

# **FLOW METER TESTING CALIBRATION REPORT**

for the

## **Ashland Hopkinton Water Distribution System**

Prepared by:  
Complete Control Services  
1515 Grant Street  
Egg Harbor City, NJ 08215

2014



October 20, 2014

Mr. Jeff Fournier  
20 Ponderosa Road  
Ashland, MA 01721

Dear Mr. Fournier:

Complete Control Services has conducted flow meter tests at the various sites for the water distribution system for the Ashland and Hopkinton Water Departments and offer this report for your review.

We would like to thank you for the courtesy and cooperation extended to us during the course of our work.

Should you have any questions or wish to discuss in detail any of these results, please feel free to contact us.

Sincerely,

Leonard S. Heims, General Manager  
Complete Control Services

# TABLE OF CONTENTS

<b>1.0 Scope of Work .....</b>	<b>4</b>
<b>2.0 Meter Test .....</b>	<b>5</b>
<b>3.0 Meter Test Results.....</b>	<b>6-14</b>
<b>3.0.1 Summary of Results</b>	
<b>3.0.2 Individual Test Results</b>	
3.0.2.1 Ashland Station Effluent	
3.0.2.2 Ashland Well #4	
3.0.2.3 Ashland Well #5	
3.0.2.4 Ashland Well #6	
3.0.2.5 Ashland Well #7	
3.0.2.6 Ashland Well #8	
3.0.2.7 Hopkinton Station Effluent	
<b>4.0 Conclusions .....</b>	<b>15</b>

## **1.0 SCOPE OF WORK**

The scope of work shall be as follows:

- Testing of two (2) meters for accuracy conducted at various locations in the water distribution system by comparing the flow rate measured by the Pitot Meter with the flow rate measured by the client's meter as indicated on the client's meter recorder.
  
- Testing of five (5) meters for accuracy conducted at various sites in the water distribution system by comparing the flow rate measured by the master test meter with the flow rate measured by the client's meter as indicated on the client's meter recorder.
  
- Perform retests, RTU span checks and adjustments, and transmitter calibrations, as needed.
  
- Provide report, as submitted, showing the results of the field measurements.

## **2.0 METER TESTS**

The two (2) Pitot meter tests were conducted by inserting a Pitot Meter in the main at a gauging point in series with each meter or combination of meters and comparing the rate of flow recorded by the Pitot Meter with the rate of flow registered by the client's meter totalizer.

The five (5) comparative meter tests were conducted by comparing the rate of flow recorded by the master test meter with the rate of flow registered by the client's meter totalizer.

The purpose of these tests was to determine the meter accuracy.

Following are the meter test results.

### 3.0 METER TEST RESULTS

#### 3.0.1 SUMMARY OF RESULTS

<b>Main/ Gauging Point Size (inches)</b>	<b>Locations</b>	<b>Test Meter Rate of Flow (GPM)</b>	<b>Client Meter Rate of Flow (GPM)</b>	<b>Percent of Accuracy</b>
16	Ashland Station Effluent	1527.90	1518.20	99.4 %
10	Ashland Well #4	530.00	525.00	99.1 %
8	Ashland Well #5	420.00	420.00	100.0 %
6	Ashland Well #6	352.00	353.00	100.3 %
8	Ashland Well #7	580.00	613.00	105.7 %
	Test #2	580.00	580.00	100.0 %
8	Ashland Well #8	704.00	685.00	97.3 %
	Test #2	704.00	704.00	100.0 %
8	Hopkinton Station Effluent	589.32	589.13	100.0 %

### **3.0.2 INDIVIDUAL METER TEST RESULTS**

- 3.0.2.1 Ashland Station Effluent
- 3.0.2.2 Ashland Well #4
- 3.0.2.3 Ashland Well #5
- 3.0.2.4 Ashland Well #6
- 3.0.2.5 Ashland Well #7
- 3.0.2.6 Ashland Well #8
- 3.0.2.7 Hopkinton Station Effluent

3.0.2.1 Ashland Station Effluent



**Complete Control Services, Inc.**  
*Instrumentation, Calibration & Controls*  
 1515 Grant Street, Egg Harbor City, NJ 08215  
 Ph: 609-593-6219 Fax: 609-593-6298

**Flow Testing Calibration Report**

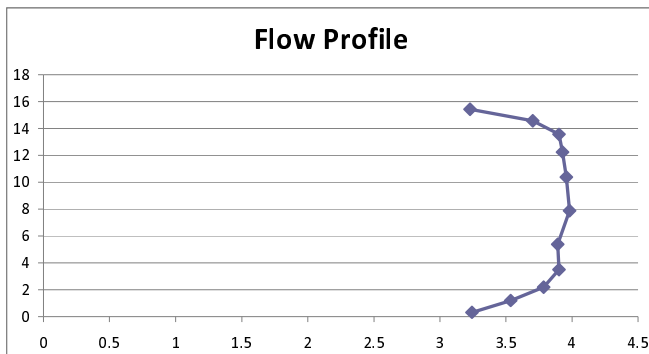
<b>Customer:</b>	Ashland Hopkinton	<b>Date:</b>	10/7/2014
<b>Location:</b>	Ashland Station	<b>Technician:</b>	Loren Huuki
<b>Meter Name:</b>	Station Effluent Meter	<b>Reference:</b>	7445
<b>Asset ID:</b>	N/A		

