



Susan Simms Marsh

Deputy General Counsel

852 Wesley Drive | Mechanicsburg, PA 17055

Phone: 717-550-1570 | Fax: 717-550-1255

E susan.marsh@amwater.com

April 30, 2021

VIA e-File

Rosemary Chiavetta, Secretary
Commonwealth of Pennsylvania
Pennsylvania Public Utility Commission
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120

Re: Annual Water Audit Summaries for year ended December 31, 2020
Docket No.: M-2021-3023555

Dear Secretary Chiavetta:

On behalf of Pennsylvania-American Water Company, I am filing the Company's annual water audit summaries for the year ended December 31, 2020.

As directed by the Commission's filing requirements, the Company is also providing a working electronic copy in Microsoft Excel format.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Susan Simms Marsh".

Susan Simms Marsh

Enclosure

cc: C. McKinley w/Annual Water Audit Summaries and Microsoft Excel File



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: PAW - All Districts ()
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	9	68,179.103	MG/Yr	+ ?
Water imported:	+ ?	9	1,014.854	MG/Yr	+ ?
Water exported:	+ ?	9	704.194	MG/Yr	+ ?

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.32%	

WATER SUPPLIED: 68,708.637 MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	10	44,938.172	MG/Yr
Billed unmetered:	+ ?	10	4.838	MG/Yr
Unbilled metered:	+ ?	10	1,464.841	MG/Yr
Unbilled unmetered:	+ ?	10	501.124	MG/Yr

Click here: ?
for help using option

AUTHORIZED CONSUMPTION: 46,908.975 MG/Yr

Pcnt: Value: MG/Yr
501.124

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

21,799.662 MG/Yr

Apparent Losses

Unauthorized consumption:	+ ?		171.772	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	+ ?	7	947.000	MG/Yr
Systematic data handling errors:	+ ?		112.345	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
Apparent Losses:			1,231.117	MG/Yr

Pcnt: Value: MG/Yr
0.25%

Pcnt: Value: MG/Yr
2.00%
0.25%

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 20,568.544 MG/Yr

WATER LOSSES: 21,799.662 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 23,765.627 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	10,235.3	miles
Number of active AND inactive service connections:	+ ?	9	665,506	
Service connection density:	+ ?		65	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 19.0 ft

Average operating pressure: 8 93.6 psi

COST DATA

Total annual cost of operating water system:	+ ?	9	\$192,882,282	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	9	\$389.35	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 87 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW - All Districts ()
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 87 out of 100 ***

System Attributes:

	Apparent Losses:	1,231.117	MG/Yr	
	+	Real Losses:	20,568.544	MG/Yr
	=	Water Losses:	21,799.662	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 5,914.55 MG/Yr

Annual cost of Apparent Losses: \$12,520,463

Annual cost of Real Losses: \$8,008,363 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 34.6%

Non-revenue water as percent by cost of operating system: 11.0% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 5.07 gallons/connection/day

Real Losses per service connection per day: 84.68 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.90 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 20,568.54 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 3.48

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: **PAW- Abington District 530 (2359008)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="text" value="9"/>	<input type="text" value="531.355"/>	MG/Yr	<input type="text" value="+ ?"/>
Water imported:	<input type="text" value="10"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+ ?"/>
Water exported:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	<input type="text" value="9"/>	<input type="text" value="-0.33%"/>	<input type="text" value=""/>	MG/Yr
Value:	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	MG/Yr
	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 533.114 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="text" value="10"/>	<input type="text" value="383.652"/>	MG/Yr	<input type="text" value="+ ?"/>
Billed unmetered:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+ ?"/>
Unbilled metered:	<input type="text" value="10"/>	<input type="text" value="0.026"/>	MG/Yr	<input type="text" value="+ ?"/>
Unbilled unmetered:	<input type="text" value="10"/>	<input style="background-color: yellow;" type="text" value="3.330"/>	MG/Yr	<input type="text" value="+ ?"/>

Click here: for help using option

Pcnt: Value:

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 387.008 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

146.106 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="7"/>	<input type="text" value="7.830"/>	MG/Yr	<input type="text" value="+ ?"/>
Systematic data handling errors:	<input type="text" value=""/>	<input type="text" value="0.959"/>	MG/Yr	<input type="text" value="+ ?"/>

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 10.122 MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 135.984 MG/Yr

WATER LOSSES: 146.106 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 149.462 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="text" value="9"/>	<input type="text" value="136.9"/>	miles	<input type="text" value="+ ?"/>
Number of active AND inactive service connections:	<input type="text" value="9"/>	<input type="text" value="6,500"/>		<input type="text" value="+ ?"/>
Service connection density:	<input type="text" value=""/>	<input style="background-color: yellow;" type="text" value="47"/>	conn./mile main	<input type="text" value=""/>

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="text" value="9"/>	<input type="text" value="\$1,802,694"/>	\$/Year	<input type="text" value="+ ?"/>
Customer retail unit cost (applied to Apparent Losses):	<input type="text" value="9"/>	<input type="text" value="\$10.17"/>	\$/1000 gallons (US)	<input type="text" value="+ ?"/>
Variable production cost (applied to Real Losses):	<input type="text" value="9"/>	<input type="text" value="\$286.69"/>	\$/Million gallo	<input type="text" value="+ ?"/>

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Abington District 530 (2359008)**
Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

	Apparent Losses:	10.122	MG/Yr
	+ Real Losses:	135.984	MG/Yr
	= Water Losses:	146.106	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 66.12 MG/Yr

Annual cost of Apparent Losses: \$102,942

Annual cost of Real Losses: \$38,985 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 28.0%

Non-revenue water as percent by cost of operating system: 7.9% Real Losses valued at Variable Production Cost

Operational: {

Apparent Losses per service connection per day: 4.27 gallons/connection/day

Real Losses per service connection per day: 57.32 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.60 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 135.98 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.06

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
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? Click to access definition
+ Click to add a comment

Water Audit Report for: PAW- Bangor District 550 (3480038)
Reporting Year: 2020 1/2020 - 12/2020

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 (n/a or 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

To select the correct data grading for each input, determine the highest grade below the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	9	252.808	MG/Yr
Water imported:	+ ?	n/a	0.000	MG/Yr
Water exported:	+ ?	9	0.000	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
+ ? 9	1.16%	<input checked="" type="radio"/> <input type="radio"/>
+ ?		<input checked="" type="radio"/> <input type="radio"/>
+ ?		<input checked="" type="radio"/> <input type="radio"/>

WATER SUPPLIED: 249.909 MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	10	182.415	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	10	0.121	MG/Yr
Unbilled unmetered:	+ ?	10	0.648	MG/Yr

Click here: ?
for help using option buttons below

Pcnt: Value: MG/Yr
 0.648

AUTHORIZED CONSUMPTION: ? 183.184 MG/Yr

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

66.725 MG/Yr

Apparent Losses

Unauthorized consumption: + ? 0.625 MG/Yr

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

Customer metering inaccuracies:	+ ?	7	3.725	MG/Yr
Systematic data handling errors:	+ ?		2.736	MG/Yr

Apparent Losses: ? 7.086 MG/Yr

Pcnt: Value: MG/Yr
0.25%

2.00%
0.25% 2.736 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 59.639 MG/Yr

WATER LOSSES: 66.725 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 67.494 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	57.0	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	+ ?	9	3,471	
Service connection density:	?		61	conn./mile main

Are customer meters typically located at the curbside or property line? No
Average length of customer service line: + ? 7 16.4 ft (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average operating pressure: + ? 8 83.9 psi

COST DATA

Total annual cost of operating water system:	+ ?	9	\$1,074,220	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	9	\$388.68	\$/Million gallons <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

Add a grading value for 1 parameter(s) to enable an audit score to be calculated

PRIORITY AREAS FOR ATTENTION:

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

- 1: Systematic data handling errors
- 2: Volume from own sources
- 3: Unauthorized consumption



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0

American Water Works Association.
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Water Audit Report for: PAW- Bangor District 550 (3480038)
 Reporting Year: 2020 | 1/2020 - 12/2020

***** DATA GRADING MUST BE COMPLETED ON THE REPORTING WORKSHEET BEFORE PERFORMANCE INDICATORS CAN BE DISPLAYED *****

System Attributes:

