

# COLUMBIA WATER COMPANY

220 LOCUST STREET, P.O. BOX 350  
COLUMBIA, PA 17512

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APR 29 2015

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

April 29, 2015

Rosemary Chiavetta, Secretary  
PA Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

RE: Water Loss Audit  
Year Ending December 31, 2014

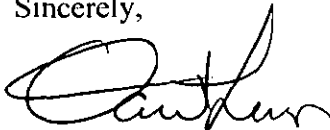
Dear Secretary Chiavetta:

Enclosed is the Columbia Water Company's Water Loss Audits for the year ending December 31, 2014. One audit is for the Columbia Division, one for the Marietta Division and one consolidated audit. These audits are being filed as required by PUC Order at M-2008-2062697. In addition to the two (2) paper copies of each audit, enclosed is a CD containing an electronic copy.

M-2015-2464293

Should you require any additional information, please feel free to contact me.

Sincerely,



David T. Lewis, P.E.  
Vice President and  
General Manager

[?](#) Click to access definition

Water Audit Report for: **Columbia Water Company - CONSOLIDATED REPORT**  
 Reporting Year: **2014** 1/2014 - 12/2014

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

**WATER SUPPLIED**

<< Enter grading in column 'E'

Volume from own sources:	<input type="text" value="8"/>	<input type="text" value="790.012"/>	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	<input type="text" value="8"/>	<input type="text" value="0.000"/>	over-registered MG/Yr
Water imported:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr
Water exported:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr
<b>WATER SUPPLIED:</b>		<b>790.012</b>	MG/Yr

**AUTHORIZED CONSUMPTION**

Billed metered:	<input type="text" value="10"/>	<input type="text" value="673.317"/>	MG/Yr
Billed unmetered:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr
Unbilled metered:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr
Unbilled unmetered:	<input type="text" value="9"/>	<input type="text" value="66.246"/>	MG/Yr
<b>AUTHORIZED CONSUMPTION:</b>		<b>739.563</b>	MG/Yr

Click here: [?](#) for help using option buttons below

Pcnt:  Value:

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

**50.449** MG/Yr

**Apparent Losses**

Unauthorized consumption:  MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="text" value="10"/>	<input type="text" value="1.688"/>	MG/Yr
Systematic data handling errors:	<input type="text" value="10"/>	<input type="text" value="0.337"/>	MG/Yr
<b>Apparent Losses:</b>		<b>3.999</b>	

Pcnt:  Value:

0.25%

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses:  MG/Yr

**WATER LOSSES:** **50.449** MG/Yr

**NON-REVENUE WATER**

**NON-REVENUE WATER:**  MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:	<input type="text" value="8"/>	<input type="text" value="111.2"/>	miles
Number of active AND inactive service connections:	<input type="text" value="8"/>	<input type="text" value="9,962"/>	
Connection density:		<input type="text" value="90"/>	conn./mile main
Average length of customer service line:	<input type="text" value="6"/>	<input type="text" value="33.8"/>	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	<input type="text" value="9"/>	<input type="text" value="79.5"/>	psi

**COST DATA**

Total annual cost of operating water system:	<input type="text" value="10"/>	<input type="text" value="\$2,930,791"/>	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="text" value="10"/>	<input type="text" value="\$7.18"/>	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="text" value="10"/>	<input type="text" value="\$784.45"/>	\$/Million gallons

**PERFORMANCE INDICATORS**

**Financial Indicators**

Non-revenue water as percent by volume of Water Supplied:	<input type="text" value="14.8%"/>
Non-revenue water as percent by cost of operating system:	<input type="text" value="4.0%"/>
Annual cost of Apparent Losses:	<input type="text" value="\$28,715"/>
Annual cost of Real Losses:	<input type="text" value="\$36,438"/>

**Operational Efficiency Indicators**

Apparent Losses per service connection per day:	<input type="text" value="1.10"/>	gallons/connection/day
Real Losses per service connection per day*:	<input type="text" value="12.77"/>	gallons/connection/day
Real Losses per length of main per day*:	<input type="text" value="N/A"/>	
Real Losses per service connection per day per psi pressure:	<input type="text" value="0.16"/>	gallons/connection/day/psi
<input type="text" value="9"/> Unavoidable Annual Real Losses (UARL):	<input type="text" value="74.65"/>	million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	<input type="text" value="46.45"/>	million gallons/year
<input type="text" value="9"/> Infrastructure Leakage Index (ILI) [CARL/UARL]:	<input type="text" value="0.62"/>	

\* only the most applicable of these two indicators will be calculated

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 89 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

