effluent filters to the facility that will provide a greater level of reliable and consistent polishing treatment at the facility before disposal.

CWSNC has made approximately \$1,500,000 in major capital improvements to the Village of Nags Head WWTP since 2008, which are detailed in the following chart:

Project Description	Cost	Status
WWTP Modifications and Improvements	\$591,154	Complete 2010
WWTP Aeromod Replacement of trains #3 and #4	\$204,435	Complete 2014/2015
WWTP Aeromod Replacement of trains #1 and #2	\$297,850	Complete 2015
Replace Standby Power Generator L.S. #7	\$50,000	9/15/2015 est. complete
WWTP New Effluent Filter Installation	\$300,000	9/15/2015 est. complete
<b>Total</b>	<b>\$1,443,439</b>	

In regards to the odor complaints, as you of course can appreciate, this wastewater treatment site is located in close proximity to homes and businesses in a very confined area on a barrier island. WWTP odors are challenging under the best of circumstances and can be difficult to address and resolve, but CWSNC will continue to explore any and all options to minimize potentially objectionable odors.

CWSNC has retained an independent engineering consultant to conduct a third-party investigation and the consultant's final report is enclosed for your information and review. The report is very comprehensive, but CWSNC acknowledges that the sampling was only done for a 3-day period from May 28 through May 30, 2015. At the time of this investigation, the consulting engineer found no odors off-site and with lack of findings, his recommendations were limited. However, we will conduct additional monitoring.

As you may remember, one of CWSNC's customers testified at the NCUC public hearing regarding significant, objectionable odors which she said had been "very bad" and "nauseating" since May 22. CWSNC's consultant was on site May 28-30, but sampling did not confirm the customer's experience during the investigation period. Odors can often be fleeting and brief and individually subjective. That is why CWSNC considers the use of analytical equipment to be extremely important in assessing the nature, severity and origin of odor complaints. This is not said in any way to minimize or denigrate odor complaints, but merely to add context to the difficult situation identifying and confirming a source to take appropriate action.

As recommended by our consultant, CWSNC will proceed with a period of additional sampling to investigate and better understand odor issues using a stationary gas monitoring data logger. The Company will also implement the other recommendations made by the consulting engineer in an attempt to mitigate potentially objectionable odors. The Company has already relocated one chemical dispersion fan as recommended and purchased and installed a 4<sup>th</sup> fan unit. CWSNC is also adding a chemical product at all lift stations to help with any problems of odors as they reach the facility. CWSNC is taking these actions in a good faith attempt to further investigate, address, and mitigate potentially objectionable WWTP odor issues.

July 31, 2015

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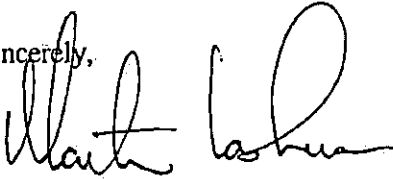
Aug 07 2015

CWSNC is fully committed to being responsible and attentive to odor complaints and other concerns expressed by its customers and the Town of Nags Head and we hope that you find the information set forth in this letter and the attached engineering consultant's report to be responsive.

The Company sincerely values these relationships and will continue to work closely with customers and the Town to resolve any such issues.

If you have any questions or need any additional information, please give me a call. Thank you for your attention.

Sincerely,

A handwritten signature in black ink, appearing to read "Martin Lashua". The signature is fluid and cursive, with the first name "Martin" and last name "Lashua" clearly distinguishable.

Martin Lashua  
Vice President of Operations

Cc: Danny Lassiter  
Gina Casselberry, Engineer, North Carolina Public Staff

Village of Nags Head Permit WQ0000910 Expiration 7/31/2020 flow measured continuous Units = Million Gallons Per Day

Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	ANNUAL AVERAGE
0.081	0.062	0.073	0.083	0.120	0.207	0.264	0.254	0.152	0.105	0.087	0.081	0.131

Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	ANNUAL AVERAGE
0.073	0.067	0.077	0.104	0.141	0.190	0.247	0.231	0.153	0.093	0.080	0.083	0.128

Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	ANNUAL AVERAGE
0.080	0.098	0.081	0.090	0.162	0.298							0.135

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# APPENDIX B

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APPENDIX B

EVALUATION OF ODORS AND ODOR SOURCES

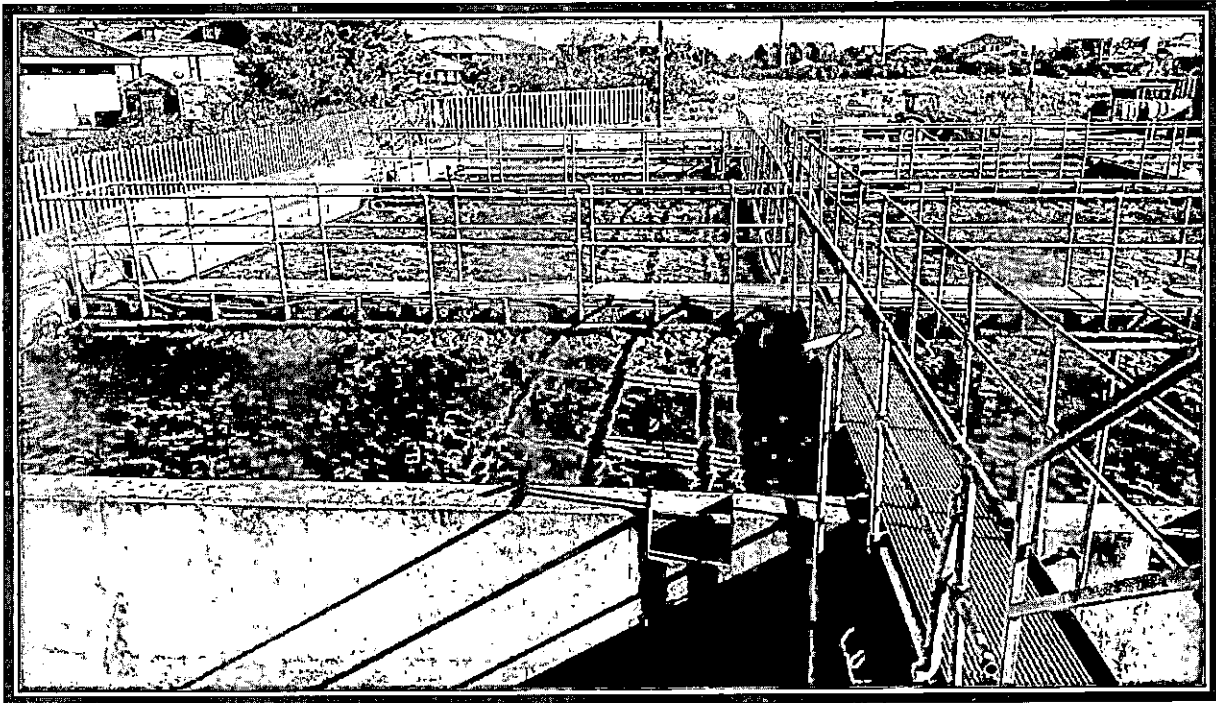
IN THE

VILLAGE AT NAGS HEAD

WASTEWATER COLLECTION AND TREATMENT SYSTEMS

PREPARED FOR:

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA



Prepared By:

Diehl & Phillips, P.A.

1500 Piney Plains Road, Suite 200

Cary, NC 27518

Firm License No. C-0465

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Aug 07 2015

# EVALUATION OF ODORS AND ODOR SOURCES IN THE VILLAGE AT NAGS HEAD WASTEWATER COLLECTION AND TREATMENT SYSTEMS

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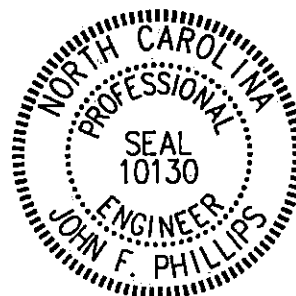
## CERTIFICATION

I hereby certify that this report was prepared by me and by others under my direct supervision.

Signed, Sealed, and Dated this 25<sup>th</sup> day of June, 2015

*John F. Phillips*

John F. Phillips, P.E.  
Diehl & Phillips, P.A.





## EVALUATION OF ODORS AND ODOR SOURCES IN THE VILLAGE AT NAGS HEAD WASTEWATER COLLECTION AND TREATMENT SYSTEMS

### **I. INTRODUCTION**

The Village at Nags Head wastewater system is owned and operated by Carolina Water Service, Inc. of North Carolina ("CWS"), and is operated under NC Division of Water Resources Permit No. WQ0000910 for treatment and Permit No. WQCS00285 for collections. The wastewater system serves approximately 604 residential customers, 35 non-residential customers that include the Nags Head Golf Links Clubhouse, the Village Beach Club, the Outer Banks Mall, the Outer Banks Hospital, and the Town of Nags Head Fire Station 16 and Planning Offices. The wastewater collection system consists of approximately 34,500 linear feet (LF) of 8-inch gravity sewer lines, eight wastewater pump stations, approximately 6,840 LF, 6,125 LF, and 1,350 LF of 6-inch, 4-inch, and 3-inch force mains respectively (force mains being the pipes that carry the pumped wastewater to a point where the wastewater is discharged into another pump station, a gravity sewer line, or the treatment plant). The wastewater from the collection system is discharged into the Village at Nags Head Wastewater Treatment Plant, where the wastewater is biologically treated, filtered, disinfected, and ultimately disposed of in either a 50,000 square foot high rate infiltration spray bed (rated for 10 gallons per day per square foot application rate), or in an 41,000 square foot infiltration pond (rated for 334,889 gallons per day) located on Hole No. 12 of the golf course. See Figure 1 for a map of the collection system and service area.

Diehl & Phillips, P.A. was retained by CWS to examine the Village at Nags Head wastewater system, to quantify any odors produced, and to document the location of the detected odors. We were also directed to make recommendations regarding possible methods to reduce or eliminate odors as might be detected by the system examination. Before the presentation of our findings from the examination, the process of odor formation in wastewater systems will be reviewed.

### **II. ODORS IN WASTEWATER SYSTEMS**

Most odor producing compounds found in domestic wastewater and the solids removed from the wastewater result from anaerobic (without oxygen) biological activity that consumes organic matter, sulfur, and nitrogen normally found in domestic wastewater. Odor producing compounds include inorganic and organic molecules. The major inorganic molecules are hydrogen sulfide and ammonia. Organic matter that decomposes can form malodorous compounds such as mercaptans, amines, skatoles, and indoles.

Hydrogen sulfide is the most prevalent odor in domestic wastewater collection and treatment systems, and can have the characteristic "rotten egg" smell at certain

concentrations. It is typically the odor that is first detected, as it can be detected at extremely low concentrations by the human sense of smell. Hydrogen sulfide is usually the gas that is examined in wastewater odor studies because it is the most common and predominant objectionable odor, and because it is one of the few specific gases for which portable instruments have been developed to measure its concentration in the atmosphere.

Hydrogen sulfide is produced in wastewater collection systems by sulfate reducing bacteria that live in the thin slime layer coating the pipe interiors and within solids deposits that may occur in the pipes. These naturally occurring bacteria live in an environment that is devoid of dissolved oxygen and nitrates (these bacteria live in the human mouth and intestinal tract as well, producing the hydrogen sulfide components of halitosis and flatulence). These bacteria are also naturally occurring in swamps, salt marshes, and tidal marshes, where the production of hydrogen sulfide gas in those environments has been documented.

These bacteria reduce sulfate, one of the most common anions in wastewater, to sulfide, effectively "removing" the oxygen portion of the sulfate anion. The resulting sulfide combines with hydrogen ions to form hydrogen sulfide. Depending on the pH of the wastewater, the hydrogen sulfide dissociates to dissolved hydrogen sulfide gas ( $\text{H}_2\text{S}$ ), hydrosulfide ion ( $\text{HS}^-$ ), and sulfide ion ( $\text{S}^{2-}$ ). At neutral pH of 7, the distribution is approximately 50% dissolved hydrogen sulfide ( $\text{H}_2\text{S}$ ) and 50% hydrosulfide ion ( $\text{HS}^-$ ). At pH 6, the distribution is approximately 90%  $\text{H}_2\text{S}$  and 10%  $\text{HS}^-$ , while at pH 8, the distribution shifts to approximately 90% hydrosulfide ion.

The rate at which sulfide is produced by the sulfate reducing bacteria in the slime layer depends on the following environmental conditions:

- Sulfate concentration (typically not a limiting factor in domestic wastewater)
- Concentration of organic matter and nutrients in the wastewater
- The dissolved oxygen (DO) concentration in the wastewater
- The pH of the wastewater
- The temperature of the wastewater
- The velocity of the wastewater moving through the pipe
- The detention time of the wastewater in the collection system

These environmental factors combine to produce differing concentrations of dissolved hydrogen sulfide in the wastewater throughout the year. If the organic matter concentration is relatively high in the wastewater, the DO will be more rapidly depleted, promoting anaerobic conditions in the pipelines. The reduction of sulfates to sulfides is not an instantaneous occurrence, so the sooner anaerobic conditions are achieved, the more time that will be available for the bacteria to produce sulfides. The wastewater temperature is also a key component; the rate of sulfide production can double for every  $10^\circ\text{C}$  increase in temperature, due to the increased biological reaction rates at warmer

temperatures. A sluggish velocity of the wastewater through the pipelines can lead to a thicker slime coating, which can increase the amount of sulfides produced. One of the key factors in sulfide generation has been demonstrated to be directly proportional to the detention time of the wastewater in the collection system.

In the specific cases of the Village at Nags Head (and other coastal resort communities), the effects of some of these factors are mitigated by others. The wastewater flows are typically lower in the winter months, leading to the longest detention times in the collection system. The potential for sulfide production due to the longer detention times is reduced because the lower wastewater temperature slows the biological reaction rates. The ability of oxygen to be dissolved in the wastewater also increases as the water temperature decreases, which would also slow the production of sulfides.

During the warmer months the wastewater temperature increases, causing an increase in the activity of the bacteria and decreasing the solubility of oxygen in the wastewater. Partially offsetting these potential increases in sulfide production is the increased flowrates experienced by the system, which reduces the travel time of the wastewater in the collection system. In the gravity sewer lines the increased flow rates also increase the liquid velocity in the pipes, which can shear and reduce the slime layer thickness.