Apparent Losses: MG/Yr
 + Real Losses: MG/Yr
 = **Water Losses:** MG/Yr

? Unavoidable Annual Real Losses (UARL): MG/Yr

Annual cost of Apparent Losses:

Annual cost of Real Losses: Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: { Non-revenue water as percent by volume of Water Supplied:
 { Non-revenue water as percent by cost of operating system: Real Losses valued at Variable Production Cost

Operational Efficiency: { Apparent Losses per service connection per day: gallons/connection/day
 { Real Losses per service connection per day: gallons/connection/day
 { Real Losses per length of main per day*:
 { Real Losses per service connection per day per psi pressure: gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): million gallons/year

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

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: PAW- Berwick District 730 (4190013)

Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	460.226	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.20%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 461.148 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	328.148	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.021	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	2.261	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 330.430 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

130.718 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>	1.153	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed			
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	6.697
Systematic data handling errors:	<input type="button" value="+ ?"/>	0.820	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed			
Apparent Losses:	<input type="button" value="?"/>	8.671	MG/Yr

Pcnt: Value: MG/Yr

MG/Yr

MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 122.048 MG/Yr

WATER LOSSES: 130.718 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 133.000 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	81.9	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	7,000	
Service connection density:	<input type="button" value="?"/>	85	conn./mile main	

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$1,806,995	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$171.23	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Berwick District 730 (4190013)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

	Apparent Losses:	8.671	MG/Yr
	+ Real Losses:	122.048	MG/Yr
	= Water Losses:	130.718	MG/Yr

?

Unavoidable Annual Real Losses (UARL): **55.07** MG/Yr

Annual cost of Apparent Losses: **\$88,180**

Annual cost of Real Losses: **\$20,898** Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	28.8%	
Non-revenue water as percent by cost of operating system:	6.1%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	3.39	gallons/connection/day
Real Losses per service connection per day:	47.77	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.53	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): **122.05** million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: **2.22**

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: PAW- Blue Mt. / Nazareth District 560 (2450133)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	705.647	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-2.27%	<input type="text" value=""/>
		<input type="text" value=""/>
		<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 722.037 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	623.992	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	4.806	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	4.292	MG/Yr

Click here: for help using option buttons below

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 633.090 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

88.947 MG/Yr

Apparent Losses

Unauthorized consumption: 1.805 MG/Yr
 Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	12.833	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>	7	9.360	MG/Yr

Apparent Losses: 23.998 MG/Yr

Pcnt: Value: MG/Yr

MG/Yr
 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 64.950 MG/Yr

WATER LOSSES: 88.947 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 98.045 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	155.2	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	10,444	
Service connection density:	<input type="button" value="?"/>		67	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$2,884,082	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$301.98	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 87 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: Customer metering inaccuracies



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Blue Mt. / Nazareth District 560 (2450133)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 87 out of 100 ***

System Attributes:

	Apparent Losses:	23.998	MG/Yr
+	Real Losses:	64.950	MG/Yr
=	Water Losses:	88.947	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 93.06 MG/Yr

Annual cost of Apparent Losses: \$244,055

Annual cost of Real Losses: \$19,613 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 13.6%

Non-revenue water as percent by cost of operating system: 9.2% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 6.30 gallons/connection/day

Real Losses per service connection per day: 17.04 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.18 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 64.95 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.70

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: **PAW- Brownsville District 250 (5260005)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

		----- Enter grading in column 'E' and 'J' ----->			
Volume from own sources:	+ ?	9	304.383	MG/Yr	+ ?
Water imported:	+ ?	9	0.156	MG/Yr	+ ?
Water exported:	+ ?	9	0.000	MG/Yr	+ ?

Master Meter and Supply Error Adjustments

Pcnt:	Value:	
9	0.00%	MG/Yr
		MG/Yr
		MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **304.539** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	10	237.616	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	10	0.000	MG/Yr
Unbilled unmetered:	+ ?	10	5.718	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: **243.334** MG/Yr

Click here: ?
for help using option

Pcnt: Value: MG/Yr

0.00% 5.718

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

61.205 MG/Yr

Apparent Losses

Unauthorized consumption: + ? 0.761 MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	7	4.849	MG/Yr
Systematic data handling errors:	+ ?		0.594	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **6.205** MG/Yr

Pcnt: Value: MG/Yr

0.25% 5.718

Pcnt: Value: MG/Yr

2.00% 5.718

0.25% 5.718

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **55.000** MG/Yr

WATER LOSSES: **61.205** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **66.923** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	111.3	miles
Number of active AND inactive service connections:	+ ?	9	3,677	
Service connection density:	?		33	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: + ? 7 16.3 ft

Average operating pressure: + ? 8 93.4 psi

COST DATA

Total annual cost of operating water system:	+ ?	9	\$1,351,447	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	9	\$1,977.41	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Brownsville District 250 (5260005)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 ***

System Attributes:

	Apparent Losses:	6.205	MG/Yr
+	Real Losses:	55.000	MG/Yr
=	Water Losses:	61.205	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 42.23 MG/Yr

Annual cost of Apparent Losses: \$63,102

Annual cost of Real Losses: \$108,758 Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	22.0%	
Non-revenue water as percent by cost of operating system:	13.6%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	4.62	gallons/connection/day
Real Losses per service connection per day:	40.98	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.44	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 55.00 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.30

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: **PAW- Butler District 330 (5100012)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="text" value="9"/>	<input type="text" value="1,925.604"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Water imported:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Water exported:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

Master Meter and Supply Error Adjustments

Pcnt:	<input type="text" value="0.00%"/>	Value:	<input type="text" value=""/>	MG/Yr
	<input type="text" value=""/>		<input type="text" value=""/>	MG/Yr
	<input type="text" value=""/>		<input type="text" value=""/>	MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **1,925.604** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="text" value="10"/>	<input type="text" value="1,598.911"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Billed unmetered:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Unbilled metered:	<input type="text" value="10"/>	<input type="text" value="0.128"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Unbilled unmetered:	<input type="text" value="+"/>	<input type="text" value="24.070"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

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

AUTHORIZED CONSUMPTION: **1,623.109** MG/Yr

Click here:
for help using option

Pcnt:	<input type="text" value="1.25%"/>	Value:	<input type="text" value=""/>	MG/Yr
-------	------------------------------------	--------	-------------------------------	-------

Use buttons to select percentage of water supplied
OR
value

WATER LOSSES (Water Supplied - Authorized Consumption)

302.495 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: MG/Yr
Systematic data handling errors: MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **41.445** MG/Yr

Pcnt:	<input type="text" value="0.25%"/>	Value:	<input type="text" value=""/>	MG/Yr
-------	------------------------------------	--------	-------------------------------	-------

Pcnt:	<input type="text" value="2.00%"/>	Value:	<input type="text" value=""/>	MG/Yr
	<input type="text" value="0.25%"/>		<input type="text" value=""/>	MG/Yr

Real Losses (Current Annual Real Losses or CARL)

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

WATER LOSSES: **302.495** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **326.693** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains: miles
Number of active AND inactive service connections:
Service connection density: conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)
Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system: \$/Year
Customer retail unit cost (applied to Apparent Losses): \$/1000 gallons (US)
Variable production cost (applied to Real Losses): \$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Butler District 330 (5100012)**
Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 *****

System Attributes:

Apparent Losses:	41.445	MG/Yr
+	Real Losses:	261.050
=	Water Losses:	302.495
		MG/Yr

?

Unavoidable Annual Real Losses (UARL): 150.94 MG/Yr

Annual cost of Apparent Losses: \$421,493

Annual cost of Real Losses: \$102,929 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 17.0%

Non-revenue water as percent by cost of operating system: 9.6% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 5.67 gallons/connection/day

Real Losses per service connection per day: 35.69 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.46 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 261.05 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.73

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

Water Audit Report for: PAW- Centre County (Nittany/Boggs) (District 780)

Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	64.158	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.86%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 64.715 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	39.302	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	0.139	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 39.441 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

25.274 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>	0.162	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed			
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	0.802
Systematic data handling errors:	<input type="button" value="+ ?"/>	0.098	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed			
Apparent Losses:	<input style="border: 1px solid black;" type="button" value=" ? "/>	1.062	MG/Yr

Pcnt: Value: MG/Yr

MG/Yr

MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 24.211 MG/Yr

WATER LOSSES: 25.274 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 25.413 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	18.6	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	731	
Service connection density:	<input style="border: 1px solid black;" type="button" value=" ? "/>	39	conn./mile main	

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$170,212	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$9.00	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$614.47	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Centre County (Nittany/Boggs) (District 780)**
Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 *****

System Attributes:

Apparent Losses:	1.062	MG/Yr	
+	Real Losses:	24.211	MG/Yr
=	Water Losses:	25.274	MG/Yr

?