**1: Volume from own sources**

**2: Unauthorized consumption**

**3: Average length of customer service line**

[For more information, click here to see the Grading Matrix worksheet](#)

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Water Audit Report for: **Columbia Water Company - CONSOLIDATED REPORT**  
 Reporting Year: **2014** 1/2014 - 12/2014

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

**WATER SUPPLIED**

<< Enter grading in column 'E'

Volume from own sources:	<a href="#">?</a>	8	790.012	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	<a href="#">?</a>	8	0.000	over-registered MG/Yr
Water imported:	<a href="#">?</a>	n/a	0.000	MG/Yr
Water exported:	<a href="#">?</a>	n/a	0.000	MG/Yr
<b>WATER SUPPLIED:</b>			<b>790.012</b>	MG/Yr

**AUTHORIZED CONSUMPTION**

Billed metered:	<a href="#">?</a>	10	673.317	MG/Yr
Billed unmetered:	<a href="#">?</a>	n/a	0.000	MG/Yr
Unbilled metered:	<a href="#">?</a>	n/a	0.000	MG/Yr
Unbilled unmetered:	<a href="#">?</a>	9	66.246	MG/Yr

**AUTHORIZED CONSUMPTION:** [?](#) **739.563** MG/Yr

Click here: [?](#)  
for help using option buttons below

Pcnt:  Value:

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

**50.449** MG/Yr

**Apparent Losses**

Unauthorized consumption: [?](#) **1.975** MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<a href="#">?</a>	10	1.688	MG/Yr
Systematic data handling errors:	<a href="#">?</a>	10	0.337	MG/Yr

Apparent Losses: [?](#) **3.999**

Pcnt:  Value:

Pcnt:  Value:

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses: [?](#) **46.450** MG/Yr

**WATER LOSSES:** **50.449** MG/Yr

**NON-REVENUE WATER**

**NON-REVENUE WATER:** [?](#) **116.695** MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:	<a href="#">?</a>	8	111.2	miles
Number of active AND inactive service connections:	<a href="#">?</a>	8	9,962	
Connection density:			90	conn./mile main
Average length of customer service line:	<a href="#">?</a>	6	33.8	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	<a href="#">?</a>	9	79.5	psi

**COST DATA**

Total annual cost of operating water system:	<a href="#">?</a>	10	\$2,930,791	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<a href="#">?</a>	10	\$7.18	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<a href="#">?</a>	10	\$784.45	\$/Million gallons

**PERFORMANCE INDICATORS**

**Financial Indicators**

Non-revenue water as percent by volume of Water Supplied:	<b>14.8%</b>
Non-revenue water as percent by cost of operating system:	<b>4.0%</b>
Annual cost of Apparent Losses:	<b>\$28,715</b>
Annual cost of Real Losses:	<b>\$36,438</b>

**Operational Efficiency Indicators**

Apparent Losses per service connection per day:	<b>1.10</b>	gallons/connection/day
Real Losses per service connection per day*:	<b>12.77</b>	gallons/connection/day
Real Losses per length of main per day*:	<b>N/A</b>	
Real Losses per service connection per day per psi pressure:	<b>0.16</b>	gallons/connection/day/psi
<a href="#">?</a> Unavoidable Annual Real Losses (UARL):	<b>74.65</b>	million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	<b>46.45</b>	million gallons/year
<a href="#">?</a> Infrastructure Leakage Index (ILI) [CARL/UARL]:	<b>0.62</b>	

\* only the most applicable of these two indicators will be calculated

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 89 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Unauthorized consumption

3: Average length of customer service line

[For more information, click here to see the Grading Matrix worksheet](#)

[?](#) Click to access definition

Water Audit Report for: **Columbia Water Company - Marietta Division**  
 Reporting Year: **2014** | **1/2014 - 12/2014**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: **MILLION GALLONS (US) PER YEAR**

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**WATER SUPPLIED**

<< Enter grading in column 'E'

Volume from own sources:	<a href="#">?</a>	8	149.400	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	<a href="#">?</a>	8	0.000	over-registered
Water imported:	<a href="#">?</a>	n/a	0.000	MG/Yr
Water exported:	<a href="#">?</a>	n/a	0.000	MG/Yr

**WATER SUPPLIED:** 149.400 MG/Yr

**AUTHORIZED CONSUMPTION**

Billed metered:	<a href="#">?</a>	10	124.942	MG/Yr
Billed unmetered:	<a href="#">?</a>	n/a	0.000	MG/Yr
Unbilled metered:	<a href="#">?</a>	n/a	0.000	MG/Yr
Unbilled unmetered:	<a href="#">?</a>		1.868	MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