Dissolved hydrogen sulfide gas is the only form of dissolved sulfide which can be released from the wastewater to the atmosphere, which can then lead to the "rotten egg" odors. The release of  $H_2S$  from the aqueous, or liquid phase, is typically accelerated by turbulent conditions in the wastewater collection system (wastewater exiting a pipe and "free falling" in a manhole or into a pump station wet well). In the specific case of the Village at Nags Head, the gravity wastewater collection system piping is generally installed on relatively flat slopes, with little or no "free fall" discharges into manholes. There are some "free fall" discharges of the gravity sewer lines into the eight remote wastewater pumping stations located throughout the system, but these do not appear to be sources of odors, as will be discussed in greater detail later.

The discharges from the eight remote pump stations come together at the head of the Village at Nags Head wastewater treatment plant, and discharge into a manually cleaned bar rack. Coarse solids (rags, poorly degraded wipes, etc.) are retained on the bar rack, and the wastewater free falls through the rack to the water surface of the flow equalization basin. This location is a potential release point of hydrogen sulfide gas for three reasons: (1) the discharged wastewater will have spent the maximum time possible in the collection system, thus maximizing the possible dissolved hydrogen sulfide production, (2) a portion of the dissolved hydrogen sulfide will readily come out of solution when it exits the confines of the force main and is exposed to air, due to the vapor-liquid equilibrium properties of hydrogen sulfide, and (3) the significant free fall distance into the flow equalization basin and the diffused aeration system in the equalization basin

both promote the release of hydrogen sulfide gas. The hydrogen sulfide measurements made at the influent bar rack will be further discussed later in this report.

### **III. QUANTIFICATION OF LIQUID PHASE AND VAPOR PHASE HYDROGEN SULFIDE IN THE VILLAGE AT NAGS HEAD WASTEWATER SYSTEM**

Before discussing the quantification of the various forms of hydrogen sulfide, the following question must be addressed: "What is an acceptable level of hydrogen sulfide gas from the Village at Nags Head wastewater system?" If the answer is when an objectionable "rotten egg" odor is detected and recognized outside of the treatment plant site, then how is that answer to be standardized, or translated into a measureable quantity?

The quantification of odors is difficult, for several reasons. The ability of humans to perceive odors varies widely among individuals. A thousand-fold difference in olfactory acuity has been observed between the least and most sensitive individuals. Nonsmoking adults show greater acuity than smokers, and females have been shown to have a keener sense of smell than males in studies. Age is also a variable, as olfactory sensory nerves atrophy with age. At age 20 there is an average 18% loss of the original acuity; at age 60 the loss is 62%; and at age 80 the loss is 72%.

The minimum concentration of hydrogen sulfide gas in the atmosphere that can be detected by humans is therefore a variable number. It is further complicated by the differences in detection and recognition thresholds. A very low concentration of an odorous substance can produce an odor sensation indicating to a person the presence of odor vapors. At this level, the brain may not recognize the odor, but it does detect the odor's presence, and is therefore termed the "detection threshold". At higher concentrations the odor becomes recognizable, and that concentration is termed the "recognition threshold". The difference between detection and recognition threshold concentrations can vary by factors between 2 and 10, depending on the specific odor.

In order to have some standardization in the measurement of odors, the American Society for Testing and Materials (ASTM) and various European counterparts developed devices and methods to uniformly expose a panel of human "assessors" to gas samples of varying concentrations. The consensus of these controlled tests have established threshold and recognition concentrations for various odorous substances, including hydrogen sulfide. While there is still some variation in the published literature, the hydrogen sulfide gas threshold concentrations that are generally accepted are:

Detection Threshold (the concentration at which 50 percent of a human panel can identify the presence of an odor, but cannot characterize the stimulus):

0.00047 parts per million (by volume)

Recognition Threshold (the concentration at which 50 percent of a human panel can identify the odor):

**0.0047 parts per million (by volume)**

These values are found in numerous odor-related technical documents and literature, although it appears these references all originate from a 1969 study "Odor Threshold Determinations of 53 Odorant Chemicals" (Leonardos, Kendall, and Barnard).

In 2001 the Secretary's (Secretary of the NC Division of Environment and Natural Resources) Scientific Advisory Board on Toxic Air Pollutants prepared a toxicity assessment of hydrogen sulfide in response to a request by DENR. In that document they cited a scientific study prepared for the California Air Resources Board and the California Office of Environmental Health Hazard Assessment as estimating that 50 percent of humans could detect the odor of hydrogen sulfide at 0.008 parts per million, while over 90% could detect the odor at 0.05 parts per million. They also estimated that exposures to concentrations as low as 0.0005 parts per million might be detectable by a limited number of people.

The Public Health Statement published by the US Department of Health and Human Services in October 2014 states that "People can usually smell hydrogen sulfide at low concentrations in air, ranging from 0.0005 to 0.3 parts per million".

While there is no single "right" answer, the consensus of multiple technical studies and articles indicate a hydrogen sulfide gas concentration of approximately 0.005 parts per million (by volume) will be recognized by approximately half of the population. 0.005 parts per million (equivalent to 5 parts per billion) in the atmosphere may be difficult to visualize; 5 parts per billion on a linear scale is equivalent to one inch in 3,156 miles.

***Based on the consensus of the technical literature, the goal for the operations of the Wastewater System for the Village at Nags Head should be to not exceed 0.005 parts per million of hydrogen sulfide in the atmosphere of the collection system service area and the areas outside of the treatment plant and high rate infiltration sites.***

#### **IV. DATA COLLECTION AT VILLAGE AT NAGS HEAD**

The hydrogen sulfide gas concentration in air was measured using a Jerome 631X Hydrogen Sulfide analyzer that had its calibration verified prior to its use at the Village at Nags Head. Ambient air was sampled at each of the eight remote wastewater pump station sites in the collection system, and at approximately 22 other data collection points located outside of the wastewater treatment plant site fence, but within a range of 20 feet to 2,300 linear feet of the treatment plant site fence. Additionally, there were approximately 40 data collection points distributed around and on the wastewater

treatment plant and around the high rate infiltration spray bed. The data collection was performed on Thursday, Friday, and Saturday, May 28 to 30, 2015.

The concentration of hydrogen sulfide gas measured at each sample location, along with the time of day, date, wind direction, and wind speed for each data point, is presented in Figures 3 through 7. Figure 2 is a key map that identifies the location in the wastewater system of each of the subsequent Figures.

The hydrogen sulfide gas measurements in the collection system area (outside of the wastewater treatment plant and high rate infiltration site) can be summarized as follows:

Thursday, May 28 – Thirty-eight (38) measurements ranging from 0.000 to 0.003 parts per million

Friday, May 29 – Thirty (30) measurements ranging from 0.000 to 0.003 parts per million

These values were all below the goal value of 0.005 parts per million; no odors were detected by the personnel making the measurements at each site.

The hydrogen sulfide gas measurements within the treatment plant site fencing can be summarized as follows:

Thursday, May 28 – Sixteen measurements ranging from 0.000 to 0.004 parts per million, and then multiple measurements at the influent bar rack where the force mains from the various pump stations collectively discharge. The measurements from the influent bar rack area are discussed further below.

Friday, May 29 - Eight measurements ranging from 0.000 to 0.004 parts per million, and then multiple measurements at the influent bar rack area. The measurements from the influent bar rack area are discussed further below.

In addition to the eight measurements taken around the perimeter of the treatment plant on May 29 and summarized above, approximately 29 measurements were made from the walkways on the treatment plant, and along the exterior walls of the plant. Measurements were also made adjacent to the Salsnes primary filter, at the dumpster receiving the bagged, dewatered solids from the Salsnes filter, and at the flow splitter box receiving the filtered effluent from the Salsnes filter. The measured concentrations ranged from 0.001 to 0.005 parts per million (ppm), except for a value of 0.007 ppm measured within the dumpster and a value 0.010 ppm at the northwest corner wall of the treatment plant (there was a force main discharging into the nearby influent bar rack when the 0.010 ppm concentration was measured at the northwest corner of the treatment plant).

Saturday, May 30 – Eighteen measurements ranging from 0.000 to 0.004 parts per million, one measurement of 0.013 parts per million at the northwest corner of the treatment plant (near the influent bar rack), and then multiple measurements at the influent bar rack. Multiple measurements were taken this day at the four corners of the perimeter of the high rate infiltration spray field, during an effluent dosing event. The measured concentration of hydrogen sulfide gas at these points during the dosing event ranged from 0.000 to 0.003 parts per million.

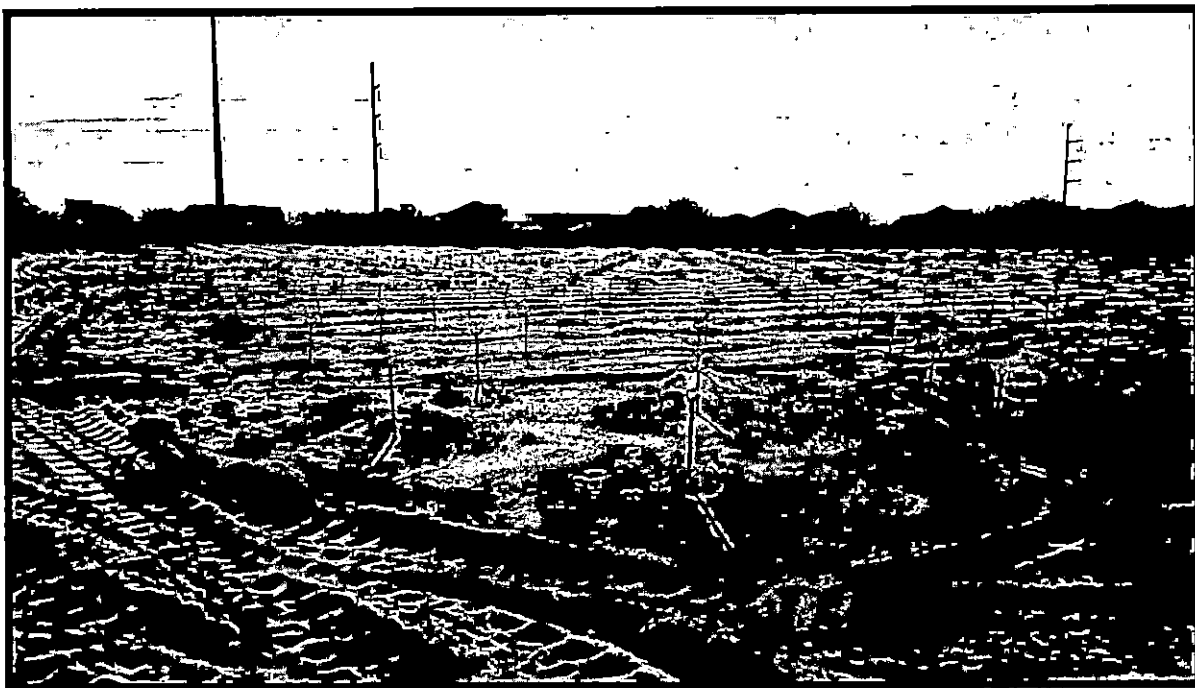


Photo 1 - High Rate Infiltration Spray Beds

The dissolved sulfide concentration in the wastewater (liquid, or aqueous phase) was measured using a Hach Model HS-WR Hydrogen Sulfide Test kit. This test procedure determines the total sulfides in the wastewater ( $H_2S$ ,  $HS^-$ , and certain metal sulfides that might be present). As stated previously, the dissolved hydrogen sulfide gas ( $H_2S$ ) is the only form of dissolved sulfide which can be released from the wastewater into the atmosphere. Whether the dissolved hydrogen sulfide concentration constitutes the majority or the minority of the measured total sulfides is mainly a function of the pH of the wastewater. The influent wastewater pH was generally in the range of 7.0 to 7.2 during the sampling period, indicating approximately half of the measured sulfides would be in the form of dissolved hydrogen sulfide gas and half in the form of hydrosulfide ions ( $HS^-$ ). In this report the measured liquid phase sulfide concentrations are reported as

dissolved hydrogen sulfide, even though some of the measured sulfides are in the hydrosulfide ion form. This is in keeping with Hach's instructions for reporting the test results from their testing equipment, and also to conservatively represent the potential maximum dissolved hydrogen sulfide gas concentration should there be a drop in the wastewater pH.

Although there are eight remote pump stations in the collection system, there are only four force mains that extend to the treatment plant site, and only three force mains that actually discharge into the bar rack and flow equalization basin. The routing of the force main for each pump station is described below – refer to Figure 1 for the collection system mapping.

- Pump Station No. 8 discharges into Pump Station No. 7
- Pump Station No. 7 discharges into a manhole near the intersection of West Seachase Drive and the service driveway to the treatment plant and golf maintenance shop.
- Pump Station No. 2 discharges into a gravity sewer line that flows into the manhole described above (at West Seachase and service driveway).
- The wastewater from the three pump stations above, plus gravity flow from a portion of Links Drive, the hospital, the Outer Banks Mall, and other commercial establishments flows by gravity to Pump Station No. 1.
- Pump Station No. 1 pumps the flow through a 6" force main to the influent bar rack at the flow equalization basin of the treatment plant.
- Pump Station No. 5 pumps into a common 6" force main that is shared with Pump Station No. 6. This force main extends to the influent bar rack at the flow equalization basin of the treatment plant.
- Pump Station No. 4 pumps into a 4" force main that extends to a point approximately five feet from the influent bar rack, where it is joined with the 4" force main from Pump Station No. 3. The combined 4" force main extends to the influent bar rack at the flow equalization basin of the treatment plant.
- Pump Station No. 3 pumps into a 4" force main that connects with the force main from Pump Station No. 4, as described above.