Unavoidable Annual Real Losses (UARL): See limits in definition MG/Yr

Annual cost of Apparent Losses: \$9,559

Annual cost of Real Losses: \$14,877 Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	39.3%	
Non-revenue water as percent by cost of operating system:	14.4%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	3.98	gallons/connection/day
Real Losses per service connection per day:	90.74	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.92	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 24.21 million gallons/year

?

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

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: PAW- Clarion District 430 (6160001)

Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	497.229	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	9	18.663	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-1.02%	<input type="text" value=""/>
		<input type="text" value=""/>
n/a	0.00%	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 483.690 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	342.105	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	6.003	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	3.810	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 351.918 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

131.772 MG/Yr

Apparent Losses

Unauthorized consumption: 1.209 MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	7.104	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		0.855	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 9.169 MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 122.603 MG/Yr

WATER LOSSES: 131.772 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 141.585 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	128.0	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	4,444	
Service connection density:	<input type="button" value="?"/>		35	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$1,213,550	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$709.18	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Clarion District 430 (6160001)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	9.169	MG/Yr
	+ Real Losses:	122.603	MG/Yr
	= Water Losses:	131.772	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 46.45 MG/Yr

Annual cost of Apparent Losses: \$93,246

Annual cost of Real Losses: \$86,948 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 29.3%

Non-revenue water as percent by cost of operating system: 15.4% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 5.65 gallons/connection/day

Real Losses per service connection per day: 75.58 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.89 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 122.60 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.64

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

? Click to access
+ Click to add a

Water Audit Report for: PAW- Coatesville District 650 (1150106)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	9	1,234.473	MG/Yr	+ ?
Water imported:	+ ?	n/a	0.000	MG/Yr	+ ?
Water exported:	+ ?	9	41.644	MG/Yr	+ ?

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.40%	

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 1,187.911 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	10	898.972	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	10	114.068	MG/Yr
Unbilled unmetered:	+ ?	10	14.917	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: 1,027.957 MG/Yr

Click here: ?
for help using option

Pcnt: Value: MG/Yr
0.40% 14.917

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

159.954 MG/Yr

Apparent Losses

Unauthorized consumption: + ? 2.970 MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	7	20.674	MG/Yr
Systematic data handling errors:	+ ?		2.247	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 25.891 MG/Yr

Pcnt: Value: MG/Yr
0.25%

2.00% 0.25%

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 134.062 MG/Yr

WATER LOSSES: 159.954 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 288.939 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	199.5	miles
Number of active AND inactive service connections:	+ ?	9	12,775	
Service connection density:	?		64	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)
Average length of customer service line: + ? 7 19.8 ft

Average operating pressure: + ? 8 83.4 psi

COST DATA

Total annual cost of operating water system:	+ ?	9	\$3,632,337	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	9	\$894.30	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Coatesville District 650 (1150106)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

Apparent Losses:	25.891	MG/Yr
+	Real Losses:	134.062 MG/Yr
=	Water Losses:	159.954 MG/Yr

?

Unavoidable Annual Real Losses (UARL): 102.12 MG/Yr

Annual cost of Apparent Losses: \$263,316

Annual cost of Real Losses: \$119,892 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 24.3%

Non-revenue water as percent by cost of operating system: 13.7% Real Losses valued at Variable Production Cost

Operational: {

Apparent Losses per service connection per day: 5.55 gallons/connection/day

Real Losses per service connection per day: 28.75 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.34 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 134.06 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.31

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: **PAW- Frackville District 740 (3540032;3540072;3540053)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

		----- Enter grading in column 'E' and 'J' ----->			
Volume from own sources:	<input type="button" value="+ ?"/>	9	110.256	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	9	1.939	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	
9	0.31%	<input type="radio"/> <input checked="" type="radio"/>
		<input type="radio"/> <input type="radio"/>
		<input type="radio"/> <input type="radio"/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **111.854** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	97.710	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.023	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	0.599	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: **98.332** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

13.522 MG/Yr

Apparent Losses

Unauthorized consumption: **0.280** MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	1.995	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		0.244	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **2.518** MG/Yr

Pcnt: Value: MG/Yr

0.25%

2.00%

0.25%

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **11.004** MG/Yr

WATER LOSSES: **13.522** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **14.144** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	26.6	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	2,681	
Service connection density:	<input type="button" value="?"/>		101	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 18.8 ft

Average operating pressure: 8 49.7 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$671,137	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$577.21	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Frackville District 740 (3540032;3540072;3540053)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

	Apparent Losses:	2.518	MG/Yr
	+ Real Losses:	11.004	MG/Yr
	= Water Losses:	13.522	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 11.20 MG/Yr

Annual cost of Apparent Losses: \$25,613

Annual cost of Real Losses: \$6,352

Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 12.6%

Non-revenue water as percent by cost of operating system: 4.8% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 2.57 gallons/connection/day

Real Losses per service connection per day: 11.24 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.23 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 11.00 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.98

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: **PAW- Glen Alsace District 633 (3060088;3060126)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	472.999	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	9	175.055	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.34%	<input type="text"/>
		<input type="text"/>
		<input type="text"/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 649.668 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	568.132	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.024	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	8.121	MG/Yr

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

AUTHORIZED CONSUMPTION: 576.277 MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

1.25%

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

73.391 MG/Yr

Apparent Losses

Unauthorized consumption: **1.624** MG/Yr

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

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	11.595	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		1.420	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 14.640 MG/Yr

Pcnt: Value: MG/Yr

0.25%

Pcnt: Value: MG/Yr

2.00%

0.25%

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **58.751** MG/Yr

WATER LOSSES: 73.391 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 81.536 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	143.8	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	9,352	
Service connection density:	<input type="button" value="?"/>		65	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 21.3 ft

Average operating pressure: 8 81.8 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$2,712,642	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$924.68	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Unauthorized consumption
- 2: Systematic data handling errors
- 3: Volume from own sources



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Glen Alsace District 633 (3060088;3060126)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 *****

System Attributes:

Apparent Losses:	14.640	MG/Yr
+	Real Losses:	58.751 MG/Yr
=	Water Losses:	73.391 MG/Yr

?

Unavoidable Annual Real Losses (UARL): 73.56 MG/Yr

Annual cost of Apparent Losses: \$148,884

Annual cost of Real Losses: \$54,326 Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	12.6%	
Non-revenue water as percent by cost of operating system:	7.8%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	4.29	gallons/connection/day
Real Losses per service connection per day:	17.21	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.21	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 58.75 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.80

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: **PAW- Hershey_Palmyra District 620 (7220017)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	2,278.945	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	9	1.477	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-1.18%	<input type="text" value=""/>
9	<input type="text" value=""/>	<input type="text" value=""/>
	<input type="text" value=""/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **2,307.635** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	1,795.398	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.017	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	5.578	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: **1,800.993** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

506.642 MG/Yr

Apparent Losses

Unauthorized consumption: **5.769** MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	36.641	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		4.488	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **46.899** MG/Yr

Pcnt: Value: MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **459.743** MG/Yr

WATER LOSSES: **506.642** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **512.237** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	319.7	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	23,470	
Service connection density:	<input type="button" value="+ ?"/>		73	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 ft

Average operating pressure: 8 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$5,774,470	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$369.27	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Hershey_Palmyra District 620 (7220017)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	46.899	MG/Yr	
	+	Real Losses:	459.743	MG/Yr
	=	Water Losses:	506.642	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 171.31 MG/Yr

Annual cost of Apparent Losses: \$476,960

Annual cost of Real Losses: \$169,769 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 22.2%

Non-revenue water as percent by cost of operating system: 11.2% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 5.47 gallons/connection/day

Real Losses per service connection per day: 53.67 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.68 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 459.74 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.68