**AUTHORIZED CONSUMPTION:** 126.810 MG/Yr

Click here: [?](#) for help using option buttons below

Pcnt: 1.25% Value:

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)** 22.591 MG/Yr

**Apparent Losses**

Unauthorized consumption:	<a href="#">?</a>		0.374	MG/Yr
Customer metering inaccuracies:	<a href="#">?</a>	10	0.313	MG/Yr
Systematic data handling errors:	<a href="#">?</a>	10	0.063	MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

**Apparent Losses:** 0.749

Pcnt: 0.25% Value:

Pcnt: 0.25% Value:

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses: 21.841 MG/Yr

**WATER LOSSES:** 22.591 MG/Yr

**NON-REVENUE WATER**

**NON-REVENUE WATER:** 24.458 MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:	<a href="#">?</a>	8	18.0	miles
Number of active AND inactive service connections:	<a href="#">?</a>	8	1,173	
Connection density:			65	conn./mile main
Average length of customer service line:	<a href="#">?</a>	6	25.0	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	<a href="#">?</a>	9	82.9	psi

**COST DATA**

Total annual cost of operating water system:	<a href="#">?</a>	10	\$314,814	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<a href="#">?</a>	10	\$12.50	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<a href="#">?</a>	10	\$431.38	\$/Million gallons

**PERFORMANCE INDICATORS**

**Financial Indicators**

Non-revenue water as percent by volume of Water Supplied:	16.4%
Non-revenue water as percent by cost of operating system:	6.2%
Annual cost of Apparent Losses:	\$9,364
Annual cost of Real Losses:	\$9,422

**Operational Efficiency Indicators**

Apparent Losses per service connection per day:	1.75	gallons/connection/day
Real Losses per service connection per day*:	51.01	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.62	gallons/connection/day/psi

[?](#) Unavoidable Annual Real Losses (UARL): Not Valid

\*\*\* UARL cannot be calculated as either average pressure, number of connections or length of mains is too small: SEE UARL DEFINITION \*\*\*

From Above, Real Losses = Current Annual Real Losses (CARL): 21.84

[?](#) Infrastructure Leakage Index (ILI) [CARL/UARL]:

\* only the most applicable of these two indicators will be calculated

**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 89 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Unauthorized consumption
- 3: Unbilled unmetered

[For more information, click here to see the Grading Matrix worksheet](#)

[?](#) Click to access definition

Water Audit Report for: **Columbia Water Company - Marietta Division**  
 Reporting Year: **2014** 1/2014 - 12/2014

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

**WATER SUPPLIED**

<< Enter grading in column 'E'

Volume from own sources:	<a href="#">?</a>	8	149.400	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	<a href="#">?</a>	8	0.000	over-registered MG/Yr
Water imported:	<a href="#">?</a>	n/a	0.000	MG/Yr
Water exported:	<a href="#">?</a>	n/a	0.000	MG/Yr
<b>WATER SUPPLIED:</b>			<b>149.400</b>	MG/Yr

**AUTHORIZED CONSUMPTION**

Click here: [?](#) for help using option buttons below

Billed metered:	<a href="#">?</a>	10	124.942	MG/Yr	Pcnt: 1.25%	Value: <input type="text"/>
Billed unmetered:	<a href="#">?</a>	n/a	0.000	MG/Yr		
Unbilled metered:	<a href="#">?</a>	n/a	0.000	MG/Yr		
Unbilled unmetered:	<a href="#">?</a>	5	1.868	MG/Yr		
Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed						
<b>AUTHORIZED CONSUMPTION:</b>	<a href="#">?</a>		<b>126.810</b>	MG/Yr		

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

22.591 MG/Yr

**Apparent Losses**

Unauthorized consumption:	<a href="#">?</a>		0.374	MG/Yr	Pcnt: 0.25%	Value: <input type="text"/>
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed						
Customer metering inaccuracies:	<a href="#">?</a>	10	0.313	MG/Yr	Pcnt: 0.25%	Value: <input type="text"/>
Systematic data handling errors:	<a href="#">?</a>	10	0.063	MG/Yr		
<b>Apparent Losses:</b>	<a href="#">?</a>		<b>0.749</b>			

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses:	<a href="#">?</a>		21.841	MG/Yr
<b>WATER LOSSES:</b>			<b>22.591</b>	MG/Yr

**NON-REVENUE WATER**

NON-REVENUE WATER: [?](#) 24.458 MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:	<a href="#">?</a>	8	18.0	miles
Number of active AND inactive service connections:	<a href="#">?</a>	8	1,173	
Connection density:			65	conn./mile main
Average length of customer service line:	<a href="#">?</a>	6	25.0	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	<a href="#">?</a>	9	82.9	psi