The dissolved sulfide concentrations in the wastewater in the wet wells of the remote pump stations were measured on Thursday, May 28 and Friday, May 29, 2015. The measured concentrations ranged from 0.00 milligrams per liter (mg/l) to 0.10 mg/l. The results of these tests are presented in Table 1 that follows:



TABLE 1 – DISSOLVED HYDROGEN SULFIDE GAS IN REMOTE PUMP STATION WET WELLS			
Pump Station No.	Date	Time	Mg/l of H <sub>2</sub> S In Wastewater
1	5/28/15	13:15	0.10
2	5/28/15	17:15	0.00
3	5/28/15	16:45	0.02
4	5/28/15	16:10	0.00
5	5/28/15	15:50	0.00
6	5/28/15	15:25	0.00
7	5/28/15	15:00	0.04
8	5/28/15	13:58	0.00
1	5/29/15	09:40	0.10
2	5/29/15	12:19	0.00
3	5/29/15	11:56	0.00
4	5/29/15	11:35	0.00
5	5/29/15	11:10	0.00
6	5/29/15	10:45	0.02
7	5/29/15	10:28	0.10
8	5/29/15	09:59	0.00

#### **V. MEASURED CONCENTRATIONS OF DISSOLVED AND GASEOUS HYDROGEN SULFIDE AT THE INFLUENT BAR RACK**

The dissolved hydrogen sulfide test is used, in this case, to measure the concentration of dissolved hydrogen sulfide in the wastewater discharged from each force main into the flow equalization basin. This information can then be used to determine the relative contribution of each force main to the total hydrogen sulfide discharge into the plant, and can also be used to make a first approximation of the required chemical quantities if odor control chemical feed systems are added in the future. There is not a constant correlation of the measured dissolved hydrogen sulfide concentration in the wastewater to the amount of hydrogen sulfide gas that could potentially be released into the atmosphere, due to the H<sub>2</sub>S and HS<sup>-</sup> portions varying with the wastewater pH, and the liquid-vapor equilibrium varying with temperature (Henry's Law constant for H<sub>2</sub>S changes as the temperature changes).

Repeated dissolved and gaseous hydrogen sulfide measurements were made at the discharge of the force mains into the influent bar rack. Each measurement of the vapor phase hydrogen sulfide concentration taken by the Jerome 631X meter required 15 to 30 seconds. When a force main was discharging, multiple measurements were made of the

air directly above the discharging main. Table 2 below presents the average of those measurements, the number of measurements, and the highest measurement in each series.

TABLE 2 – LIQUID AND VAPOR PHASE HYDROGEN SULFIDE MEASUREMENTS MADE AT THE DISCHARGE OF THE FORCE MAINS				
Source - Force Main Discharge from Pump Station(s):	Date	Time	Mg/l of H <sub>2</sub> S In Wastewater	Parts per Million H <sub>2</sub> S in Air One Foot above Force Main Discharge
3 and 4	5/28/15	18:15	2.40	0.99 PPM (Highest) 0.42 PPM (Ave. of 8)
5 and 6	5/28/15	18:30	2.65	0.99 PPM (Highest) 0.56 PPM (Ave. of 5)
1	5/28/15	18:40	No Measurement	0.80 PPM (Highest) 0.34 PPM (Ave. of 6)
5 and 6	5/29/15	08:15	3.2	1.0 PPM (Highest) 0.43 PPM (Ave. of 4)
5 and 6	5/29/15	08:48	No Measurement	0.32 PPM (Highest) 0.18 PPM (Ave. of 5)
1	5/29/15	08:50	0.6	0.065 PPM (Highest) One measurement
1	5/29/15	09:03	No Measurement	0.050 PPM (Highest) 0.029 PPM (Ave. of 6)
3 and 4	5/29/15	09:10	1.9	0.36 PPM (Highest) 0.28 PPM (Ave. of 6)
3 and 4	5/29/15	14:05	1.7	0.103 PPM (Highest) One Measurement
5 and 6	5/29/15	14:25	2.1	0.12 PPM (Highest) 0.06 PPM (Ave. of 7)
1	5/29/15	14:45	0.36	0.23 PPM (Highest) 0.09 PPM (Ave. of 5)
1	5/29/15	15:14	0.34	0.135 PPM (Highest) 0.05 PPM (Ave. of 6)
5 and 6	5/29/15	15:32	1.8	No Measurement
3 and 4	5/29/15	16:40	1.9	0.133 PPM (Highest) 0.08 PPM (Ave. of 3)
1	5/30/15	08:05	0.4	0.21 PPM (Highest) 0.11 PPM (Ave. of 7)
3 and 4	5/30/15	08:20	1.6	1.20 PPM (Highest) 0.87 PPM (Ave. of 3)
5 and 6	5/30/15	08:33	2.1	1.50 PPM (Highest) 1.03 PPM (Ave. of 5)
5 and 6	5/30/15	08:40	2.1	No Measurement
3 and 4	5/30/15	09:01	1.7	No Measurement
1	5/30/15	09:16	0.24	No Measurement

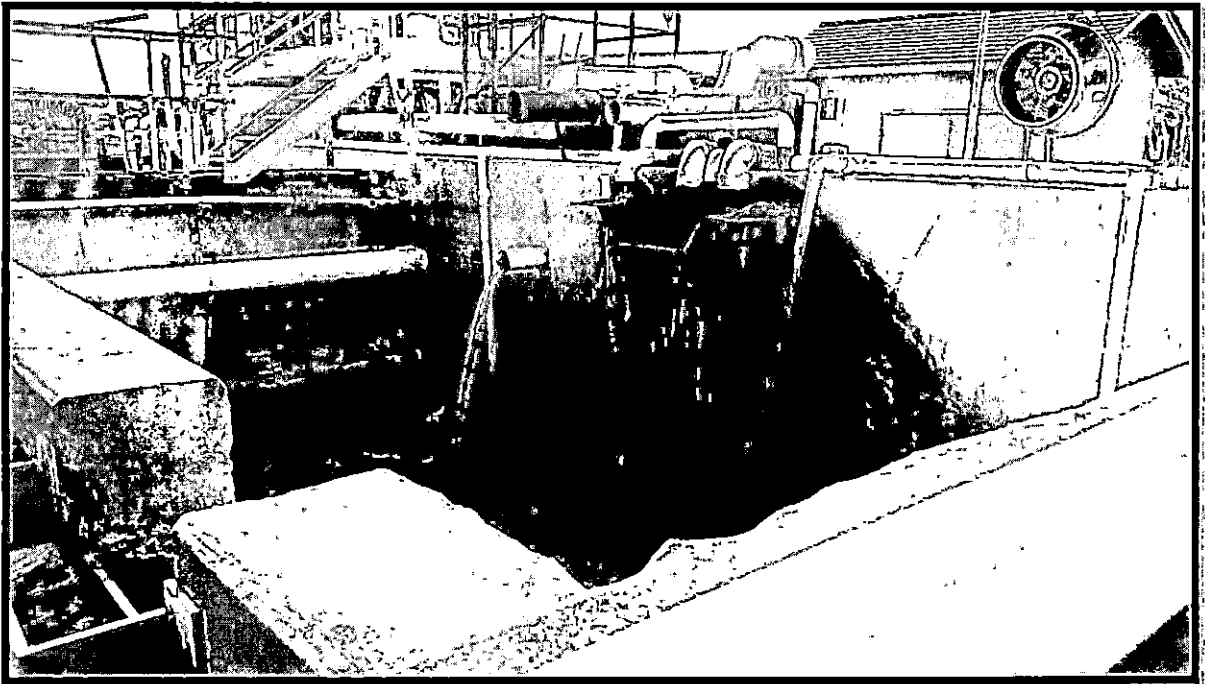


Photo 2 - Manually Cleaned Bar Rack with the Three Force Main Discharges Above and the Flow Equalization Basin Below

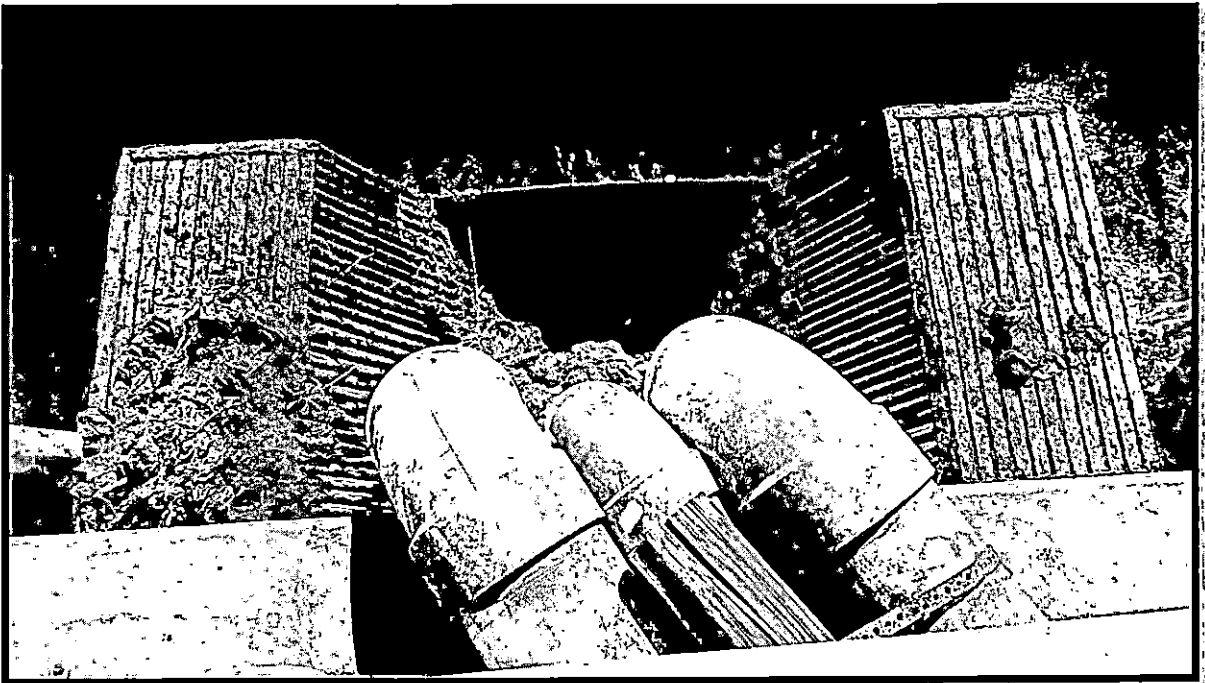


Photo 3 - Discharge Point of Three Force Mains onto Manually Cleaned Bar Rack

## **VI. INTERPRETATION OF THE COLLECTED DATA**

### **Collection System**

There is no standard or single value of dissolved hydrogen sulfide concentration that serves as an indicator that the wastewater will or will not produce detectable odors. There are numerous variables, with wastewater turbulence probably being the most significant, that will affect the amount of dissolved hydrogen sulfide gas that is released into the atmosphere. A wastewater with a dissolved hydrogen sulfide concentration of 0.30 mg/l that has a free fall discharge into a manhole will produce more hydrogen sulfide gas in that manhole than a wastewater with a 3.0 mg/l dissolved hydrogen sulfide concentration that flows quiescently through the manhole with no drop or free fall. Some of the technical literature regarding hydrogen sulfide in wastewater cites a dissolved hydrogen sulfide concentration greater than 1.0 to 1.5 mg/l as having a high probability of creating detectable odors in wastewater systems. There are also other technical sources that cite a more conservative value of 0.50 mg/l of dissolved hydrogen sulfide as a very general indicator that the wastewater is likely to produce detectable odors if it undergoes some turbulence and has an outlet to the atmosphere. Detectable odors were produced at the influent bar rack during every force main discharge, although the odors were relatively mild and weak when the dissolved hydrogen sulfide concentration was in the 0.25 to 0.40 range.

Based on the May 28 and 29 measured concentrations of aqueous and gaseous hydrogen sulfide at the remote pump stations, and at other locations within the collection system service area, there were no detectable levels of hydrogen sulfide in the atmosphere and apparently a very limited potential for the wastewater in the collection system to produce a detectable level of gaseous hydrogen sulfide in the service area. The concentrations of dissolved hydrogen sulfide in the wastewater in the eight remote pump station wet wells were measured in daily grab samples over a two day period, with the measured range being 0.00 to 0.10 mg/l. Thirteen of the 16 measurements were 0.04 mg/l or less. All vapor phase measurements of hydrogen sulfide were at or below 0.003 parts per million (by volume), which is below the generally accepted recognition threshold of 0.005 parts per million. No hydrogen sulfide or other objectionable odors were detected by the personnel making the measurements throughout the collection system.

### **Treatment Plant and High Rate Infiltration Sites**

Measurements of hydrogen sulfide concentrations in the atmosphere within the treatment plant and high rate infiltration sites were all within the range of 0.000 to 0.005 parts per million (below the generally accepted recognition threshold), except for measurements made within the primary screenings dumpster (0.007 ppm), at the northwest corner wall of the plant (0.010 ppm), and the measurements made at the influent bar rack. The influent bar rack area, where the influent force mains discharge into the flow equalization basin, was the only odor source identified during the May 28-30 sampling period. While

hydrogen sulfide gas concentrations ranged up to 1.50 parts per million by volume at the discharge location, the concentrations measured at the treatment plant fence location that was downwind of the discharge location were in the range of 0.001 to 0.005 parts per million (during and after a discharge of the force main serving Pump Stations 5 and 6).

The dissolved hydrogen sulfide created in the force main from Pump Station No. 1 predictably had the lowest measured concentrations (0.24 to 0.60 mg/l), as it is the shortest force main (approximately 250 linear feet) and has the least detention time of the influent force mains. The other influent force main lengths range from 2,000 LF to 4,800 LF, approximately. The measured dissolved hydrogen sulfide concentrations varied, but the force mains serving Pump Stations 5 and 6 typically had the greatest concentrations.