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
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? Click to access definition
+ Click to add a comment

Water Audit Report for: PAW- Indiana District 410 (5320025)
Reporting Year: 2020 1/2020 - 12/2020

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 (n/a or 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

To select the correct data grading for each input, determine the highest grade below the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	9	675.949	MG/Yr
Water imported:	+ ?	n/a	0.000	MG/Yr
Water exported:	+ ?	9	13.461	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
+ ? 9	-2.00%	<input checked="" type="radio"/> <input type="radio"/>
+ ?		<input checked="" type="radio"/> <input type="radio"/>
+ ? n/a	0.00%	<input checked="" type="radio"/> <input type="radio"/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 676.283 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	10	544.734	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	10	0.146	MG/Yr
Unbilled unmetered:	+ ?	10	1.358	MG/Yr

Click here: ?
for help using option buttons below

Pcnt: Value: MG/Yr
 1.358

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: ? 546.238 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

130.045 MG/Yr

Apparent Losses

Unauthorized consumption: + ? 1.691 MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	7	11.120	MG/Yr
Systematic data handling errors:	+ ?	7	9.607	MG/Yr

Apparent Losses: ? 22.418 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 107.627 MG/Yr

WATER LOSSES: 130.045 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 131.549 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	119.0	miles
Number of active AND inactive service connections:	+ ?	9	7,145	
Service connection density:	?		60	conn./mile main

Are customer meters typically located at the curbside or property line? No
Average length of customer service line: + ? 7 19.4 ft (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average operating pressure: + ? 8 79.4 psi

COST DATA

Total annual cost of operating water system:	+ ?	9	\$2,144,427	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	9	\$585.37	\$/Million gallons <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 87 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: Customer metering inaccuracies

AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0

American Water Works Association.
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Water Audit Report for: **PAW- Indiana District 410 (5320025)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 87 out of 100 *****

System Attributes:

	Apparent Losses:	22.418	MG/Yr
+	Real Losses:	107.627	MG/Yr
=	Water Losses:	130.045	MG/Yr

? Unavoidable Annual Real Losses (UARL): 55.42 MG/Yr

Annual cost of Apparent Losses: \$227,988

Annual cost of Real Losses: \$63,002

Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	19.5%	
		Non-revenue water as percent by cost of operating system:	13.6%	Real Losses valued at Variable Production Cost

Operational Efficiency:	{	Apparent Losses per service connection per day:	8.60	gallons/connection/day
		Real Losses per service connection per day:	41.27	gallons/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per psi pressure:	0.52	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 107.63 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.94

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: PAW- Kane District 460 (6420019)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	9	128.174	MG/Yr	+ ?
Water imported:	+ ?	n/a	0.000	MG/Yr	+ ?
Water exported:	+ ?	9	0.000	MG/Yr	+ ?

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.90%	

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 129.338 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	10	105.447	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	10	4.587	MG/Yr
Unbilled unmetered:	+ ?	10	6.500	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: 116.534 MG/Yr

Click here: ?
for help using option

Pcnt: Value: MG/Yr
0.25% 6.500

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

12.804 MG/Yr

Apparent Losses

Unauthorized consumption: + ? 0.323 MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	7	2.246	MG/Yr
Systematic data handling errors:	+ ?		0.264	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 2.833 MG/Yr

Pcnt: Value: MG/Yr
0.25%

2.00% 0.25%

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 9.971 MG/Yr

WATER LOSSES: 12.804 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 23.891 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	42.9	miles
Number of active AND inactive service connections:	+ ?	9	2,379	
Service connection density:	?		55	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)
Average length of customer service line: + ? 7 20.0 ft

Average operating pressure: + ? 8 97.9 psi

COST DATA

Total annual cost of operating water system:	+ ?	9	\$595,451	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	9	\$643.54	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Kane District 460 (6420019)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	2.833	MG/Yr
+	Real Losses:	9.971	MG/Yr
=	Water Losses:	12.804	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 23.46 MG/Yr

Annual cost of Apparent Losses: \$28,807

Annual cost of Real Losses: \$6,417 Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	18.5%	
Non-revenue water as percent by cost of operating system:	7.1%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	3.26	gallons/connection/day
Real Losses per service connection per day:	11.48	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.12	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 9.97 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.43

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

Water Audit Report for: **PAW- Kittanning District 440 (5030008)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	117.397	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.00%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **117.397** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	98.817	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.015	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	3.866	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: **102.698** MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

14.699 MG/Yr

Apparent Losses

Unauthorized consumption: **0.293** MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	2.017	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		0.247	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **2.558** MG/Yr

Pcnt: Value: MG/Yr

0.25%

2.00%

0.25%

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **12.141** MG/Yr

WATER LOSSES: **14.699** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **18.580** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	21.5	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	2,035	
Service connection density:	<input type="button" value="+ ?"/>		95	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 15.6 ft

Average operating pressure: 8 87.6 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$562,769	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$1,083.77	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Kittanning District 440 (5030008)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	2.558	MG/Yr
+	Real Losses:	12.141	MG/Yr
=	Water Losses:	14.699	MG/Yr

?

Unavoidable Annual Real Losses (UARL): See limits in definition MG/Yr

Annual cost of Apparent Losses: \$26,010

Annual cost of Real Losses: \$13,159 Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	15.8%	
Non-revenue water as percent by cost of operating system:	7.7%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	3.44	gallons/connection/day
Real Losses per service connection per day:	16.35	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.19	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 12.14 million gallons/year

?

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

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: PAW- Lake Heritage District 660 (7010035)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	47.984	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.00%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
 Enter positive % or value for over-registration

WATER SUPPLIED: **47.984** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	38.703	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.000	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	0.144	MG/Yr

Click here: for help using option

Pcnt:	Value:	MG/Yr
<input type="radio"/>	<input type="radio"/>	0.144

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: **38.847** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

9.137 MG/Yr

Apparent Losses

Unauthorized consumption: **0.120** MG/Yr
 Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	0.790	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		0.097	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **1.007** MG/Yr

Pcnt:	Value:	MG/Yr
0.25%	<input type="radio"/>	<input type="text" value=""/>

2.00%	<input type="radio"/>	<input type="text" value=""/>
0.25%	<input type="radio"/>	<input type="text" value=""/>

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **8.130** MG/Yr

WATER LOSSES: **9.137** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **9.281** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	13.0	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	755	
Service connection density:	<input type="button" value="?"/>		58	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$246,552	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$248.32	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Lake Heritage District 660 (7010035)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 *****

System Attributes:

Apparent Losses:	1.007	MG/Yr
+	Real Losses:	8.130 MG/Yr
=	Water Losses:	9.137 MG/Yr

?

Unavoidable Annual Real Losses (UARL): **See limits in definition** MG/Yr

Annual cost of Apparent Losses: **\$10,237**

Annual cost of Real Losses: **\$2,019** Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: **19.3%**
 Non-revenue water as percent by cost of operating system: **5.0%** Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: **3.65** gallons/connection/day
 Real Losses per service connection per day: **29.50** gallons/connection/day
 Real Losses per length of main per day*: **N/A**
 Real Losses per service connection per day per psi pressure: **0.40** gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): **8.13** million gallons/year

?