Meter Information			
Sensing		Transmitter	
<b>Type:</b>	Venturi	<b>Manufacturer:</b>	ABB
<b>Manufacturer:</b>	BIF	<b>Model Number:</b>	PTSDDC1222001A1
<b>Size:</b>	15.25 x 10.166	<b>Serial Number:</b>	01W024839
<b>Model Number:</b>	FF - 316	<b>Calibration:</b>	248.98"
<b>Serial Number:</b>	01-50736-04-0	<b>Span:</b>	5600

Meter Results (GPM)	Test 1
<b>Client Meter Flow</b>	1518.2
<b>Test Meter Flow</b>	1527.9
<b>Difference</b>	9.70
<b>Meter Accuracy</b>	99.4%
<b>Corrective Action</b>	Baseline Test

**Comments**

Meter within AWWA acceptance limit.





3.0.2.2 Ashland Well #4



**Complete Control Services, Inc.**

*Instrumentation, Calibration & Controls*

1515 Grant Street, Egg Harbor City, NJ 08215

Ph: 609-593-6219 Fax: 609-593-6298

**Flow Testing Calibration Report**

<b>Customer:</b>	Ashland Hopkinton	<b>Date:</b>	10/8/2014
<b>Location:</b>	Howe Street	<b>Technician:</b>	Loren Huuki
<b>Meter Name:</b>	Well #4 Meter	<b>Reference:</b>	7445
<b>Asset ID:</b>	N/A		

Meter Information			
Sensing		Transmitter	
<b>Type:</b>	Venturi	<b>Manufacturer:</b>	ABB
<b>Manufacturer:</b>	BIF	<b>Model Number:</b>	PTSDDC1222001A1
<b>Size:</b>	10.02 x 4.812	<b>Serial Number:</b>	01W024833
<b>Model Number:</b>	FF-104	<b>Calibration:</b>	N/A
<b>Serial Number:</b>	01-50736-02-01	<b>Span:</b>	2100

Meter Results (GPM)	Test 1
Client Meter Flow	525.0
Test Meter Flow	530.0
Difference	5.00
Meter Accuracy	99.1%
Corrective Action	Baseline Test

**Comments**

Meter within AWWA acceptance limit.

3.0.2.3 Ashland Well #5



**Complete Control Services, Inc.**

*Instrumentation, Calibration & Controls*

1515-Grant Street, Egg Harbor City, NJ 08215

Ph: 609-593-6219 Fax: 609-593-6298

**Flow Testing Calibration Report**

Customer:	Ashland Hopkinton	Date:	10/9/2014
Location:	Howe Street	Technician:	Loren Huuki
Meter Name:	Well #5 Meter	Reference:	7445
Asset ID:	N/A		

Meter Information			
Sensing		Transmitter	
Type:	Venturi	Manufacturer:	ABB
Manufacturer:	BIF	Model Number:	26608SHFSSA2A1
Size:	10.02 x 4.812	Serial Number:	JK620000115721
Model Number:	FF-105	Calibration:	169.40"
Serial Number:	01-50736-01-02	Span:	1500

Meter Results (GPM)	Test 1
Client Meter Flow	420.00
Test Meter Flow	420.00
Difference	0.00
Meter Accuracy	100.0%
Corrective Action	Baseline Test

**Comments**

Meter within AWWA acceptance limit.

3.0.2.4 Ashland Well #6



**Complete Control Services, Inc.**

*Instrumentation, Calibration & Controls*

1515 Grant Street, Egg Harbor City, NJ 08215

Ph: 609-704-5227 Fax: 609-704-5229

**Flow Testing Calibration Report**

Customer:	Ashland Hopkinton	Date:	10/19/2014
Location:	Howe Street	Technician:	Loren Huuki
Meter Name:	Well #6 Meter	Reference:	7445
Asset ID:	N/A		

Meter Information			
Sensing		Transmitter	
Type:	Orifice Plate	Manufacturer:	Endress and Hauser
Manufacturer:	N/A	Model Number:	N/A
Size:	6" x 3.5"	Serial Number:	5295423
Model Number:	N/A	Calibration:	150.67"
Serial Number:	N/A	Span:	900

Meter Results (GPM)	Test 1
Client Meter Flow	353.00
Test Meter Flow	352.00
Difference	-1.00
Meter Accuracy	100.3%
Corrective Action	Baseline Test

**Comments**

Meter within AWWA acceptance limit.