The dissolved hydrogen sulfide concentrations in the discharged wastewater at the bar rack did not produce as much hydrogen sulfide gas in that location as might have been anticipated. Possible explanations for this observance are (1) the bar rack is in an open space exposed, so any released hydrogen sulfide gas is immediately being diluted by the atmosphere and dispersed by any winds, and (2) the turbulence and aeration of the influent wastewater occurs at the water surface in the flow equalization basin, with the majority of the gas possibly being released at that location (which was approximately 6 to 8 feet below the gas measurement point). The hydrogen sulfide gas stripped out by the aeration system in the flow equalization basin would have then been distributed across the surface area of the wastewater in the equalization basin, and would have been diffused and diluted in the atmosphere by the air movement from the aeration system and any wind currents. While there may be other possible explanations, testing confirmed the dissolved hydrogen sulfide in the wastewater exiting the force mains varied as shown in Table 2, but the concentrations measured in the wastewater in the flow equalization tank were 0.10 mg/l or less. Gas measurements above and around the flow equalization basin were all 0.004 ppm or less, except in the immediate vicinity of the force main discharges and influent bar rack. The higher gas concentrations at the influent bar rack were found to have been dissipated and diluted to concentrations below the recognition threshold at the treatment plant perimeter fence.

The conclusion that could be drawn from the data collected May 28-30, 2015 at the Village at Nags Head wastewater collection and treatment systems is that there are no detectable hydrogen sulfide odors outside of the treatment plant site. It is our opinion that this conclusion would probably be flawed, as there are so many variables involved in wastewater odor production and distribution that it is likely that some detectable odors may escape the plant site under certain conditions. It may be that during certain times in the spring or fall the population served and resulting wastewater flows will be relatively small, leading to long detention times in the wastewater collection system and force mains. These conditions, coupled with moderately warm wastewater temperatures, could

produce significant dissolved hydrogen sulfide concentrations in the wastewater. If the force mains then discharged into the plant in the early morning, with little or no wind blowing, the hydrogen sulfide concentration in the air could possibly accumulate in areas beyond the treatment plant site. The hydrogen sulfide gas that is produced will eventually be degraded through oxidation, by oxygen in the air, to yield sulfur dioxide and sulfate compounds. The sulfur dioxide and sulfates are removed from the atmosphere by precipitation and by adsorption by plants and soils. The lifetime of the hydrogen sulfide gas can be as short as a few hours on a summer day, or several weeks in the winter, according to various technical investigations. The longevity of hydrogen sulfide gas and the fact that it is heavier than air make it reasonable to assume that detectable concentrations of gas could possibly accumulate in the vicinity of the treatment plant site, but outside of the site fence, under certain conditions.

#### **VII. POSSIBLE MEASURES TO MITIGATE ODOR DETECTION OUTSIDE OF THE TREATMENT PLANT SITE**

Hydrogen sulfide odors from wastewater systems are generally attacked using either liquid phase technologies or vapor phase technologies. Liquid phase technologies are further divided between (1) chemical addition to oxidize odorous compounds into more stable, odor-free forms, (2) chemical additions to raise the oxygen levels to prevent anaerobic bacteria from reducing sulfate anions to sulfide, and (3) chemical additions to raise the wastewater pH to keep the sulfides in the HS<sup>-</sup> form rather than as hydrogen sulfide. Vapor phase technologies include (1) bio-filtration, (2) odor scrubbers, (3) odor neutralizers, and (4) carbon adsorption systems.

The Village at Nags Head is currently using the following methods to mitigate potentially objectionable odors:

- Feeding Biologic® SR2 at Pump Station No. 1. The manufacturer states that this product provides micronutrients that stimulate the microbial growth and activity in the treatment plant. It is claimed to help reduce odor, reduce sludge volumes, and improve effluent quality. The field testing did indicate the force main from Pump Station No. 1 had the least concentration of dissolved hydrogen sulfide, but it was also noted that the force main from this pump station is very short and provides the least amount of detention time of the influent force mains.
- Adding Ecosorb® odor neutralizing product by pumping a dilute solution through atomizing nozzles, with the atomized mist then distributed into the atmosphere over the treatment plant via oscillating fans. The manufacturer claims that the tiny water droplets created by the nozzles contain a thin oil skin that creates an electrostatic charge. This charge facilitates adsorption of the malodor molecules onto the droplet surface. The gas is absorbed by

the droplet and held. This product is not limited to hydrogen sulfide odors; the manufacturer claims it will also work on other odor compounds that might be in the air at the treatment plant. There are four fans located at the four corners of the treatment plant; the two on the west side of the plant were in operation during the May 28-30 testing period.

- Installing odor neutralizing, scented socks that generally produce a pleasant odor intended to overpower any malodors.

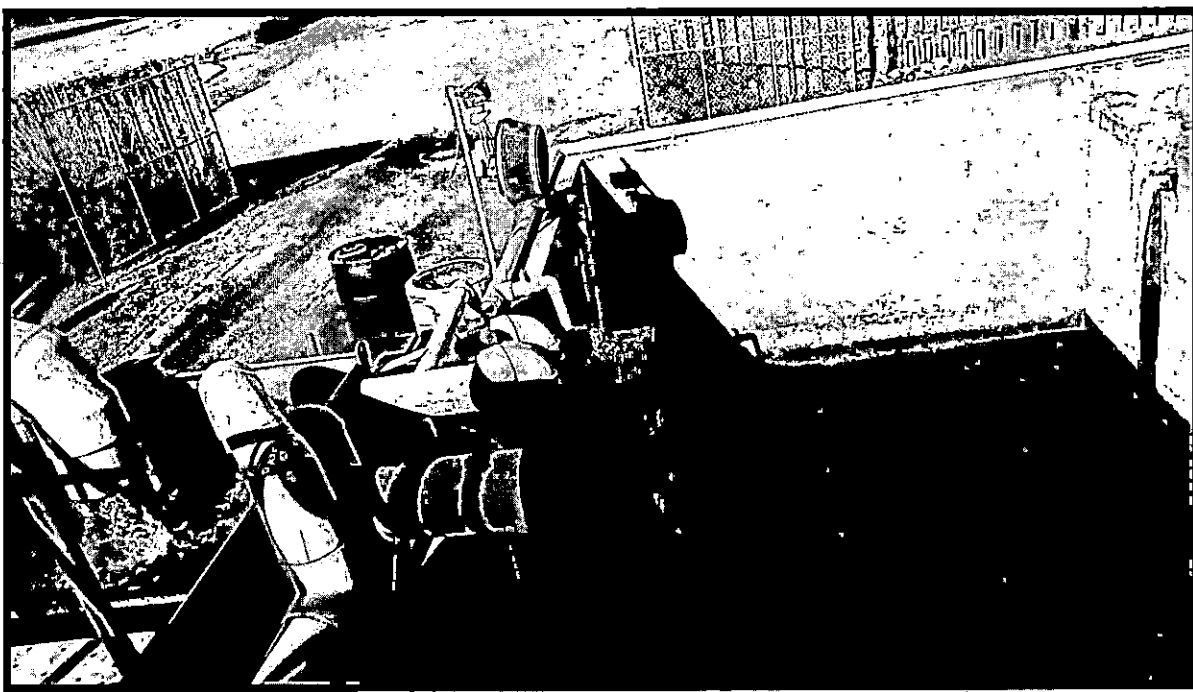


Photo 4 - Force Main from Pump Station 1 Discharging into Bar Rack, Oscillating Ecosorb® Distribution Fan Beyond

### **VIII. RECOMMENDED ACTIONS**

Based only on the data collected on May 28 through May 30, 2015, there was not an off-site odor problem detected during that period. Realizing the various conditions that affect odor production and distribution may vary throughout the year, especially in a setting where the service population and flows have significant seasonal fluctuations, it is our recommendation that Carolina Water Service, Inc. install a gas monitoring data logger near the influent bar rack. This device, such as an OdaLog Logger L2, can monitor H<sub>2</sub>S gas concentrations continuously and log the results every minute, for up to 29 days. The manufacturer has proprietary software that can retrieve and then analyze the data. The benefits of installing a data logger would be (1) to get a complete understanding of the variations in the concentrations of the hydrogen sulfide gas released at the influent area of the treatment plant, (2) to determine how the concentrations vary within a day, week,

month, and seasonally, and (3) possibly establish predictive correlations of gas concentrations to wastewater flows and ambient temperatures. Once the data established when the peak daily gas concentrations might occur, periodic measurements of the dissolved hydrogen sulfide and pH should be taken for each force main.

The information provided by a long term data logging program would be used to design any future odor control systems that might be indicated. If an odor control system were to be designed without benefit of long term data logging, it appears that vapor phase treatment would be more feasible to implement rather than liquid phase treatment. The measurements made from the force main discharges indicate hydrogen sulfide formation occurs in the force mains from Pump Stations No. 1, 3, 4, 5, and 6. Due to the physical arrangements and interconnections of the force mains, there is currently no way to allocate the amount of hydrogen sulfide produced in the pumped flow of any station except for No. 1. A liquid phase chemical treatment approach would most likely require a feed pump system and chemical storage tank at each of these five pump stations. Some of these pump stations have limited available space for a chemical storage tank, would require fencing to secure the chemical and feed system, and would be difficult access for re-stocking the chemical. Other limitations and negatives of a liquid phase approach would be that it would only target hydrogen sulfide odors, and that the chemical feed rates would require frequent re-adjustment due to changes in service population and flows.

A vapor phase approach would address the hydrogen sulfide gas released at the treatment plant headworks. Based on the testing performed, the potential odor source for the system is confined to the force main discharges into the influent bar rack, and the flow equalization basin near the influent bar rack. One possible solution for this arrangement would be to have a small mechanical screening device installed within an accessible enclosure. The screenings would be bagged and discharged into a waste dumpster, similar to what is currently being done with the filtered materials from the Salsnes primary filter. The flow through the screen would then discharge into the Flow Equalization basin. The screening enclosure would be maintained with a slight negative pressure within the enclosure, created by a blower attached to an activated carbon canister (such as a Carbtrol unit) or a similarly functioning system with a combination of engineered media and activated carbon media (such as a Syneco unit). It may also be beneficial to partition and cover the northwest corner of the flow equalization basin to capture the majority of the hydrogen sulfide gas stripped from the wastewater as it enters the flow equalization basin and is aerated, and have it pulled through the activated carbon canister system. This vapor phase approach for odor control would have the system components in a single location, and it would also provide much more efficient and effective coarse solids removal than the existing manually cleaned bar rack. The life of the canister media is directly related to the amount of hydrogen sulfide removed; if the average gas production is less than anticipated, the media life will be longer than



originally assumed (or shorter if the gas production exceeds the estimated quantities). With liquid phase chemical feed systems, overestimating or underestimating the hydrogen sulfide production can lead to overfeeding or underfeeding the chemical, resulting in wasted costs or incomplete odor control. Another benefit of this type of a vapor phase odor control system is that the carbon filters will also effectively remove other odor causing compounds, in addition to hydrogen sulfide (whereas essentially all of the chemical feed options are limited to targeting hydrogen sulfide only).

While it is possible to design either a liquid phase or vapor phase odor control system based on the collected data, it is recommended that more data be collected to determine if there is a need for an odor control, and if so, what the maximum hydrogen sulfide concentrations will be and how they will vary throughout the year. Data logging will allow for a more targeted design if a system is installed, and more accurate estimates of media and chemical consumption.

Other recommendations are:

1. Re-position the Ecosorb® distribution fan that is currently located on the west wall of the equalization basin, just south of the northwest corner of the plant. Due to the oscillation of the fan, it is possible that the fan may be pulling hydrogen sulfide gas from the manual bar rack area and exhausting it in a north to northeast direction. It is suggested that the fan be relocated to the north wall of the equalization basin, within 5 to 10 feet of the northwest corner of the plant, with the fan exhausting to the south. (Note: the fan has been relocated)
2. Perform pump drawdown measurements in each pump station wetwell, to accurately determine the current pump rates. For Pump Stations 5 and 6, which share a common force main, measurements should be made for each pump with no other pump operating, and again for each pump with a pump from the other station operating simultaneously. Accurate pump rates and pump run times will be required if an odor control system is subsequently designed. This action is being recommended because when the current pump rate information available to the plant operator is applied to the Daily Pump Run Time information provided by the Mission monitoring system, the calculated total daily flow is only 60% to 70% of the recorded plant effluent flow (for the two days checked). The difference could also be due to error in the plant effluent flow meter, but since its calibration is checked at least annually, that is less likely to be the explanation for the discrepancy.

Should Carolina Water Service, Inc. wish to proceed with data logging the hydrogen sulfide in the atmosphere at the influent bar rack, Diehl & Phillips, P.A. will be glad to assist in getting a program started. We can also assist in performing the pump rate measurements, if desired.

**VERIFICATION**

**Martin J. Lashua**, being duly sworn, deposes and says:

That he is the Vice-President of Operations for Carolina Water Service, Inc. of North Carolina; that he is familiar with the facts set out in the attached **Report On Customer Service Quality Issues from Public Hearing in Currituck, North Carolina** filed in Docket No. W-354, Sub 344; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

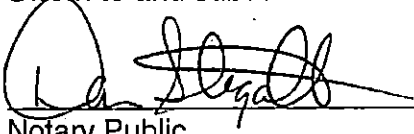


Martin J. Lashua

North Carolina

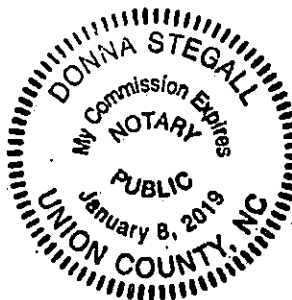
Mecklenburg County

Sworn to and subscribed before me this the 7 day of August, 2015.



Notary Public

Donna Stegall  
Printed Name



My Commission Expires: 01/08/2019  
Date

**CERTIFICATE OF SERVICE**

I hereby certify that on this the 7th day of August, 2015, a copy of the foregoing **Report On Customer Service Quality Issues from Public Hearing in Currituck, North Carolina** has been duly served upon all parties of record by electronic service, as follows:

Gina C. Holt  
William E. Grantmyre  
Dianna W. Downey  
Staff Attorneys  
Legal Division  
North Carolina Utilities Commission Public Staff  
[gina.holt@psncuc.nc.gov](mailto:gina.holt@psncuc.nc.gov)  
[william.grantmyre@psncuc.nc.gov](mailto:william.grantmyre@psncuc.nc.gov)  
[dianna.downey@psncuc.nc.gov](mailto:dianna.downey@psncuc.nc.gov)

Dwight W. Allen  
Britton H. Allen  
Brady W. Allen  
The Allen Law Offices  
[dallen@theallenlawoffices.com](mailto:dallen@theallenlawoffices.com)  
[bhallen@theallenlawoffices.com](mailto:bhallen@theallenlawoffices.com)  
[brady.allen@theallenlawoffices.com](mailto:brady.allen@theallenlawoffices.com)  
Attorneys for Corolla Light Community Association, Inc.