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

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: **PAW- Lehman Pike District 680 (Multiple)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

		----- Enter grading in column 'E' and 'J' ----->			
Volume from own sources:	<input type="text" value="9"/>	<input type="text" value="539.266"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Water imported:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Water exported:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

Master Meter and Supply Error Adjustments

		Pcnt:	Value:	
<input type="text" value="9"/>	<input type="text" value="0.02%"/>	<input type="text" value="0"/>	<input type="text" value=""/>	MG/Yr
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value="0"/>	<input type="text" value=""/>	MG/Yr
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value="0"/>	<input type="text" value=""/>	MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 539.158 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="text" value="10"/>	<input type="text" value="303.622"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Billed unmetered:	<input type="text" value="10"/>	<input type="text" value="4.838"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Unbilled metered:	<input type="text" value="9"/>	<input type="text" value="3.173"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Unbilled unmetered:	<input type="text" value="10"/>	3.919	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

Click here:
for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied
OR
value

AUTHORIZED CONSUMPTION: 315.552 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

223.606 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="7"/>	<input type="text" value="6.261"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Systematic data handling errors:	<input type="text" value=""/>	<input type="text" value="0.759"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 8.368 MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 215.238 MG/Yr

WATER LOSSES: 223.606 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 230.698 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="text" value="9"/>	<input type="text" value="172.9"/>	miles	<input type="text" value="+"/>	<input type="text" value="?"/>
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="text" value="9"/>	<input type="text" value="9,461"/>		<input type="text" value="+"/>	<input type="text" value="?"/>
Service connection density:	<input type="text" value=""/>	55	conn./mile main	<input type="text" value="?"/>	

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="text" value="9"/>	<input type="text" value="\$2,282,323"/>	\$/Year	<input type="text" value="+"/>	<input type="text" value="?"/>
Customer retail unit cost (applied to Apparent Losses):	<input type="text" value="9"/>	<input type="text" value="\$10.17"/>	\$/1000 gallons (US)	<input type="text" value="+"/>	<input type="text" value="?"/>
Variable production cost (applied to Real Losses):	<input type="text" value="9"/>	<input type="text" value="\$616.45"/>	\$/Million gallo	<input type="text" value="+"/>	<input type="text" value="?"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Lehman Pike District 680 (Multiple)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	8.368	MG/Yr
+	Real Losses:	215.238	MG/Yr
=	Water Losses:	223.606	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 52.23 MG/Yr

Annual cost of Apparent Losses: \$85,103

Annual cost of Real Losses: \$132,684 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 42.8%

Non-revenue water as percent by cost of operating system: 9.7% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 2.42 gallons/connection/day

Real Losses per service connection per day: 62.33 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 1.16 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 215.24 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 4.12

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: **PAW- Mechanicsburg District 610 (7210029)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	3,972.772	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.22%	<input type="text" value=""/>
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **3,964.051** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	2,794.802	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	4.704	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	20.623	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: **2,820.129** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

1,143.922 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>		9.910	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	57.133	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		6.987	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
Apparent Losses:	<input type="button" value="?"/>		74.030	MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **1,069.892** MG/Yr

WATER LOSSES: **1,143.922** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **1,169.249** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	537.2	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	48,765	
Service connection density:	<input type="button" value="?"/>		91	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$11,892,967	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$373.38	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Mechanicsburg District 610 (7210029)
Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	74.030	MG/Yr
+	Real Losses:	1,069.892	MG/Yr
=	Water Losses:	1,143.922	MG/Yr



Unavoidable Annual Real Losses (UARL): 387.03 MG/Yr

Annual cost of Apparent Losses: \$752,884

Annual cost of Real Losses: \$399,476 Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	29.5%	
Non-revenue water as percent by cost of operating system:	9.8%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	4.16	gallons/connection/day
Real Losses per service connection per day:	60.11	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.65	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 1,069.89 million gallons/year



Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.76

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: PAW- Milton (Districts 710; 840;) (4490023; 4490298; 4490016)

Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	1,898.179	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.25%	<input type="text" value=""/>
		<input type="text" value=""/>
		<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **1,893.445** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	1,563.267	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a		MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	1.617	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	20.705	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: **1,585.589** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

307.856 MG/Yr

Apparent Losses

Unauthorized consumption: **4.734** MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	31.936	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>	7	3.908	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **40.578** MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **267.278** MG/Yr

WATER LOSSES: **307.856** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **330.178** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	247.1	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	14,014	
Service connection density:	<input style="border: 1px solid black; padding: 2px;" type="button" value=" ? "/>		57	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$3,934,794	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$304.29	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Milton (Districts 710; 840;) (4490023; 4490298; 4490016)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

	Apparent Losses:	40.578	MG/Yr	
	+ Real Losses:	267.278	MG/Yr	
	= Water Losses:	307.856	MG/Yr	

?

Unavoidable Annual Real Losses (UARL): 102.92 MG/Yr

Annual cost of Apparent Losses: \$412,680

Annual cost of Real Losses: \$81,330

Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 17.4%

Non-revenue water as percent by cost of operating system: 12.7% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 7.93 gallons/connection/day

Real Losses per service connection per day: 52.25 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.71 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 267.28 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.60

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association
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+

Water Audit Report for: PAW- New Castle / Ellwood Ditrict 310 (6370034;6370011)
Reporting Year: 2020 1/2020 - 12/2020

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 (n/a or 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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	9	2,666.968	MG/Yr
Water imported:	+ ?	n/a	0.000	MG/Yr
Water exported:	+ ?	9	68.992	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
+ ? 9	0.00%	<input type="radio"/> <input checked="" type="radio"/>
+ ?		<input type="radio"/> <input checked="" type="radio"/>
+ ? n/a	0.00%	<input type="radio"/> <input checked="" type="radio"/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 2,597.976 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	10	1,597.143	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	10	1.153	MG/Yr
Unbilled unmetered:	+ ?	10	12.910	MG/Yr

Click here: ?
for help using option buttons below

Pcnt: Value: MG/Yr
 12.910

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: ? 1,611.206 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

986.770 MG/Yr

Apparent Losses

Unauthorized consumption: + ? 6.495 MG/Yr

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

Customer metering inaccuracies:	+ ?	7	32.618	MG/Yr
Systematic data handling errors:	+ ?		3.993	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 43.106 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 943.664 MG/Yr

WATER LOSSES: 986.770 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 1,000.833 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	528.0	miles
Number of active AND inactive service connections:	+ ?	9	29,456	
Service connection density:	?		56	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: + ? 7 18.2 ft

Average operating pressure: + ? 8 92.0 psi

COST DATA

Total annual cost of operating water system:	+ ?	9	\$7,555,663	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	9	\$503.89	\$/Million gallons <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0

American Water Works Association.
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Water Audit Report for: PAW- New Castle / Ellwood Ditric 310 (6370034;6370011)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	43.106	MG/Yr
+	Real Losses:	943.664	MG/Yr
=	Water Losses:	986.770	MG/Yr

? Unavoidable Annual Real Losses (UARL): 269.86 MG/Yr

Annual cost of Apparent Losses: \$438,389

Annual cost of Real Losses: \$475,503 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	38.5%	
		Non-revenue water as percent by cost of operating system:	12.2%	Real Losses valued at Variable Production Cost

Operational Efficiency:	{	Apparent Losses per service connection per day:	4.01	gallons/connection/day
		Real Losses per service connection per day:	87.77	gallons/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per psi pressure:	0.95	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 943.66 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 3.50

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: **PAW- Norristown District 510 (1460046)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="text" value="9"/>	<input type="text" value="3,327.300"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Water imported:	<input type="text" value="9"/>	<input type="text" value="36.740"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Water exported:	<input type="text" value="10"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

Master Meter and Supply Error Adjustments

Pcnt:	<input type="text" value="9"/>	<input type="text" value="1.14%"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	MG/Yr
Value:					MG/Yr
					MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 3,326.536 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="text" value="10"/>	<input type="text" value="2,319.379"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Billed unmetered:	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Unbilled metered:	<input type="text" value="10"/>	<input type="text" value="0.097"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Unbilled unmetered:	<input type="text" value="10"/>	<input style="background-color: yellow;" type="text" value="14.902"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 2,334.378 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

992.158 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="text" value="7"/>	<input style="background-color: yellow;" type="text" value="8.316"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed					
Customer metering inaccuracies:	<input type="text" value="7"/>	<input style="background-color: yellow;" type="text" value="47.336"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Systematic data handling errors:	<input type="text" value="7"/>	<input style="background-color: yellow;" type="text" value="5.798"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed					
Apparent Losses:	<input type="text" value="7"/>	<input style="background-color: yellow;" type="text" value="61.451"/>	MG/Yr	<input type="text" value="+"/>	<input type="text" value="?"/>

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 930.707 MG/Yr

WATER LOSSES: 992.158 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,007.157 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="text" value="9"/>	<input type="text" value="385.2"/>	miles	<input type="text" value="+"/>	<input type="text" value="?"/>
Number of active AND inactive service connections:	<input type="text" value="9"/>	<input type="text" value="30,963"/>		<input type="text" value="+"/>	<input type="text" value="?"/>
Service connection density:	<input type="text" value="7"/>	<input style="background-color: yellow;" type="text" value="80"/>	conn./mile main	<input type="text" value="+"/>	<input type="text" value="?"/>