**COST DATA**

Total annual cost of operating water system:	<a href="#">?</a>	10	\$314,814	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<a href="#">?</a>	10	\$12.50	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<a href="#">?</a>	10	\$431.38	\$/Million gallons

**PERFORMANCE INDICATORS**

**Financial Indicators**

Non-revenue water as percent by volume of Water Supplied:	16.4%
Non-revenue water as percent by cost of operating system:	6.2%
Annual cost of Apparent Losses:	\$9,364
Annual cost of Real Losses:	\$9,422

**Operational Efficiency Indicators**

Apparent Losses per service connection per day:	1.75	gallons/connection/day
Real Losses per service connection per day*:	51.01	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.62	gallons/connection/day/psi
<a href="#">?</a> Unavoidable Annual Real Losses (UARL):	Not Valid	

\*\*\* UARL cannot be calculated as either average pressure, number of connections or length of mains is too small: SEE UARL DEFINITION \*\*\*

From Above, Real Losses = Current Annual Real Losses (CARL): 21.84

[?](#) Infrastructure Leakage Index (ILI) [CARL/UARL]:

\* only the most applicable of these two indicators will be calculated

**WATER AUDIT DATA VALIDITY SCORE:**

\*\*\* YOUR SCORE IS: 89 out of 100 \*\*\*

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Unauthorized consumption
- 3: Unbilled unmetered

[For more information, click here to see the Grading Matrix worksheet](#)

# AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.2

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Water Audit Report for: **Columbia Water Company**  
 Reporting Year: **2014**    1/2014 - 12/2014

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: **MILLION GALLONS (US) PER YEAR**

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**WATER SUPPLIED**

<< Enter grading in column 'E'

Volume from own sources:	?	8	640.612	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	?	8	0.000	over-registered MG/Yr
Water imported:	?	n/a	0.000	MG/Yr
Water exported:	?	n/a	0.000	MG/Yr
<b>WATER SUPPLIED:</b>			<b>640.612</b>	MG/Yr

**AUTHORIZED CONSUMPTION**

Billed metered:	?	10	548.375	MG/Yr
Billed unmetered:	?	n/a	0.000	MG/Yr
Unbilled metered:	?	n/a	0.000	MG/Yr
Unbilled unmetered:	?	9	64.378	MG/Yr

**AUTHORIZED CONSUMPTION:** ? **612.753** MG/Yr

Click here: [?](#)  
for help using option buttons below

Pcnt:  Value:

Use buttons to select percentage of water supplied **OR** value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

**27.859** MG/Yr

**Apparent Losses**

Unauthorized consumption: ? **1.602** MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	?	10	1.374	MG/Yr
Systematic data handling errors:	?	10	0.274	MG/Yr

Apparent Losses: ? **3.250**

Pcnt:  Value:

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses: ? **24.609** MG/Yr

**WATER LOSSES:** **27.859** MG/Yr

**NON-REVENUE WATER**

**NON-REVENUE WATER:** ? **92.237** MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:	?	8	93.2	miles
Number of active AND inactive service connections:	?	8	8,789	
Connection density:			94	conn./mile main
Average length of customer service line:	?	6	35.0	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	9	79.0	psi

**COST DATA**

Total annual cost of operating water system:	?	10	\$2,615,977	\$/Year
Customer retail unit cost (applied to Apparent Losses):	?	10	\$6.47	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	?	10	\$866.79	\$/Million gallons

**PERFORMANCE INDICATORS**

**Financial Indicators**

Non-revenue water as percent by volume of Water Supplied:	<b>14.4%</b>
Non-revenue water as percent by cost of operating system:	<b>3.8%</b>
Annual cost of Apparent Losses:	<b>\$21,028</b>
Annual cost of Real Losses:	<b>\$21,331</b>

**Operational Efficiency Indicators**

Apparent Losses per service connection per day:	<b>1.01</b> gallons/connection/day
Real Losses per service connection per day*:	<b>7.67</b> gallons/connection/day
Real Losses per length of main per day*:	<b>N/A</b>
Real Losses per service connection per day per psi pressure:	<b>0.10</b> gallons/connection/day/psi
<a href="#">?</a> Unavoidable Annual Real Losses (UARL):	<b>65.15</b> million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	<b>24.61</b> million gallons/year
<a href="#">?</a> Infrastructure Leakage Index (ILI) [CARL/UARL]:	<b>0.38</b>