**Electronically Submitted**  
**/s/Jo Anne Sanford**

State Bar No. 6831  
SANFORD LAW OFFICE, PLLC  
Post Office Box 28085  
Raleigh, North Carolina 27611-8085  
Tel: (919) 829-0018  
[sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)  
**Attorney for Carolina Water Service,**  
**Inc. of North Carolina**

1 Ad

LAW OFFICE OF CHARLOTTE MITCHELL

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PO BOX 26212  
RALEIGH, NORTH CAROLINA 27611  
919-260-9901  
www.lawofficecm.com

OFFICIAL COPY

August 14, 2015

Gail Mount  
Chief Clerk  
North Carolina Utilities Commission  
430 N. Salisbury Street  
Raleigh, NC 27603 – 5918

Aug 14 2015

**Re: Report on Customer Service Quality Issues from Public Hearing in Charlotte,  
North Carolina, NCUC Docket No. W-354, Sub 344**

Dear Ms. Mount:

Enclosed for filing in the above-referenced docket on behalf of Carolina Water Service, Inc. of North Carolina is the Report on Customer Service Quality Issues from Public Hearing in Charlotte, North Carolina.

Should you have any questions or comments, please do not hesitate to call me. Thank you in advance for your assistance and cooperation.

Regards,

/s Charlotte Mitchell

4847-9065-5268, v. 1

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

**DOCKET NO. W-354, SUB 344**

<p>In the Matter of Carolina Water Service, Inc. of North Carolina, 2335 Sanders Road, Northbrook, Illinois 60062, for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All of Its Service Areas in North Carolina</p>	<p>) ) ) ) ) ) )</p>	<p><b>REPORT ON CUSTOMER SERVICE QUALITY ISSUES FROM PUBLIC HEARING IN CHARLOTTE, NORTH CAROLINA</b></p>
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**NOW COMES Carolina Water Service, Inc. of North Carolina** ("CWSNC" or "Company") and files this report regarding any customer service quality issues raised at the Charlotte, North Carolina public hearing.

Specifically, a public hearing was held beginning at 7:00 p.m., on July 8, 2015, in Charlotte, North Carolina at the Mecklenburg County Courthouse. Chairman Edward S. Finley, Jr., presided and was joined by Commissioners Don M. Bailey, Jerry C. Dockham, Bryan E. Beatty, ToNola D. Brown-Bland, and James G. Patterson. Staff Attorney Gina Holt appeared for the Public Staff on behalf of the using and consuming public, accompanied by Public Staff Water Engineer, Gina Casselberry. Charlotte Mitchell of the Law Office of Charlotte Mitchell, appeared on behalf of CWSNC, accompanied by Martin J. Lashua, the Company's Vice President of Operations and Matthew T. Klein, the Company's President of North Carolina and Tennessee.

A total of five (5) witnesses testified at the Charlotte public hearing.

Brian Allenspach, a resident of The Harbour subdivision in Mooresville, North Carolina, testified in opposition to the proposed rate increase. Mr. Allenspach testified that he has lived in the subdivision since 2002 and has never complained of a customer service problem.

Three (3) residents of the RiverPointe subdivision in Charlotte, North Carolina testified at the hearing. Specifically, Chesley Singleton, Brian Lucas and William Schell testified as to their concerns related to the proposed rate increase. None of the witnesses complained of customer service quality problems; Mr. Lucas testified that the homeowners' association has a great relationship with the Company and that the Company has been very responsive. Mr. Singleton and Mr. Lucas testified that water quality has improved following the switch in 2012 from well water to water provided by Charlotte Water (formerly Charlotte Mecklenburg Utilities).

Jack Ritterskamp, a resident of the Hemby Acres subdivision in Union County, testified regarding his concern related to the proposed rate increase.

**CWSNC Response:** The Company met with the public witnesses after the hearing and responded to their questions and concerns regarding the proposed rate increase. None of the public witnesses complained of customer service or quality issues. With respect to the witnesses from RiverPointe, the Company explained that it has proposed to include a system-specific usage charge that

reflects the actual cost incurred by the Company to purchase the water from Charlotte Water, in an effort to clarify that this charge will be a pass through from the Company to the customers. Detailed billing information was provided to Mr. Lucas, the President of the RiverPointe homeowners' association to show the rate at which the Company is being charged by Charlotte Water.

Respectfully submitted, this the 14<sup>th</sup> day of August, 2015.

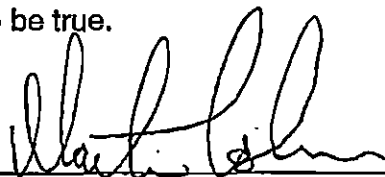
**LAW OFFICE OF CHARLOTTE MITCHELL, PLLC**  
**/s Charlotte A. Mitchell**  
**NC Bar #34106**  
**Law Office of Charlotte Mitchell, PLLC**  
**PO Box 26212**  
**Raleigh, North Carolina 27611**  
**Telephone: (919) 260-9901**  
**E-mail: [cmitchell@lawofficecm.com](mailto:cmitchell@lawofficecm.com)**

**ATTORNEY FOR CAROLINA WATER SERVICE,  
INC. OF NORTH CAROLINA**

**VERIFICATION**

**Martin J. Lashua**, being duly sworn, deposes and says:

That he is the Vice President of Operations for Carolina Water Service, Inc. of North Carolina; that he is familiar with the facts set out in the attached **Report On Customer Service Quality Issues from Public Hearing in Charlotte, North Carolina** filed in Docket No. W-354, Sub 344; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

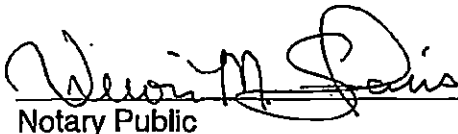


Martin J. Lashua

North Carolina

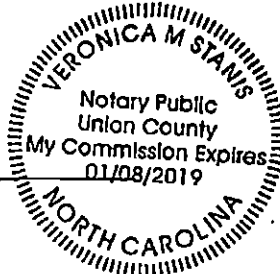
Mecklenburg County

Sworn to and subscribed before me this the 14<sup>th</sup> day of August, 2015.

  
Notary Public

VERONICA M. STANIS  
Printed Name

My Commission Expires: 01/08/2019  
Date





**CERTIFICATE OF SERVICE**

I hereby certify that on this the 14<sup>th</sup> day of August, 2015, a copy of the foregoing **Report On Customer Service Quality Issues from Public Hearing in Charlotte, North Carolina** has been duly served upon all parties of record by electronic service, as follows:

Gina C. Holt  
William E. Grantmyre  
Dianna W. Downey  
Staff Attorneys  
Legal Division  
North Carolina Utilities Commission Public Staff  
[gina.holt@psncuc.nc.gov](mailto:gina.holt@psncuc.nc.gov)  
[william.grantmyre@psncuc.nc.gov](mailto:william.grantmyre@psncuc.nc.gov)  
[dianna.downey@psncuc.nc.gov](mailto:dianna.downey@psncuc.nc.gov)

Dwight W. Allen  
Britton H. Allen  
Brady W. Allen  
The Allen Law Offices  
[dallen@theallenlawoffices.com](mailto:dallen@theallenlawoffices.com)  
[bhallen@theallenlawoffices.com](mailto:bhallen@theallenlawoffices.com)  
[brady.allen@theallenlawoffices.com](mailto:brady.allen@theallenlawoffices.com)  
Attorneys for Corolla Light Community Association, Inc.

**s/ Charlotte Mitchell**

4837-0737-7446, v. 1

1 Ad

**SANFORD LAW OFFICE, PLLC**

Jo Anne Sanford, Attorney at Law

September 4, 2015

OFFICIAL COPY

Ms. Gail L. Mount, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: Carolina Water Service, Inc. of North Carolina  
Docket No. W-354, Sub 344  
Report on Customer Service Quality Issues from Public Hearing  
in Boone, North Carolina

Sep 04 2015

Dear Ms. Mount:

Please accept for filing on behalf of Carolina Water Service, Inc. of North Carolina the attached Report on Customer Service Quality Issues from Public Hearing in Boone, North Carolina.

As always, thank you and your staff for your assistance; please feel free to contact me if there are any questions or suggestions.

Sincerely,

Electronically Submitted

/s/Jo Anne Sanford

State Bar No. 6831

Attorney for Carolina Water Service,  
Inc. of North Carolina

c: Parties of Record

STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH

DOCKET NO. W-354, SUB 344

In the Matter of	)	
Carolina Water Service, Inc. of North	)	
Carolina, 2335 Sanders Road,	)	<b>REPORT ON CUSTOMER</b>
Northbrook, Illinois 60062, for Authority	)	<b>SERVICE QUALITY ISSUES</b>
to Adjust and Increase Rates for Water	)	<b>FROM PUBLIC HEARING IN</b>
and Sewer Utility Service in All Service	)	<b>BOONE, NORTH CAROLINA</b>
Areas of North Carolina	)	

**NOW COMES** Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company") and files this report to address customer service or water quality complaints raised at the public hearing in this matter held in Boone, North Carolina.

The public hearing was held at 7:00 PM on July 22, 2015, in Boone, North Carolina, at the Watauga County Courthouse. Chairman Edward S. Finley, Jr. presided. Chairman Finley was joined by Commissioners Bryan E. Beatty, ToNola D. Brown-Bland, Don M. Bailey, Jerry C. Dockham, and James G. Patterson. Staff Attorney Gina C. Holt, who appeared for the Public Staff on behalf of the using and consuming public, was accompanied by Public Staff Water Engineer, Gina Casselberry. Jo Anne Sanford of the Sanford Law Office, PLLC, appeared on behalf of CWSNC, accompanied by Martin J. Lashua, the Company's Vice President for Operations, North Carolina and Tennessee. Other Company personnel, available in the audience to address any customer concerns, were Tony Konsul, Rex Woody.

Three witnesses testified at the Boone public hearing; their concerns and the Company's responses are as follows:

- 1) **Ms. Linda Lillo Norman (182 Hickory Lane, Blowing Rock, NC 28605, Misty Mountain Community) Tr. Vol. 5, pp. 8-21.**

**Summary of Testimony:** Ms. Norman discussed a range of topics, including the ongoing installation of meters at the Misty Mountain system, for which she expressed enthusiasm. She raised a concern about the existence of leaks, based on her understanding of a measurement of “unaccounted” water (or better defined as “non-revenue water”) and she also spoke positively about the efforts of CWSNC local personnel to keep her posted on the progress of the meter installation. Her other service-related issue dealt with the concern that she had set up on paperless billing yet was continuing to receive paper statements even after notifying the office of the problem.

**CWSNC Response:** The Company, as always, appreciates Ms. Norman’s thorough analysis and her presentation at these hearings. Once CWSNC completes its meter installation project, data will be available to show a comparison of water produced to water sold. At this time, without individual meters, it is not possible for the Company to determine how much water may be lost due to leakage or other authorized uses (such as flushing, etc.). Customers are currently being billed flat rate and may not act promptly to

repair their own leaks, for example, because their water bills are not based on consumption.

CWSNC investigated Ms. Norman's complaint regarding her paperless billing situation and Company Vice President Martin J. Lashua resolved the issue and responded to her by email dated July 23, 2015, providing assurance that the problem had been corrected.

**Brenda Council, 173 Vail Drive, Blowing Rock, Ski Mountain Subdivision. Tr. Vol. 5, pp. 21-26.**

**Summary of Testimony:** Ms. Council's issues were principally rate-related; however, she did express a concern that she feels she is being billed incorrectly. Ms. Council testified that, although she is a full time resident, she is gone a lot and feels she is being billed for consumption even when she is not home.

**CWSNC Response:** Mr. Michael Puckett, a CWSNC Field Operator, met with Ms. Council on July 28, 2015. Copies of the Field Activity from that date, as well as an earlier Field Activity from a leak concern dated February 26, 2013, are attached hereto. Mr. Puckett determined that there was no leak at Ms. Council's home. The Company is optimistic that it was able to satisfy Ms. Council's concern.

**2) David Michael Lane, Sugar Mountain Town Manager. Tr. Vol. 5, pp. 25-29.**

Speaking on behalf of the town council and residents of Sugar Mountain, Mr. Lane expressed concerns about rates, but specifically stated there were no service issues.

Respectfully submitted, this the 4th day of September, 2015.

SANFORD LAW OFFICE, PLLC

**Electronically Submitted  
/s/Jo Anne Sanford**

Post Office Box 28085  
Raleigh, NC 27611-8085  
T: 919-829-0018  
F: 919-829-8139

E-mail: [sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)

State Bar No. 6831

ATTORNEY FOR CAROLINA WATER  
SERVICE, INC. OF NORTH CAROLINA

## ATTACHMENT

Council Field Activity Print

Created on 07-28-2015 02:03PM by user MSPUCKET.

Instructions; Received an email stating that customer was concerned about her shut off valve and possibly having a leak beyond the meter. Please go and speak with customer and check for leak. MSP

Resolution; I met with Mrs. Council and talked with her about her concerns. The initial complaint (via email) was that of a high bill. Upon talking with her, this was not the issue. She told me that the last time she had a complaint with a high bill was several years ago. Past service orders show that this is true and was back in 2013. She stated back in 2013 she had a leaking valve inside her house that was thought to be the cause and had it replaced by a plumber. Since that was done she has not had any questions about a high bill. I also told her that our meter reader would make a note and possibly shut off her water if there were nobody home and there was an indication of a leak on the meter. Her main concern was that of the current rate hearing that was just held, and the increase of her water bill in the future. Other than that she didn't have any other issues to speak of. MSP

Created on 02-26-2013 08:57AM by user DEVOLZ.

Instructions; REREAD SEASONAL HOUSE, CUSTOMER STATING THAT SHE SUT OFF BOTH VALVES ON NOV SINCE HOUSE BEEN VACANT BUT SHE IS BEING BILLED FOR USAGE... HIGH BILL COMPLAIN 828-295-9277.... THANK YOU ISRAEL

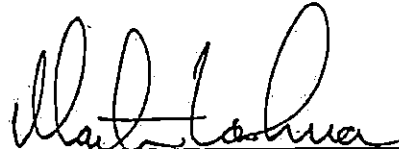
Resolution; Read meter, meter is off and no movement. msp

OFFICIAL COPY

Sep 04 2015

VERIFICATION

Martin J. Lashua, being duly sworn, deposes and says that he is Vice President for Operations for Carolina Water Service, Inc. of North Carolina; that he is familiar with the facts set out in the attached Report on Customer Service Quality Issues from Public Hearing in Boone, North Carolina, filed in Docket No. W-354, Sub 344; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

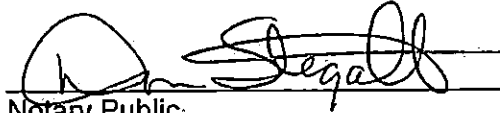


Martin J. Lashua

North Carolina

Mecklenburg County

Sworn to and subscribed before me this  
the 3 day of September, 2015.



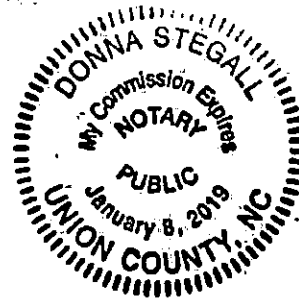
Notary Public

Donna Stegall

Printed Name

My commission expires: 01/08/2019

CERTIFICATE OF SERVICE



OFFICIAL COPY

Sep 04 2015



I hereby certify that on this the 4th day of September, 2015, a copy of the foregoing **Report on Customer Service Quality Issues from Public Hearing in Boone, North Carolina** has been duly served upon all parties of record by electronic service, as follows:

Gina C. Holt  
William E. Grantmyre  
Dianna W. Downey  
Staff Attorneys  
Legal Division  
North Carolina Utilities Commission Public Staff  
[gina.holt@psncuc.nc.gov](mailto:gina.holt@psncuc.nc.gov)  
[william.grantmyre@psncuc.nc.gov](mailto:william.grantmyre@psncuc.nc.gov)  
[dianna.downey@psncuc.nc.gov](mailto:dianna.downey@psncuc.nc.gov)

Dwight W. Allen  
Britton H. Allen  
Brady W. Allen  
The Allen Law Offices  
[dallen@theallenlawoffices.com](mailto:dallen@theallenlawoffices.com)  
[bhallen@theallenlawoffices.com](mailto:bhallen@theallenlawoffices.com)  
[brady.allen@theallenlawoffices.com](mailto:brady.allen@theallenlawoffices.com)  
Attorneys for Corolla Light Community Association, Inc.

**Electronically Submitted**

**/s/Jo Anne Sanford**  
State Bar No. 6831  
SANFORD LAW OFFICE, PLLC  
Post Office Box 28085  
Raleigh, NC 27611-8085  
Tel: (919) 829-0018  
[sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)

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Sep 04 2015

1 Ad

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Sep 08 2015

**SANFORD LAW OFFICE, PLLC**

Jo Anne Sanford, Attorney at Law

September 8, 2015

Ms. Gail L. Mount, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: Carolina Water Service, Inc. of North Carolina  
Docket No. W-354, Sub 344  
Report on Customer Service Quality Issues from Public Hearing  
in Asheville, North Carolina

Dear Ms. Mount:

Please accept for filing on behalf of Carolina Water Service, Inc. of North Carolina the attached Report on Customer Service Quality Issues from Public Hearing in Asheville, North Carolina.

As always, thank you and your staff for your assistance; please feel free to contact me if there are any questions or suggestions.

Sincerely,

Electronically Submitted

/s/Jo Anne Sanford.

State Bar No. 6831

Attorney for Carolina Water Service,  
Inc. of North Carolina

c: Parties of Record

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

**DOCKET NO. W-354, SUB 344**

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	
Carolina Water Service, Inc. of North	)
Carolina, 2335 Sanders Road,	)
Northbrook, Illinois 60062, for Authority	)
to Adjust and Increase Rates for Water	)
and Sewer Utility Service in All of its	)
Service Areas of North Carolina	)

**REPORT ON CUSTOMER  
SERVICE QUALITY ISSUES  
FROM PUBLIC HEARING IN  
ASHEVILLE, NORTH CAROLINA**

**NOW COMES** Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company") and files this report to address customer service or water quality complaints raised at the public hearing in this matter held in Asheville, North Carolina.

The public hearing was held at 7:00 p.m. on July 23, 2015, in Asheville, North Carolina, at the Buncombe County Courthouse. Chairman Edward S. Finley, Jr. presided. Chairman Finley was joined by Commissioners ToNola D. Brown-Bland, Don M. Bailey, Jerry C. Dockham, and James G. Patterson. Staff Attorney Gina C. Holt, who appeared for the Public Staff on behalf of the using and consuming public, was accompanied by Public Staff Water Engineer, Gina Casselberry. Jo Anne Sanford of the Sanford Law Office, PLLC, who appeared on behalf of CWSNC, was accompanied by Martin J. Lashua, the Company's Vice President for Operations, North Carolina and Tennessee. Other Company

personnel were also present and available to assist customers with any questions or requests.

Of the eight witnesses who testified at the Asheville public hearing, only two raised issues about service or quality, while several of the customers made positive comments about the service they receive, Company personnel, and/or water quality. All of the witnesses expressed concern about the percentage increase in rates.

**1) Connie Brown, 15 Lynwood Circle, Asheville, NC 28806 (Carmel Subdivision). Tr. Vol. 6, pp. 9-13.**

**Summary of Testimony:** Ms. Brown had concerns about the size of the proposed rate increase and described a lack of “friendliness” on the part of CWSNC’s call center employees from time to time. She suggested that the Company could be more efficient in its notice/mailing practices and that she received the same educational brochure twice in one year. Ms. Brown voiced no service quality issues, but, in response to a question from Public Staff Attorney Holt, described a sewer clog issue that occurred around 1996. Otherwise, Ms. Brown offered no service quality complaints.

**CWSNC Response:** Company Vice President Martin Lashua met with Ms. Brown prior to the hearing. Subsequent to the public hearing, Mr. Lashua investigated Ms. Brown’s concerns and responded on behalf of the Company by letter dated

September 3, 2015. A copy of Mr. Lashua's letter to Ms. Brown is attached to this Report.

**2) Emil Revala, lives at 133 Woodland Road, Asheville; owns undeveloped property in the Woodrun Subdivision at Lake Tillery. Tr. Vol. 6, pp. 13-17.**

**Summary of Testimony:** Mr. Revala objected to the increase in rates for availability fees, but had no service complaints.

**3) Ken Allen, 10 Legendary Road, Hendersonville (Woodhaven Subdivision). Tr. Vol. 6, pp. 16-21.**

**Summary of Testimony:** As President of the Woodhaven Property Owners Association, Mr. Allen testified regarding neighborhood concerns about the proposed rate increase. Witness Allen stated that the members of his Association "are very satisfied with our water quality and the service of our local Carolina Water System personnel." (Tr. Vol. 6, p. 18). Mr. Allen acknowledged that the Company had installed a new tank to serve his subdivision; and he responded that CWSNC had discussed with the residents the option of hooking up to the Town of Hendersonville, prior to investment in the installation of the new tank.

**4) Sean O'Meara, 115 Woodhaven Drive, Hendersonville (Woodhaven Subdivision). Tr. Vol. 6, pp. 21-24.**

**Summary of Testimony:** Mr. O'Meara objected to the amount and frequency of the Company's rate increase requests; had no service complaints; testified that the water quality was excellent; and acknowledged favorably the service provided by Company employees Gary Peacock and his staff.

**5) Keith Rice, 138 Woodhaven Drive, Hendersonville (Woodhaven Subdivision). Tr. Vol. 6, pp. 24-26.**

**Summary of Testimony:** Mr. Rice testified as the Vice President of the Woodhaven Property Owners' Association and as a registered professional engineer. He objected to the amount of the rate increase and noted the initial costs associated with switching service to the Town of Hendersonville which he described as "a huge capital dollar amount." Witness Rice expressed no service or water quality concerns. To the contrary, Mr. Rice testified that "CWS has in the past and continues to provide Woodhaven with reliable water service, and I commend their staff for their effort....Their service is great." (Tr. Vol. 6, p. 25).

**6) James T. Tanner, Jr., 5 Auburndale Drive, Asheville (Bent Creek Subdivision). Tr. Vol. 6, pp. 26-30.**

**Summary of Testimony:** Mr. Tanner had no complaints about water quality or service; his concerns were about rates. Regarding the quality of service he receives from CWSNC and the proposed rate increase, Mr. Tanner specifically testified that "I have not had any service problems. I don't have any problem that

way, but I do have a big problem with such a rate increase and even asking for a big rate increase like this." (Tr. Vol. 6, p. 29).

**7) Ken Jarvis, 8 Auburndale Drive, Asheville (Bent Creek Subdivision).**

**Tr. Vol. 6, pp. 30-34.**

**Summary of Testimony:** Mr. Jarvis expressed some concerns about water quality, indicating he does not drink the water provided by CWSNC<sup>1</sup> and that the water leaves a ring around his commode. His primary issues were about rates and the magnitude of the proposed rate increase and past rate increase requests.

**CWSNC Response:** Area Manager David Medling met Mr. Jarvis at his home on July 30, 2015, to discuss his concerns. Mr. Jarvis indicated that he does drink water from the refrigerator since it is filtered and that his primary concern is rates. In reviewing customer records for this system for the period January 1, 2014 to July 31, 2015, there was only one (1) taste or odor complaint. Mr. Medling also discussed Mr. Jarvis's concern over toilet staining and pointed out the cause as most likely to be airborne bacteria.

**8) Mark Innes, 10 Auburndale Drive, Asheville (Bent Creek Subdivision). Tr.**

**Vol. 6, pp. 34-39.**

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<sup>1</sup> Mr. Jarvis' testimony that he does not drink the water supplied by CWSNC or use that water for cooking stands in contrast to the testimony offered by witnesses Tanner and Innes, who, like witness Jarvis, are also customers served by CWSNC in the Bent Creek Subdivision. Customers Tanner and Innes voiced no complaints about water quality; in fact, witness Innes testified that CWSNC does "a good job." (Tr. Vol. 6, p. 38).

**Summary of Testimony:** Mr. Innes spoke positively about the quality of the water and sewer utility service being provided by the Company and CWSNC's operations personnel<sup>2</sup>; his complaints were about rates and the level of profit being sought by the Company.

Respectfully submitted, this the 8<sup>th</sup> day of September, 2015.

SANFORD LAW OFFICE, PLLC

**Electronically Submitted**

**/s/Jo Anne Sanford**

State Bar No. 6831

Post Office Box 28085

Raleigh, NC 7611

T: 919-829-0018

F: 919-829-8139

E-mail: sanford@sanfordlawoffice.com

**ATTORNEY FOR CAROLINA WATER SERVICE,  
INC. OF NORTH CAROLINA**

---

<sup>2</sup> Regarding the quality of service provided by CWSNC, Mr. Innes testified that "...as a company, you know, they do a good job." (Tr. Vol. 6, p. 38).





## ATTACHMENT

September 3, 2015

Ms. Connie Brown  
15 Lynwood Circle  
Asheville NC 28806

Re: Customer Service Concerns

Dear Mrs. Brown,

It was a pleasure to meet you personally at the Buncombe county courthouse in Asheville for the evening public hearing held July 23, 2015 concerning our pending rate relief request before the NC Utilities Commission. When we met before the hearing began and from your testimony on the stand during the hearing, you had a few customer service or other concerns that I would like to address.

First, one issue was of your concern over our mailing efficiency and that you had received a brochure twice this year and felt that while you thought the information was important, the extra mailing was unnecessary. The brochure you reference is a "Fats, Oils and Grease" education brochure. We send this out to educate customers on the importance of not putting these substances down the drain because of the clogging and other problems they can create in the sanitary sewer collection system. As a Utility company, we are bound by certain regulatory agencies and requirements and one of these dictates that this educational brochure be sent twice a year. The NC Department of Environment and Natural Resources, Division of Water Resources regulation 15A NCAC 02T .0403 (B) and (C) pertain specifically to this and I am enclosing a copy for your use.

You made specific comment that you felt our Customer Service Representatives could be unfriendly and I regret that you had this experience. Beginning this year, we now record customer calls and we see that you called June 15 of this year and that call was reviewed by our Customer Service management. We were not able to hear anything to support a concern about the way that specific call was handled. We do have account notes that you called June 16, 2014 and July 22, 2014 but those calls were not recorded so regrettably we were not able to investigate. Again, I regret that you may have had a negative experience.

Lastly, in our meeting before the hearing, you showed me some bills and had questions. Our billing department helped review your bills and prepare the following explanation which I hope you will find helpful. At Mt. Carmel, the sewer-billing is based on metered water consumption from meter read information supplied to us from the Metropolitan Sewerage District.

06/07/2015 Bill (a copy is attached for convenience)

Service period – 03/26/2015 – 05/26/2015 – 61 days of service

03/26/2015 – 03/31/2015 – Prorated on 5 days of service

04/01/2015 – 05/26/2015 – Prorated on 56 days of service

Usage – 700 cu ft. = 5,236 gallons

A Utilities, Inc. company Carolina Water Service, Inc. of North Carolina

P.O. Box 240908 • Charlotte, NC 28224 • P: 704-525-7990 • F: 704-525-8174  
5701 Westpark Dr., Suite 101 • Charlotte, NC 28217 • [www.uiwater.com](http://www.uiwater.com)

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Sep 08 2015

Rates

WW Collection – Eff Date 07/01/2014 - \$16.09 billed bimonthly = \$32.08

WW Treatment – Eff Date 07/01/2014 - \$6.00 billed bimonthly = \$12.00

Usage – Eff Date 07/01/2014 - \$5.45 per 1,000 gallons .

Sewer System Improvement Charge (SSIC) – Eff Date 04/01/2015 = 0.81%

Service Period of 03/26/2015 – 03/31/2015 (5 days)

WW Collection - \$32.08 / 61 days of service \* 5 days = \$2.64

WW Treatment - \$12.00 / 61 days of service \* 5 days = \$0.98

Usage - 5,236 gallons / 61 days of service \* 5 days = 429 gallons \* \$5.45/1K = \$2.34

**Total for period of 03/26 – 03/31 = \$5.96**

Service Period of 04/01/2015 – 05/26/2015 (56 days)

WW Collection - \$32.08 / 61 days of service \* 56 days = \$29.54

WW Treatment - \$12.00 / 61 days of service \* 56 days = \$11.02

Usage - 5,236 gallons / 61 days of service \* 56 days = 4,807 gallons \* \$5.45/1K = \$26.20

Total sewer charges = \$66.76 (\$29.54 + \$11.02 + \$26.20)

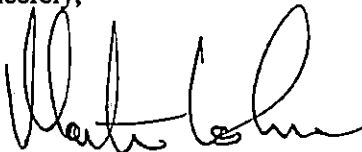
SSIC = \$66.76 \* 0.81% = \$0.54

**Total for period of 04/01 – 05/26 = \$67.30**

**Total Sewer Bill Dated 06/07/2015 = \$73.26**

Thank you for your attendance at the hearing. Your comments are important to the process and we appreciate the opportunity to address them. If we can be of any assistance, please call our Customer Service department at 1-800-525-7990. If I can be of any additional assistance, please feel to contact me directly at 704-319-0517.

Sincerely,



Martin Lashua  
Vice President of Operations

Cc: Customer Service

OFFICIAL COPY

Sep 08 2015

**15A NCAC 02T .0403 PERMITTING BY REGULATION**

(a) Collection systems having an actual, permitted or Division approved average daily flow less than 200,000 gallons per day are deemed permitted pursuant to Rule .0113 of this Subchapter provided the system meets the criteria in Rule .0113

of this Subchapter and all specific criteria required in this Rule:

(1) The sewer system is effectively maintained and operated at all times to prevent discharge to land or surface waters, and to prevent any contravention of groundwater standards or surface water standards.

(2) A map of the sewer system has been developed and is actively maintained.

(3) An operation and maintenance plan including pump station inspection frequency, preventative maintenance schedule, spare parts inventory and overflow response has been developed and implemented.

(4) Pump stations that are not connected to a telemetry system (i.e., remote alarm system) are inspected by the permittee or its representative every day (i.e., 365 days per year). Pump stations that are connected to a telemetry system are inspected at least once per week.

(5) High-priority sewers are inspected by the permittee or its representative at least once every six-months and inspections are documented.

(6) A general observation by the permittee or its representative of the entire sewer system is conducted at least once per year.

(7) Overflows and bypasses are reported to the appropriate Division regional office in accordance with 15A NCAC 02B .0506(a), and public notice is provided as required by G.S. 143-215.1C.

(8) A Grease Control Program is in place as follows:

(A) For publicly owned collection systems, the Grease Control Program shall include at least biannual distribution of educational materials for both commercial and residential users and the legal means to require grease interceptors for new construction and retrofit, if necessary, of grease interceptors at existing establishments. The plan shall also include legal means for inspections of the grease interceptors, enforcement for violators and the legal means to control grease entering the system from other public and private satellite sewer systems.

(B) For privately owned collection systems, the Grease Control Program shall include at least biannual distribution of grease education materials to users of the collection system by the permittee or its representative.

(C) Grease education materials shall be distributed more often than required in Parts (A) and (B) of this Subparagraph if necessary to prevent grease-related sanitary sewer overflows.

(9) Right-of-ways and easements are maintained in the full easement width for personnel and equipment accessibility.

(10) Documentation shall be kept for Subparagraphs (a)(1) through (a)(9) of this Rule for a minimum of three years with exception of the map, which shall be maintained for the life of the system.

(b) Private collection systems on a single property serving an industrial facility where the domestic wastewater

contribution is less than 200,000 gallons per day shall be deemed permitted.

(c) The Director may determine that a collection system should not be deemed to be permitted in accordance with this

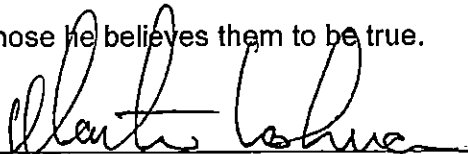
Rule and Rule .0113 of this Subchapter. This determination shall be made in accordance with Rule .0113(e) of this Subchapter.

*History Note: Authority G.S. 143-215.1(a); 143-215.3(a); 143-215.9B;  
Eff. September 1, 2006.*

## VERIFICATION

Martin J. Lashua, being duly sworn, deposes and says:

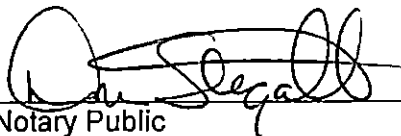
That he is the Vice President for Operations in North Carolina and Tennessee for Carolina Water Service, Inc. of North Carolina; that he is familiar with the facts set out in this **REPORT ON CUSTOMER SERVICE QUALITY ISSUES FROM PUBLIC HEARING IN ASHEVILLE, NORTH CAROLINA**, in Docket No. W-354, Sub 344; that he has read the foregoing Report and knows the contents thereof; and that the same is true of his knowledge except as to those matters stated therein on information and belief, and as to those he believes them to be true.

  
Martin J. Lashua

North Carolina

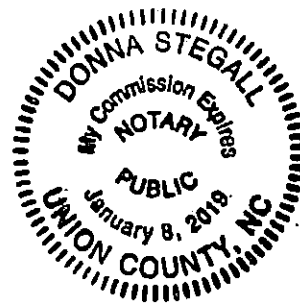
Mecklenburg County

Sworn to and subscribed before me this  
the 8 day of September, 2015.

  
Notary Public

Donna Stegall  
Printed Name

My commission expires: 01/08/2019



CERTIFICATE OF SERVICE

**CERTIFICATE OF SERVICE**

I hereby certify that on this the 8th day of September, 2015, a copy of the foregoing **Report on Customer Service Quality Issues from Public Hearing in Asheville, North Carolina** has been duly served upon all parties of record by electronic service, as follows:

Gina C. Holt  
William E. Grantmyre  
Dianna W. Downey  
Staff Attorneys  
Legal Division  
North Carolina Utilities Commission Public Staff  
[gina.holt@psncuc.nc.gov](mailto:gina.holt@psncuc.nc.gov)  
[william.grantmyre@psncuc.nc.gov](mailto:william.grantmyre@psncuc.nc.gov)  
[dianna.downey@psncuc.nc.gov](mailto:dianna.downey@psncuc.nc.gov)

Dwight W. Allen  
Britton H. Allen  
Brady W. Allen  
The Allen Law Offices  
[dallen@theallenlawoffices.com](mailto:dallen@theallenlawoffices.com)  
[bhallen@theallenlawoffices.com](mailto:bhallen@theallenlawoffices.com)  
[brady.allen@theallenlawoffices.com](mailto:brady.allen@theallenlawoffices.com)  
Attorneys for Corolla Light Community Association, Inc.

**Electronically Submitted**  
**/s/Jo Anne Sanford**  
State Bar No. 6831  
SANFORD LAW OFFICE, PLLC  
Post Office Box 28085  
Raleigh, NC 27611-8085  
Tel: (919) 829-0018  
[sanford@sanfordlawoffice.com](mailto:sanford@sanfordlawoffice.com)

1Ad

OFFICIAL COPY

Sep 22 2015

**SANFORD LAW OFFICE, PLLC**  
Jo Anne Sanford, Attorney at Law

September 22, 2015

Ms. Gail L. Mount, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: **Carolina Water Service, Inc. of North Carolina**  
**Docket Nos. W-354, Subs 336 and 344**  
**Notice to Customers Regarding Installation of Water Meters and**  
**Conversion to Metered Water Rates**

Dear Ms. Mount:

On March 10, 2014, the Commission entered an Order Granting Partial Rate Increase, Approving Rate Adjustment Mechanism, and Requiring Customer Notice ("2014 Rate Case Order") in Docket No. W-354, Sub 336. In pertinent part, decretal paragraph number 7 of the 2014 Rate Case Order required Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company") to install certain water meters as follows:

"That CWSNC shall install all meters and fully meter the unmetered systems in Powder Horn, Misty Mountain, Crystal Mountain, Watauga Vista, High Meadows, Ski Country (a part of Sugar Mountain), and Mt. Mitchell, before the evidentiary hearing in its next general rate case proceeding. CWSNC shall immediately switch customers to metered rates as soon as each system is fully metered."

CWSNC has, to date, installed meters at five of the seven water systems listed above (Powder Horn, Crystal Mountain, Watauga Vista, High Meadows, and Ski Country) and has, by letter dated September 17, 2015, notified its customers in those service areas that the Company will switch them to metered

water rates effective October 1, 2015. CWSNC hereby files for informational purposes copies of the September 17th customer letter and also a previous customer letter dated March 27, 2015.

Once water meters are installed at the other two water systems (Misty Mountain and Mt. Mitchell), the Company will provide a similar notice to affected customers and will file an informational copy of the customer letter with the Commission.

As always, thank you and your staff for your assistance; please feel free to contact me if there are any questions or suggestions.

Sincerely,

Electronically Submitted

/s/Jo Anne Sanford

State Bar No. 6831

Attorney for Carolina Water Service,  
Inc. of North Carolina

c: Parties of Record



March 27, 2015

Crystal Mountain, Boone NC  
High Meadows, Roaring Gap NC  
Misty Mountain, Blowing Rock NC  
Mount Mitchell, Burnsville NC  
Powder Horn, Deep Gap NC  
Ski Country, Banner Elk NC  
Watauga Vista, Franklin NC

Re: Water Meter Installation Project

Dear Valued Customer,

In the last rate relief request before the NC Utilities Commission (the "Commission") in docket W-354 sub 336, Carolina Water Service, Inc. of North Carolina ("CWSNC") was ordered to install water meters in the few systems we have in North Carolina that did not have meters. CWSNC has 73 water systems and only 7 were unmetered. Your system was one of those 7 systems that currently has a flat monthly rate and your monthly water bill is a set fee that does not vary based on the amount of water used.

Historically this issue has received customer concern as was the case in this most recent proceeding. Customers testified that they believed meters should be installed and these flat rate systems changed to a metered usage rate as is prevalent throughout the rest of the company and state.

For reference, I am attaching an excerpted copy of the Commission's final order issued on March 10, 2014 in docket W-354 sub 336 with the meter installation clause highlighted.

I am writing to inform you that we are about to begin this project and anticipate installation beginning in mid to late April. Larger systems are expected to take as long as 4 months to complete.

A meter box, water meter, and lid will be installed as close to the property line near the road as possible. In some cases, meter boxes may exist already and they will be evaluated and replaced if necessary. Going forward, CWSNC will be responsible for the meter box and meter and the customer's responsibility starts immediately on the house side of the meter setter. We will be utilizing the latest technology in water meters and the meter will have an electronic transmitter that sends out meter data. This will be collected monthly by our staff using equipment in our trucks. We will not have to open the meter boxes to get the reads. This technology is especially beneficial in mountain areas where weather may cause manual reading problems (snow, ice etc.) and will help us ensure accurate and timely billings to our customers.

A Utilities, Inc. company Carolina Water Service, Inc. of North Carolina

P.O. Box 240908 • Charlotte, NC 28224 • P: 704-525-7990 • F: 704-525-8174  
5701 Westpark Dr., Suite 101 • Charlotte, NC 28217 • [www.uiwater.com](http://www.uiwater.com)

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Sep 22 2015



● Page 2

Our contractor and staff will do their best to minimize any inconvenience and we will ensure that your property is restored.

Once the entire system is metered and the project is completed, we will send out a final letter informing you of completion and at that time, you will be switched from a monthly flat rate to a metered usage rate.

Our current rates are;

<b>Monthly Flat Rate Service</b>	<b>\$34.52</b>
<b>Metered rate</b>	
Base facility charge based on zero usage	\$18.25 per month
Usage rate	\$5.44 per thousand gallons

It will be important to caution that once the rates switch to metered usage, you will be billed by consumption. This may mean that changes need to be made in your homes and lifestyles to become more conscious of water used. For example, it appears to be a common occurrence for customers to let their faucets run/drip to prevent freezing in winter and at flat rate that had no bearing on the bill. However with a metered rate, it could amount to a substantial impact. Promptly repairing leaks or leaking toilets will be very important.

If you have any questions, please call our customer service at 800-525-7990 and they will do their best to answer or direct you to someone that can assist with your concern or inquiry.

We thank you in advance for your patience during the construction.

Sincerely,

*Tony Konsul*

Tony Konsul  
Regional Manager

Cc: Customer Service

OFFICIAL COPY

Sep 22 2015

Nonresidential      \$3.57 per gallon of daily design of discharge or  
\$900 per unit, whichever is greater

35. CWSNC shall install all meters and fully meter the unmetered systems in Powder Horn, Misty Mountain, Crystal Mountain, Watauga Vista, High Meadows, Ski Country (a part of Sugar Mountain), and Mt. Mitchell, before the evidentiary hearing in the Company's next general rate case proceeding, as stipulated. CWSNC shall immediately switch customers to metered rates as soon as each system is fully metered, as stipulated.

36. CWSNC shall modify its billing system such that the Company has the capability to generate reports that reflect the actual number of customers each month (not the number of bills produced each month) or shall change its policy concerning billing cycles such that customers shall be billed only once per month, as stipulated.

37. CWSNC shall maintain accurate records for all metered sewer customers such that in the next general rate case proceeding residential customers with meter sizes greater than 5/8 inch will be charged the same rate as commercial customers with the same meter size.

38. CWSNC shall include in its NCUC Form W-1 filing in its next general rate case the following, as stipulated: an individual spreadsheet for each service area, which shows the number of actual customers served for each meter type, and the actual usage for each meter type for each month for the 12-month test period specified in its application; and a spreadsheet summarizing the total number of active customers and total usage for each billing type for each month for the 12-month test period specified in its application.

39. The Company's just and reasonable pump and haul expenses and spray charges incurred in its Belvedere system should be amortized over a period of 10 years, as stipulated.

40. The Applicant's request to increase the charge for processing non-sufficient-funds (NSF) checks from \$15.00 to \$25.00 is reasonable and should be approved.

41. The Stipulating Parties agreed that any Order approving rates and charges as set forth in the Amended Stipulation may become the final Order of the Commission upon issuance and they waive their respective rights to file exceptions and appeal the final Order of the Commission incorporating the stipulated matters.

42. The Stipulating Parties acknowledged that the Amended Stipulation is the product of give-and-take discussions and resulted from extensive negotiations and



September 17, 2015

Crystal Mountain, Boone NC  
High Meadows, Roaring Gap NC  
Powder Horn, Deep Gap NC  
Ski Country, Banner Elk NC  
Watauga Vista, Franklin NC

Re: Water Meter Installation Project

Dear Valued Customer,

I am writing as a follow up to a previous letter I sent dated March 27 of this year concerning meter installation in your water system. As I wrote previously, in the last rate relief request before the NC Utilities Commission (the "Commission") in docket W-354 sub 336, Carolina Water Service, Inc. of North Carolina ("CWSNC") was ordered to install water meters in the few systems we have in North Carolina that did not have meters. Your system was one of those 7 systems that had no meters and was billed a flat monthly rate set fee that does not vary based on the amount of water used.

I am pleased to inform you that the project and meter installation in your system is now completed and we will begin transitioning you from a flat rate to a metered usage customer.

On September 2, the last flat rate invoice was sent to you. When we bill flat rate, it is for a forward period so this invoice was for the calendar month of September. At the beginning of October, we will take a start reading from the new meters and then at the end of October we will take an end period reading and we will send your first metered usage bill for the month of October in early November. Metered customers bill in arrears since it is using consumption so there will be a gap from early September to early November where you will not receive another bill. The new metered use bill will be different than the flat rate as it will include a base charge and a usage charge and you will be billed for the water that went through the meter.

As I explained in my earlier letter, the new meters we have installed have an electronic transmitter that sends data to computer software in our Operations staff vehicles simply by driving through the system. They do not have to open the meter box or even get out of the truck.

If you have any questions, please call our customer service at 800-525-7990 and they will do their best to answer or direct you to someone that can assist with your concern or inquiry.

We thank you for your patience during the construction phase.

Sincerely,

*Tony Konsul*

Tony Konsul  
Regional Manager

A Utilities, Inc. company Carolina Water Service, Inc. of North Carolina

P.O. Box 240908 • Charlotte, NC 28224 • P: 704-525-7990 • F: 704-525-8174  
5701 Westpark Dr., Suite 101 • Charlotte, NC 28217 • [www.uiwater.com](http://www.uiwater.com)

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Sep 22 2015

**CERTIFICATE OF SERVICE**

I hereby certify that on this the 22nd day of September, 2015, a copy of the foregoing **Notice to Customers Regarding Installation of Water Meters and Conversion to Metered Water Rates** has been duly served upon all parties of record by electronic service, as follows:

Gina C. Holt  
William E. Grantmyre  
Staff Attorneys  
Legal Division  
North Carolina Utilities Commission Public Staff  
gina.holt@psncuc.nc.gov  
william.grantmyre@psncuc.nc.gov

Dwight W. Allen  
Britton H. Allen  
Brady W. Allen  
The Allen Law Offices  
dallen@theallenlawoffices.com  
bhallen@theallenlawoffices.com  
brady.allen@theallenlawoffices.com  
Attorneys for Corolla Light Community Association, Inc.

**Electronically Submitted**  
**/s/Jo Anne Sanford**

State Bar No. 6831  
SANFORD LAW OFFICE, PLLC  
Post Office Box 28085  
Raleigh, North Carolina 27611-8085  
Tel: (919) 829-0018  
sanford@sanfordlawoffice.com  
**Attorney for Carolina Water Service, Inc. of North  
Carolina**

1 Ad

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Oct 01 2015

**SANFORD LAW OFFICE, PLLC**  
Jo Anne Sanford, Attorney at Law

October 1, 2015

Ms. Gail L. Mount, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

Via Electronic Filing

Re: **Carolina Water Service, Inc. of North Carolina**  
**Docket Nos. W-354, Subs 336 and 344**  
**Notice to Customers Regarding Installation of Water Meters and**  
**Conversion to Metered Water Rates**

Dear Ms. Mount:

On March 10, 2014, the Commission entered an Order Granting Partial Rate Increase, Approving Rate Adjustment Mechanism, and Requiring Customer Notice ("2014 Rate Case Order") in Docket No. W-354, Sub 336. In pertinent part, decretal paragraph number 7 of the 2014 Rate Case Order required Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company") to install certain water meters as follows:

"That CWSNC shall install all meters and fully meter the unmetered systems in Powder Horn, Misty Mountain, Crystal Mountain, Watauga Vista, High Meadows, Ski Country (a part of Sugar Mountain), and Mt. Mitchell, before the evidentiary hearing in its next general rate case proceeding. CWSNC shall immediately switch customers to metered rates as soon as each system is fully metered."

CWSNC has, to date, now installed meters at all seven of the water systems listed above. This filing supplements the filing previously made with the Commission on September 22, 2015. More recently, by letter dated September 28, 2015, CWSNC notified its customers in the Company's

Misty Mountain and Mt. Mitchell service areas that the Company will switch them to metered water rates effective October 1, 2015. CWSNC hereby files for informational purposes a copy of the September 28th customer letter.

As always, thank you and your staff for your assistance; please feel free to contact me if there are any questions or suggestions.

Sincerely,

Electronically Submitted

/s/Jo Anne Sanford

State Bar No. 6831

Attorney for Carolina Water Service,  
Inc. of North Carolina

c: Parties of Record

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Oct 01 2015



September 28, 2015

OFFICIAL COPY

Misty Mountain, Blowing Rock NC  
Mount Mitchell, Burnsville, NC

Re: Water Meter Installation Project

Dear Valued Customer,

I am writing as a follow up to a previous letter I sent dated March 27 of this year concerning meter installation in your water system. As I wrote previously, in the last rate relief request before the NC Utilities Commission (the "Commission") in docket W-354 sub 336, Carolina Water Service, Inc. of North Carolina ("CWSNC") was ordered to install water meters in the few systems we have in North Carolina that did not have meters. Your system was one of those 7 systems that had no meters and was billed a flat monthly rate set fee that does not vary based on the amount of water used.

I am pleased to inform you that the project and meter installation in your system is now completed and we will begin transitioning you from a flat rate to a metered usage customer.

On September 2, the last flat rate invoice was sent to you. When we bill flat rate, it is for a forward period so this invoice was for the calendar month of September. At the beginning of October, we will take a start reading from the new meters and then at the end of October we will take an end period reading and we will send your first metered usage bill for the month of October in early November. Metered customers bill in arrears since it is using consumption so there will be a gap from early September to early November where you will not receive another bill. The new metered use bill will be different than the flat rate as it will include a base charge and a usage charge and you will be billed for the water that went through the meter.

As I explained in my earlier letter, the new meters we have installed have an electronic transmitter that sends data to computer software in our Operations staff vehicles simply by driving through the system. They do not have to open the meter box or even get out of the truck.

If you have any questions, please call our customer service at 800-525-7990 and they will do their best to answer or direct you to someone that can assist with your concern or inquiry.

We thank you for your patience during the construction phase.

Sincerely,

*Tony Konsul*

Tony Konsul  
Regional Manager

Oct 01 2015

A Utilities, Inc. company Carolina Water Service, Inc. of North Carolina

P.O. Box 240908 • Charlotte, NC 28224 • P: 704-525-7990 • F: 704-525-8174  
5701 Westpark Dr., Suite 101 • Charlotte, NC 28217 • [www.uiwater.com](http://www.uiwater.com)



March 27, 2015

Crystal Mountain, Boone NC  
High Meadows, Roaring Gap NC  
Misty Mountain, Blowing Rock NC  
Mount Mitchell, Burnsville NC  
Powder Horn, Deep Gap NC  
Ski Country, Banner Elk NC  
Watauga Vista, Franklin NC

Re: Water Meter Installation Project

Dear Valued Customer,

In the last rate relief request before the NC Utilities Commission (the "Commission") in docket W-354 sub 336, Carolina Water Service, Inc. of North Carolina ("CWSNC") was ordered to install water meters in the few systems we have in North Carolina that did not have meters. CWSNC has 73 water systems and only 7 were unmetered. Your system was one of those 7 systems that currently has a flat monthly rate and your monthly water bill is a set fee that does not vary based on the amount of water used.

Historically this issue has received customer concern as was the case in this most recent proceeding. Customers testified that they believed meters should be installed and these flat rate systems changed to a metered usage rate as is prevalent throughout the rest of the company and state.

For reference, I am attaching an excerpted copy of the Commission's final order issued on March 10, 2014 in docket W-354 sub 336 with the meter installation clause highlighted.

I am writing to inform you that we are about to begin this project and anticipate installation beginning in mid to late April. Larger systems are expected to take as long as 4 months to complete.

A meter box, water meter, and lid will be installed as close to the property line near the road as possible. In some cases, meter boxes may exist already and they will be evaluated and replaced if necessary. Going forward, CWSNC will be responsible for the meter box and meter and the customer's responsibility starts immediately on the house side of the meter setter. We will be utilizing the latest technology in water meters and the meter will have an electronic transmitter that sends out meter data. This will be collected monthly by our staff using equipment in our trucks. We will not have to open the meter boxes to get the reads. This technology is especially beneficial in mountain areas where weather may cause manual reading problems (snow, ice etc.) and will help us ensure accurate and timely billings to our customers.

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Oct 01 2015



● Page 2

Our contractor and staff will do their best to minimize any inconvenience and we will ensure that your property is restored.

Once the entire system is metered and the project is completed, we will send out a final letter informing you of completion and at that time, you will be switched from a monthly flat rate to a metered usage rate.

Our current rates are;

<b>Monthly Flat Rate Service</b>	<b>\$34.52</b>
<b>Metered rate</b>	
Base facility charge based on zero usage	\$18.25 per month
Usage rate	\$5.44 per thousand gallons

It will be important to caution that once the rates switch to metered usage, you will be billed by consumption. This may mean that changes need to be made in your homes and lifestyles to become more conscious of water used. For example, it appears to be a common occurrence for customers to let their faucets run/drip to prevent freezing in winter and at flat rate that had no bearing on the bill. However with a metered rate, it could amount to a substantial impact. Promptly repairing leaks or leaking toilets will be very important.

If you have any questions, please call our customer service at 800-525-7990 and they will do their best to answer or direct you to someone that can assist with your concern or inquiry.

We thank you in advance for your patience during the construction.

Sincerely,

*Tony Konsul*

Tony Konsul  
Regional Manager

Cc: Customer Service

OFFICIAL COPY

Oct 01 2015

Nonresidential \$3.57 per gallon of daily design of discharge or  
\$900 per unit, whichever is greater

35. CWSNC shall install all meters and fully meter the unmetered systems in Powder Horn, Misty Mountain, Crystal Mountain, Watauga Vista, High Meadows, Ski Country (a part of Sugar Mountain), and Mt. Mitchell, before the evidentiary hearing in the Company's next general rate case proceeding, as stipulated. CWSNC shall immediately switch customers to metered rates as soon as each system is fully metered, as stipulated.)

36. CWSNC shall modify its billing system such that the Company has the capability to generate reports that reflect the actual number of customers each month (not the number of bills produced each month) or shall change its policy concerning billing cycles such that customers shall be billed only once per month, as stipulated.

37. CWSNC shall maintain accurate records for all metered sewer customers such that in the next general rate case proceeding residential customers with meter sizes greater than 5/8 inch will be charged the same rate as commercial customers with the same meter size.

38. CWSNC shall include in its NCUC Form W-1 filing in its next general rate case the following, as stipulated: an individual spreadsheet for each service area, which shows the number of actual customers served for each meter type, and the actual usage for each meter type for each month for the 12-month test period specified in its application; and a spreadsheet summarizing the total number of active customers and total usage for each billing type for each month for the 12-month test period specified in its application.

39. The Company's just and reasonable pump and haul expenses and spray charges incurred in its Belvedere system should be amortized over a period of 10 years, as stipulated.

40. The Applicant's request to increase the charge for processing non-sufficient-funds (NSF) checks from \$15.00 to \$25.00 is reasonable and should be approved.

41. The Stipulating Parties agreed that any Order approving rates and charges as set forth in the Amended Stipulation may become the final Order of the Commission upon issuance and they waive their respective rights to file exceptions and appeal the final Order of the Commission incorporating the stipulated matters.

42. The Stipulating Parties acknowledged that the Amended Stipulation is the product of give-and-take discussions and resulted from extensive negotiations and

OFFICIAL COPY

Oct 01 2015

**CERTIFICATE OF SERVICE**

I hereby certify that on this the 1st day of October, 2015, a copy of the foregoing **Notice to Customers Regarding Installation of Water Meters and Conversion to Metered Water Rates** has been duly served upon all parties of record by electronic service, as follows:

Gina C. Holt  
William E. Grantmyre  
Staff Attorneys  
Legal Division  
North Carolina Utilities Commission Public Staff  
gina.holt@psncuc.nc.gov  
william.grantmyre@psncuc.nc.gov

Dwight W. Allen  
Britton H. Allen  
Brady W. Allen  
The Allen Law Offices  
dallen@theallenlawoffices.com  
bhallen@theallenlawoffices.com  
brady.allen@theallenlawoffices.com  
Attorneys for Corolla Light Community Association, Inc.

**Electronically Submitted**  
**/s/Jo Anne Sanford**

State Bar No. 6831  
SANFORD LAW OFFICE, PLLC  
Post Office Box 28085  
Raleigh, North Carolina 27611-8085  
Tel: (919) 829-0018  
sanford@sanfordlawoffice.com  
Attorney for Carolina Water Service, Inc. of North  
Carolina