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="text" value="9"/>	<input type="text" value="\$9,503,422"/>	\$/Year	<input type="text" value="+"/>	<input type="text" value="?"/>
Customer retail unit cost (applied to Apparent Losses):	<input type="text" value="9"/>	<input type="text" value="\$10.17"/>	\$/1000 gallons (US)	<input type="text" value="+"/>	<input type="text" value="?"/>
Variable production cost (applied to Real Losses):	<input type="text" value="9"/>	<input type="text" value="\$538.38"/>	\$/Million gallo	<input type="text" value="+"/>	<input type="text" value="?"/>

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Norristown District 510 (1460046)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	61.451	MG/Yr
+	Real Losses:	930.707	MG/Yr
=	Water Losses:	992.158	MG/Yr

? Unavoidable Annual Real Losses (UARL): 221.83 MG/Yr

Annual cost of Apparent Losses: \$624,957

Annual cost of Real Losses: \$501,074 Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: { Non-revenue water as percent by volume of Water Supplied: 30.3%
 Non-revenue water as percent by cost of operating system: 11.9% Real Losses valued at Variable Production Cost

Operational { Apparent Losses per service connection per day: 5.44 gallons/connection/day
 Real Losses per service connection per day: 82.35 gallons/connection/day
 Real Losses per length of main per day*: N/A
 Real Losses per service connection per day per psi pressure: 1.03 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 930.71 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 4.20

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

AWWA
American Water Works Association

Water Audit Report for: PAW- Phillipsburg District 720 (District 720)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	805.320	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.83%	<input type="text" value=""/>
		<input type="text" value=""/>
		<input type="text" value=""/>

Enter negative % or value for under-registration
 Enter positive % or value for over-registration

WATER SUPPLIED: 798.691 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	463.017	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	3.234	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 466.251 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

332.440 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>		1.997	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	9.449	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		1.158	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
Apparent Losses:	<input type="button" value=" ?"/>		12.604	MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 319.836 MG/Yr

WATER LOSSES: 332.440 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 335.674 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	318.6	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	10,297	
Service connection density:	<input type="button" value=" ?"/>		32	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$2,287,484	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$557.87	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Phillipsburg District 720 (District 720)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 *****

System Attributes:

	Apparent Losses:	12.604	MG/Yr
	+	Real Losses:	319.836 MG/Yr
	=	Water Losses:	332.440 MG/Yr

?

Unavoidable Annual Real Losses (UARL): 126.97 MG/Yr

Annual cost of Apparent Losses: \$128,179

Annual cost of Real Losses: \$178,427 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 42.0%

Non-revenue water as percent by cost of operating system: 13.5% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 3.35 gallons/connection/day

Real Losses per service connection per day: 85.10 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.86 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 319.84 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.52

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association

Water Audit Report for: PAW-Pittsburgh Division (Districts 110;210;220) (5020039;5020039-MC;5020039)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	22,289.159	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	9	6.841	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	9	495.910	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.21%	<input type="text" value=""/>
		<input type="text" value=""/>
n/a	0.00%	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 21,753.381 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	13,474.497	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	69.863	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	34.618	MG/Yr

Click here: for help using option

Pcnt:	Value:	MG/Yr
	<input type="text" value="34.618"/>	

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 13,578.978 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

8,174.403 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>		54.383	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	276.416	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		33.686	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
Apparent Losses:	<input type="button" value="+ ?"/>		364.485	MG/Yr

Pcnt:	Value:	MG/Yr
0.25%	<input type="text" value=""/>	

2.00%	<input type="text" value=""/>	MG/Yr
0.25%	<input type="text" value=""/>	MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 7,809.918 MG/Yr

WATER LOSSES: 8,174.403 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 8,278.884 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	3,098.2	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	205,545	
Service connection density:	<input type="button" value="+ ?"/>		66	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 ft

Average operating pressure: 8 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$61,554,216	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$361.62	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW-Pittsburgh Division (Districts 110;210;220) (5020039;5020039-MC;5020039)**
Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

	Apparent Losses:	364.485	MG/Yr
	+ Real Losses:	7,809.918	MG/Yr
	= Water Losses:	8,174.403	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 2,111.31 MG/Yr

Annual cost of Apparent Losses: \$3,706,815

Annual cost of Real Losses: \$2,824,222 Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	38.1%	
Non-revenue water as percent by cost of operating system:	10.7%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	4.86	gallons/connection/day
Real Losses per service connection per day:	104.10	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.95	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 7,809.92 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 3.70

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

? Click to access
+ Click to add a

Water Audit Report for: **PAW- Pocono District 570 (2450063)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="text" value="9"/>	617.958	MG/Yr	<input type="text" value="+ ?"/>
Water imported:	<input type="text" value="n/a"/>	0.000	MG/Yr	<input type="text" value="+ ?"/>
Water exported:	<input type="text" value="n/a"/>	0.000	MG/Yr	<input type="text" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	<input type="text" value="9"/>	<input type="text" value="-0.66%"/>	<input type="text" value=""/>	MG/Yr
Value:	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	MG/Yr
	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 622.064 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="text" value="10"/>	377.858	MG/Yr	<input type="text" value="+ ?"/>
Billed unmetered:	<input type="text" value="n/a"/>	0.000	MG/Yr	<input type="text" value="+ ?"/>
Unbilled metered:	<input type="text" value="9"/>	6.892	MG/Yr	<input type="text" value="+ ?"/>
Unbilled unmetered:	<input type="text" value="10"/>	1.165	MG/Yr	<input type="text" value="+ ?"/>

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 385.915 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

236.149 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="7"/>	7.852	MG/Yr	<input type="text" value="+ ?"/>
Systematic data handling errors:	<input type="text" value=""/>	0.945	MG/Yr	<input type="text" value="+ ?"/>

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 10.352 MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 225.797 MG/Yr

WATER LOSSES: 236.149 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 244.206 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="text" value="9"/>	156.4	miles	<input type="text" value="+ ?"/>
Number of active AND inactive service connections:	<input type="text" value="9"/>	9,956		<input type="text" value="+ ?"/>
Service connection density:	<input type="text" value=""/>	64	conn./mile main	<input type="text" value=""/>

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="text" value="9"/>	\$2,423,374	\$/Year	<input type="text" value="+ ?"/>
Customer retail unit cost (applied to Apparent Losses):	<input type="text" value="9"/>	\$10.17	\$/1000 gallons (US)	<input type="text" value="+ ?"/>
Variable production cost (applied to Real Losses):	<input type="text" value="9"/>	\$527.92	\$/Million gallo	<input type="text" value="+ ?"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Pocono District 570 (2450063)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 *****

System Attributes:

Apparent Losses:	10.352	MG/Yr
+	Real Losses:	225.797
=	Water Losses:	236.149
		MG/Yr

?

Unavoidable Annual Real Losses (UARL): 64.77 MG/Yr

Annual cost of Apparent Losses: \$105,278

Annual cost of Real Losses: \$119,203 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 39.3%

Non-revenue water as percent by cost of operating system: 9.4% Real Losses valued at Variable Production Cost

Operational: {

Apparent Losses per service connection per day: 2.85 gallons/connection/day

Real Losses per service connection per day: 62.14 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.92 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 225.80 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 3.49

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for:

Reporting Year:

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	<input type="text" value="9"/>	<input type="text" value="287.277"/>	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	<input type="text" value="-1.00%"/>	Value:	<input type="text"/>	MG/Yr
	<input type="text"/>		<input type="text"/>	MG/Yr
	<input type="text"/>		<input type="text"/>	MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	<input type="text" value="10"/>	<input type="text" value="213.675"/>	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	<input type="text" value="10"/>	<input type="text" value="0.103"/>	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	<input type="text" value="10"/>	<input type="text" value="1.121"/>	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>	<input type="text" value="7"/>	<input type="text" value="0.725"/>	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	<input type="text" value="7"/>	<input type="text" value="4.363"/>	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>	<input type="text" value="7"/>	<input type="text" value="0.534"/>	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
Apparent Losses:	<input type="button" value="?"/>	<input type="text" value="7"/>	<input type="text" value="5.622"/>	MG/Yr

Pcnt: Value:

Real Losses (Current Annual Real Losses or CARL)

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

WATER LOSSES: MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	<input type="text" value="9"/>	<input type="text" value="86.7"/>	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	<input type="text" value="9"/>	<input type="text" value="3,624"/>	
Service connection density:	<input type="button" value="?"/>	<input type="text" value="7"/>	<input type="text" value="42"/>	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	<input type="text" value="9"/>	<input type="text" value="\$1,036,091"/>	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	<input type="text" value="9"/>	<input type="text" value="\$10.17"/>	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	<input type="text" value="9"/>	<input type="text" value="\$480.56"/>	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Punxsutawney District 420 (6330010)
Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	5.622	MG/Yr	
+	Real Losses:	69.657	MG/Yr	
=	Water Losses:	75.280	MG/Yr	

?