\* only the most applicable of these two indicators will be calculated

**WATER AUDIT DATA VALIDITY SCORE:**

\*\*\* YOUR SCORE IS: 89 out of 100 \*\*\*

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

**PRIORITY AREAS FOR ATTENTION:**

Based on the information provided, audit accuracy can be improved by addressing the following components:

**1: Volume from own sources**

**2: Unauthorized consumption**

**3: Average length of customer service line**

**For more information, click here to see the Grading Matrix worksheet**

[?](#) Click to access definition

Water Audit Report for: **Columbia Water Company**  
 Reporting Year: **2014** 1/2014 - 12/2014

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

**WATER SUPPLIED**

<< Enter grading in column 'E'

Volume from own sources:	<a href="#">?</a>	8	640.612	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	<a href="#">?</a>	8	0.000	over-registered MG/Yr
Water imported:	<a href="#">?</a>	n/a	0.000	MG/Yr
Water exported:	<a href="#">?</a>	n/a	0.000	MG/Yr
<b>WATER SUPPLIED:</b>			<b>640.612</b>	<b>MG/Yr</b>

**AUTHORIZED CONSUMPTION**

Billed metered:	<a href="#">?</a>	10	548.375	MG/Yr
Billed unmetered:	<a href="#">?</a>	n/a	0.000	MG/Yr
Unbilled metered:	<a href="#">?</a>	n/a	0.000	MG/Yr
Unbilled unmetered:	<a href="#">?</a>	9	64.378	MG/Yr

**AUTHORIZED CONSUMPTION:** [?](#) **612.753** MG/Yr

Click here: [?](#) for help using option buttons below

Pcnt:  Value:

Use buttons to select percentage of water supplied OR value

**WATER LOSSES (Water Supplied - Authorized Consumption)**

**27.859** MG/Yr

**Apparent Losses**

Unauthorized consumption: [?](#) **1.602** MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<a href="#">?</a>	10	1.374	MG/Yr
Systematic data handling errors:	<a href="#">?</a>	10	0.274	MG/Yr

Apparent Losses: [?](#) **3.250**

Pcnt:  Value:

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

**Real Losses (Current Annual Real Losses or CARL)**

Real Losses = Water Losses - Apparent Losses: [?](#) **24.609** MG/Yr

**WATER LOSSES:** **27.859** MG/Yr

**NON-REVENUE WATER**

NON-REVENUE WATER: [?](#) **92.237** MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

**SYSTEM DATA**

Length of mains:	<a href="#">?</a>	8	93.2	miles
Number of active AND inactive service connections:	<a href="#">?</a>	8	8,789	
Connection density:			94	conn./mile main
Average length of customer service line:	<a href="#">?</a>	6	35.0	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	<a href="#">?</a>	9	79.0	psi

**COST DATA**

Total annual cost of operating water system:	<a href="#">?</a>	10	\$2,615,977	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<a href="#">?</a>	10	\$6.47	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<a href="#">?</a>	10	\$866.79	\$/Million gallons

**PERFORMANCE INDICATORS**

**Financial Indicators**

Non-revenue water as percent by volume of Water Supplied:	<b>14.4%</b>
Non-revenue water as percent by cost of operating system:	<b>3.8%</b>
Annual cost of Apparent Losses:	<b>\$21,028</b>
Annual cost of Real Losses:	<b>\$21,331</b>

**Operational Efficiency Indicators**

Apparent Losses per service connection per day:	<b>1.01</b>	gallons/connection/day
Real Losses per service connection per day*:	<b>7.67</b>	gallons/connection/day
Real Losses per length of main per day*:	<b>N/A</b>	
Real Losses per service connection per day per psi pressure:	<b>0.10</b>	gallons/connection/day/psi
<a href="#">?</a> Unavoidable Annual Real Losses (UARL):	<b>65.15</b>	million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	<b>24.61</b>	million gallons/year
<a href="#">?</a> Infrastructure Leakage Index (ILI) [CARL/UARL]:	<b>0.38</b>	

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**WATER AUDIT DATA VALIDITY SCORE:**

**\*\*\* YOUR SCORE IS: 89 out of 100 \*\*\***

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**PRIORITY AREAS FOR ATTENTION:**

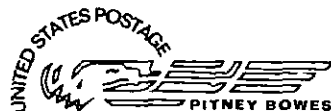
Based on the information provided, audit accuracy can be improved by addressing the following components:

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- 2: Unauthorized consumption
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[For more information, click here to see the Grading Matrix worksheet](#)



7012 3460 0001 3080 4366



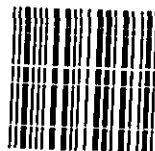
PITNEY BOWES

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**Columbia  
WATER  
Company**



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