**3.0.2.5 Ashland Well #7**



**Complete Control Services, Inc.**

*Instrumentation, Calibration & Controls*

1515 Grant Street, Egg Harbor City, NJ 08215

Ph: 609-593-6219 Fax: 609-593-6298

**Flow Testing Calibration Report**

<b>Customer:</b>	Ashland Hopkinton	<b>Date:</b>	10/8/2014
<b>Location:</b>	Howe Street	<b>Technician:</b>	Loren Huuki
<b>Meter Name:</b>	Well #7 Meter	<b>Reference:</b>	7445
<b>Asset ID:</b>	N/A		

<b>Meter Information</b>			
<b>Sensing</b>		<b>Transmitter</b>	
<b>Type:</b>	Venturi	<b>Manufacturer:</b>	ABB
<b>Manufacturer:</b>	BIF	<b>Model Number:</b>	PTSDDC1222001A1
<b>Size:</b>	7.981 x 4.812	<b>Serial Number:</b>	01W024832
<b>Model Number:</b>	FF-107	<b>Calibration:</b>	231.65"
<b>Serial Number:</b>	01-50736	<b>Span:</b>	2100

<b>Meter Results (GPM)</b>	<b>Test 1</b>	<b>Test 2</b>
<b>Client Meter Flow</b>	613.00	580.00
<b>Test Meter Flow</b>	580.00	580.00
<b>Difference</b>	-33.00	0.00
<b>Meter Accuracy</b>	105.7%	100.0%
<b>Corrective Action</b>	Baseline Test	Calibrated Transmitter

**Comments**

Meter within AWWA acceptance limit.

3.0.2.6 Ashland Well #8



**Complete Control Services, Inc.**

*Instrumentation, Calibration & Controls*

1515 Grant Street, Egg Harbor City, NJ 08215

Ph: 609-593-6219 Fax: 609-593-6298

**Flow Testing Calibration Report**

Customer:	Ashland Hopkinton	Date:	10/8/2014
Location:	Howe Street	Technician:	Loren Huuki
Meter Name:	Well #8 Meter	Reference:	7445
Asset ID:	N/A		

Meter Information			
Sensing		Transmitter	
Type:	Venturi	Manufacturer:	ABB
Manufacturer:	BIF	Model Number:	2660SHFSSA2A1
Size:	7.981 x 4.812	Serial Number:	JK628000134218
Model Number:	FF-108	Calibration:	154.50"
Serial Number:	01-50736-01-02	Span:	1600

Meter Results (GPM)	Test 1	Test 2
Client Meter Flow	685.00	704.00
Test Meter Flow	704.00	704.00
Difference	19.00	0.00
Meter Accuracy	97.3%	100.0%
Corrective Action	Baseline Test	Adjusted Transmitter Range

**Comments**

Meter within AWWA acceptance limit.

### 3.0.2.7 Hopkinton Station Effluent



## Complete Control Services, Inc.

*Instrumentation, Calibration & Controls*  
 1515 Grant Street, Egg Harbor City, NJ 08215  
 Ph: 609-593-6219 Fax: 609-593-6298

### Flow Testing Calibration Report

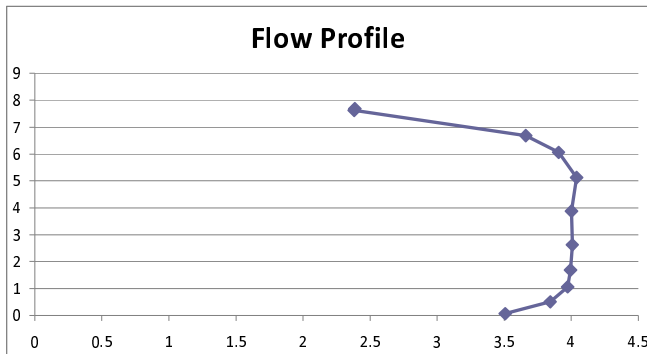
<b>Customer:</b>	Ashland Hopkinton	<b>Date:</b>	10/7/2014
<b>Location:</b>	Hopkinton Station	<b>Technician:</b>	Loren Huuki
<b>Meter Name:</b>	Station Effluent Meter	<b>Reference:</b>	7445
<b>Asset ID:</b>	N/A		

Meter Information			
Sensing		Transmitter	
<b>Type:</b>	Venturi	<b>Manufacturer:</b>	ABB
<b>Manufacturer:</b>	BIF	<b>Model Number:</b>	PTSDDC1222001A1
<b>Size:</b>	7.98 x 4.812	<b>Serial Number:</b>	01W024842
<b>Model Number:</b>	FF-320	<b>Calibration:</b>	248.98"
<b>Serial Number:</b>	01-50736-10-03	<b>Span:</b>	2100

Meter Results (GPM)	Test 1
Client Meter Flow	589.13
Test Meter Flow	589.32
Difference	0.19
Meter Accuracy	100.0%
Corrective Action	Baseline Test

#### Comments

Meter within AWWA acceptance limit.



#### **4.0 CONCLUSIONS**

There were a total of nine (9) meter tests conducted on seven (7) meters at various sites for the water distribution system for the Ashland and Hopkinton Water Departments.

The accuracy level of the meter readings after testing or recalibration fell within the American Water Works Association (AWWA) acceptance limit range of 96 to 102 percent.