Unavoidable Annual Real Losses (UARL): 37.80 MG/Yr

Annual cost of Apparent Losses: \$57,180

Annual cost of Real Losses: \$33,475 Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	26.4%	
Non-revenue water as percent by cost of operating system:	8.8%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	4.25	gallons/connection/day
Real Losses per service connection per day:	52.66	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.56	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 69.66 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.84

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

Water Audit Report for: PAW- Royersford District 640 (1150166;1150206)

Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	1,488.138	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	9	56.136	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.13%	<input type="text" value=""/>
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 1,546.211 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	1,333.098	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.010	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	9.954	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 1,343.062 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

203.149 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>	3.866	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed			
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	27.206
Systematic data handling errors:	<input type="button" value="+ ?"/>	3.333	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed			
Apparent Losses:	<input type="button" value="?"/>	34.405	MG/Yr

Pcnt: Value: MG/Yr

MG/Yr

MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 168.745 MG/Yr

WATER LOSSES: 203.149 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 213.113 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	280.8	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	16,501	
Service connection density:	<input type="button" value="?"/>	59	conn./mile main	

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 ft

Average operating pressure: 8 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$5,222,883	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$421.91	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Royersford District 640 (1150166;1150206)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

	Apparent Losses:	34.405	MG/Yr
+	Real Losses:	168.745	MG/Yr
=	Water Losses:	203.149	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 114.40 MG/Yr

Annual cost of Apparent Losses: \$349,894

Annual cost of Real Losses: \$71,195 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 13.8%

Non-revenue water as percent by cost of operating system: 8.1% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 5.71 gallons/connection/day

Real Losses per service connection per day: 28.02 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.40 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 168.74 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.48

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
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? Click to access definition
+ Click to add a comment

Water Audit Report for: PAW - Steelton District (7220036)
Reporting Year: 2020 1/2020 - 12/2020

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 (n/a or 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

To select the correct data grading for each input, determine the highest grade below the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	9	440.842	MG/Yr
Water imported:	+ ?	4	4.739	MG/Yr
Water exported:	+ ?	9	0.000	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
+ ? 6 -1.40%	<input checked="" type="radio"/> <input type="radio"/>	MG/Yr
+ ? 6	<input type="radio"/> <input checked="" type="radio"/>	MG/Yr
+ ?	<input type="radio"/> <input checked="" type="radio"/>	MG/Yr

WATER SUPPLIED: 451.840 MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	9	297.102	MG/Yr
Billed unmetered:	+ ?	n/a		MG/Yr
Unbilled metered:	+ ?	9	14.145	MG/Yr
Unbilled unmetered:	+ ?	9	12.292	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: 323.539 MG/Yr

Click here: ?
for help using option buttons below

Pcnt: Value: MG/Yr
 12.292

Use buttons to select percentage of water supplied OR value

Pcnt: Value: MG/Yr
0.25%

2.00% MG/Yr
0.25% MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

128.301 MG/Yr

Apparent Losses

Unauthorized consumption: + ? 1.130 MG/Yr

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

Customer metering inaccuracies:	+ ?	5	6.352	MG/Yr
Systematic data handling errors:	+ ?	4	0.000	MG/Yr

Systematic data handling errors are likely, please enter a positive, non-zero value; otherwise grade = 1 (not displayed)

Apparent Losses: 7.482 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 120.820 MG/Yr

WATER LOSSES: 128.301 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 154.738 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	7	28.3	miles
Number of active AND inactive service connections:	+ ?	5	2,415	
Service connection density:	?		85	conn./mile main

Are customer meters typically located at the curbside or property line? No
Average length of customer service line: + ? 5 14.4 ft (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average operating pressure: + ? 5 83.6 psi

COST DATA

Total annual cost of operating water system:	+ ?	4	\$674,864	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	5	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	5	\$706.86	\$/Million gallons <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 69 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: Systematic data handling errors
- 2: Total annual cost of operating water system
- 3: Customer metering inaccuracies



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.
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Water Audit Report for: **PAW - Steelton District (7220036)**
Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 69 out of 100 *****

System Attributes:

	Apparent Losses:	7.482	MG/Yr
+	Real Losses:	120.820	MG/Yr
=	Water Losses:	128.301	MG/Yr

? Unavoidable Annual Real Losses (UARL): 17.23 MG/Yr

Annual cost of Apparent Losses: \$76,088

Annual cost of Real Losses: \$85,403 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	34.2%	
		Non-revenue water as percent by cost of operating system:	26.7%	Real Losses valued at Variable Production Cost

Operational Efficiency:	{	Apparent Losses per service connection per day:	8.49	gallons/connection/day
		Real Losses per service connection per day:	137.07	gallons/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per psi pressure:	1.64	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 120.82 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 7.01

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

Water Audit Report for: PAW- Susquehanna District 540 (2580224;2580023;2580026)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	252.905	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	9	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.92%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
 Enter positive % or value for over-registration

WATER SUPPLIED: 255.253 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	128.078	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.019	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	21.658	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: 149.755 MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

105.498 MG/Yr

Apparent Losses

Unauthorized consumption: 0.638 MG/Yr
 Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	2.614	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		0.320	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 3.573 MG/Yr

Pcnt: Value: MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 101.926 MG/Yr

WATER LOSSES: 105.498 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 127.175 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	62.1	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	2,893	
Service connection density:	<input type="button" value="+ ?"/>		47	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 ft

Average operating pressure: 8 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$727,041	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$796.77	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Susquehanna District 540 (2580224;2580023;2580026)**
Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 *****

System Attributes:

	Apparent Losses:	3.573	MG/Yr
+	Real Losses:	101.926	MG/Yr
=	Water Losses:	105.498	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 24.44 MG/Yr

Annual cost of Apparent Losses: \$36,333

Annual cost of Real Losses: \$81,211 Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	49.8%	
Non-revenue water as percent by cost of operating system:	18.5%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	3.38	gallons/connection/day
Real Losses per service connection per day:	96.53	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	1.22	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 101.93 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 4.17

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: PAW- Uniontown/Connellsville District 230 (5260022;5260020)
Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

		----- Enter grading in column 'E' and 'J' ----->			
Volume from own sources:	<input type="button" value="+ ?"/>	9	629.774	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	9	731.771	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	9	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

		Pcnt:	Value:	
9	0.00%	<input type="radio"/>	<input type="text"/>	MG/Yr
n/a		<input type="radio"/>	<input type="text"/>	MG/Yr
		<input type="radio"/>	<input type="text"/>	MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 1,361.545 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	845.421	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	2.043	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>		17.019	MG/Yr

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

AUTHORIZED CONSUMPTION: 864.483 MG/Yr

Click here:
for help using option

Pcnt: Value: MG/Yr
1.25%

Use buttons to select percentage of water supplied
OR
value

WATER LOSSES (Water Supplied - Authorized Consumption)

497.062 MG/Yr

Apparent Losses

Unauthorized consumption: 3.404 MG/Yr

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

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	17.295	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		2.114	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 22.813 MG/Yr

Pcnt: Value: MG/Yr
0.25%

MG/Yr
2.00%

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 474.249 MG/Yr

WATER LOSSES: 497.062 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 516.124 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	231.6	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	11,620	
Service connection density:	<input type="button" value=" ?"/>		50	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 16.3 ft

Average operating pressure: 8 98.0 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$3,889,497	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$1,367.54	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Unauthorized consumption

2: Systematic data handling errors

3: Customer metering inaccuracies



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Uniontown/Connellsville District 230 (5260022;5260020)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 ***

System Attributes:

	Apparent Losses:	22.813	MG/Yr	
+	Real Losses:	474.249	MG/Yr	
=	Water Losses:	497.062	MG/Yr	



Unavoidable Annual Real Losses (UARL): 116.79 MG/Yr

Annual cost of Apparent Losses: \$232,004

Annual cost of Real Losses: \$648,555 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 37.9%

Non-revenue water as percent by cost of operating system: 23.3% Real Losses valued at Variable Production Cost

Operational: {

Apparent Losses per service connection per day: 5.38 gallons/connection/day

Real Losses per service connection per day: 111.82 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 1.14 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 474.25 million gallons/year



Infrastructure Leakage Index (ILI) [CARL/UARL]: 4.06

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: PAW- Warren District 450 (6620020)

Reporting Year: 2020 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	525.291	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	9	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-4.23%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 548.492 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	354.272	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.000	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	16.194	MG/Yr

Unbilled Unmetered volume entered is greater than the recommended default value

AUTHORIZED CONSUMPTION: 370.466 MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

178.026 MG/Yr

Apparent Losses

Unauthorized consumption: 1.371 MG/Yr

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

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	7.230	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		0.886	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 9.487 MG/Yr

Pcnt: Value: MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 168.539 MG/Yr

WATER LOSSES: 178.026 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 194.220 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	88.7	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	5,748	
Service connection density:	<input type="button" value="?"/>		65	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$1,560,730	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$149.38	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: **PAW- Warren District 450 (6620020)**
 Reporting Year: **2020** | **1/2020 - 12/2020**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 *****

System Attributes:

	Apparent Losses:	9.487	MG/Yr
	+ Real Losses:	168.539	MG/Yr
	= Water Losses:	178.026	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 46.53 MG/Yr

Annual cost of Apparent Losses: \$96,482

Annual cost of Real Losses: \$25,176 Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	35.4%	
Non-revenue water as percent by cost of operating system:	7.9%	Real Losses valued at Variable Production Cost

Operational: {

Apparent Losses per service connection per day:	4.52	gallons/connection/day
Real Losses per service connection per day:	80.33	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.95	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 168.54 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 3.62

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: **Wilkes-Barre, Scranton (District 910)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	16,649.245	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	10	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.10%	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **16,665.911** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	9,441.344	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	229.586	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	133.767	MG/Yr

Click here:
for help using option

Pcnt:	Value:	MG/Yr
<input type="text"/>	<input type="text"/>	<input type="text"/>

Use buttons to select percentage of water supplied
OR
value

AUTHORIZED CONSUMPTION: **9,804.697** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

6,861.214 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>		41.665	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	197.366	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		23.603	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
Apparent Losses:	<input type="button" value=" ?"/>		262.634	MG/Yr

Pcnt:	Value:	MG/Yr
0.25%	<input type="text"/>	<input type="text"/>

2.00%	<input type="text"/>	<input type="text"/>
0.25%	<input type="text"/>	<input type="text"/>

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **6,598.580** MG/Yr

WATER LOSSES: **6,861.214** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **7,224.567** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	1,774.0	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	124,837	
Service connection density:	<input type="button" value=" ?"/>		70	conn./mile main

Are customer meters typically located at the curbside or property line? No (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 8 18.1 ft

Average operating pressure: 8 95.0 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$39,052,358	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$193.53	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: Wilkes-Barre_Scranton (District 910)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	262.634	MG/Yr
+	Real Losses:	6,598.580	MG/Yr
=	Water Losses:	6,861.214	MG/Yr



Unavoidable Annual Real Losses (UARL): 1,093.39 MG/Yr

Annual cost of Apparent Losses: \$2,670,988

Annual cost of Real Losses: \$1,277,023 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 43.3%

Non-revenue water as percent by cost of operating system: 10.3% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 5.76 gallons/connection/day

Real Losses per service connection per day: 144.82 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 1.52 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 6,598.58 million gallons/year



Infrastructure Leakage Index (ILI) [CARL/UARL]: 6.03

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS
American Water Works Association

Water Audit Report for: **PAW- Wyomissing_Penn District 630 (3060069)**
Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	961.253	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	-0.47%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **965.792** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	771.979	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	10	0.506	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	11.499	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: **783.984** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

181.808 MG/Yr

Apparent Losses

Unauthorized consumption: **2.414** MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	15.765	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		1.930	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **20.109** MG/Yr

Pcnt: Value: MG/Yr

MG/Yr
 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **161.699** MG/Yr

WATER LOSSES: **181.808** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **193.813** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	162.1	miles
Number of active AND inactive service connections:	<input type="button" value="+ ?"/>	9	11,740	
Service connection density:	<input type="button" value="?"/>		72	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: ft

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$3,584,174	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$171.59	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 86 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Wyomissing_Penn District 630 (3060069)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 86 out of 100 ***

System Attributes:

	Apparent Losses:	20.109	MG/Yr
+	Real Losses:	161.699	MG/Yr
=	Water Losses:	181.808	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 94.02 MG/Yr

Annual cost of Apparent Losses: \$204,513

Annual cost of Real Losses: \$27,746 Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied:	20.1%	
Non-revenue water as percent by cost of operating system:	6.5%	Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day:	4.69	gallons/connection/day
Real Losses per service connection per day:	37.74	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.44	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 161.70 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.72

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

AWWA
American Water Works Association

Water Audit Report for: **PAW- Yardley District 520 (1090074)**

Reporting Year: **2020** 1/2020 - 12/2020

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

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

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+ ?"/>	9	1,088.351	MG/Yr	<input type="button" value="+ ?"/>
Water imported:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr	<input type="button" value="+ ?"/>
Water exported:	<input type="button" value="+ ?"/>	9	65.554	MG/Yr	<input type="button" value="+ ?"/>

Master Meter and Supply Error Adjustments

Pcnt:	Value:	MG/Yr
9	0.03%	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>
<input type="radio"/>	<input type="radio"/>	<input type="text" value=""/>

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **1,022.471** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+ ?"/>	10	868.985	MG/Yr
Billed unmetered:	<input type="button" value="+ ?"/>	n/a	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+ ?"/>	9	0.370	MG/Yr
Unbilled unmetered:	<input type="button" value="+ ?"/>	10	11.430	MG/Yr

Click here: for help using option

Pcnt: Value: MG/Yr

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: **880.785** MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

141.686 MG/Yr

Apparent Losses

Unauthorized consumption:	<input type="button" value="+ ?"/>		2.556	MG/Yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed				
Customer metering inaccuracies:	<input type="button" value="+ ?"/>	7	17.742	MG/Yr
Systematic data handling errors:	<input type="button" value="+ ?"/>		2.172	MG/Yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed				
Apparent Losses:	<input type="button" value=" ?"/>		22.471	MG/Yr

Pcnt: Value: MG/Yr

Value: MG/Yr

Value: MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **119.215** MG/Yr

WATER LOSSES: **141.686** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: **153.486** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+ ?"/>	9	192.3	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	<input type="button" value="+ ?"/>	9	11,505	
Service connection density:	<input type="button" value=" ?"/>		60	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: 7 ft

Average operating pressure: 8 psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+ ?"/>	9	\$3,659,286	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+ ?"/>	9	\$10.17	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+ ?"/>	9	\$348.83	\$/Million gallo Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 85 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: Systematic data handling errors



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: PAW- Yardley District 520 (1090074)
 Reporting Year: 2020 | 1/2020 - 12/2020

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 85 out of 100 ***

System Attributes:

	Apparent Losses:	22.471	MG/Yr
+	Real Losses:	119.215	MG/Yr
=	Water Losses:	141.686	MG/Yr

?

Unavoidable Annual Real Losses (UARL): 71.15 MG/Yr

Annual cost of Apparent Losses: \$228,526

Annual cost of Real Losses: \$41,586 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {

Non-revenue water as percent by volume of Water Supplied: 15.0%

Non-revenue water as percent by cost of operating system: 7.5% Real Losses valued at Variable Production Cost

Operational {

Apparent Losses per service connection per day: 5.35 gallons/connection/day

Real Losses per service connection per day: 28.39 gallons/connection/day

Real Losses per length of main per day*: N/A

Real Losses per service connection per day per psi pressure: 0.45 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 119.22 million gallons/year

?

Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.68

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline