

Appendix D AWWA Water Loss Audits

AWWA Free Water Audit Software v5.0

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This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:

Email Address:

Telephone (incl Ext.):

Name of City / Utility:

City/Town/Municipality:

State / Province:

Country:

Year:

Start Date: Enter MM/YYYY numeric format

End Date: Enter MM/YYYY numeric format

Audit Preparation Date:

Volume Reporting Units:

PWSID / Other ID:

The following guidance will help you complete the Audit

All audit data are entered on the [Reporting Worksheet](#)

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

<p><u>Instructions</u></p> <p>The current sheet. Enter contact information and basic audit details (year, units etc)</p>	<p><u>Reporting Worksheet</u></p> <p>Enter the required data on this worksheet to calculate the water balance and data grading</p>	<p><u>Comments</u></p> <p>Enter comments to explain how values were calculated or to document data sources</p>	<p><u>Performance Indicators</u></p> <p>Review the performance indicators to evaluate the results of the audit</p>	<p><u>Water Balance</u></p> <p>The values entered in the Reporting Worksheet are used to populate the Water Balance</p>	<p><u>Dashboard</u></p> <p>A graphical summary of the water balance and Non-Revenue Water components</p>
<p><u>Grading Matrix</u></p> <p>Presents the possible grading options for each input component of the audit</p>	<p><u>Service Connection Diagram</u></p> <p>Diagrams depicting possible customer service connection line configurations</p>	<p><u>Definitions</u></p> <p>Use this sheet to understand the terms used in the audit process</p>	<p><u>Loss Control Planning</u></p> <p>Use this sheet to interpret the results of the audit validity score and performance indicators</p>	<p><u>Example Audits</u></p> <p>Reporting Worksheet and Performance Indicators examples are shown for two validated audits</p>	<p><u>Acknowledgements</u></p> <p>Acknowledgements for the AWWA Free Water Audit Software v5.0</p>

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association

?	Click to access definition
+	Click to add a comment

Water Audit Report for: **Amador Water Agency (AWS Raw)**
 Reporting Year: **2015** **1/2015 - 12/2015**

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: ACRE-FEET 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.

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

WATER SUPPLIED

Volume from own sources:	+	?	5	5,129.000	acre-ft/yr
Water imported:	+	?			acre-ft/yr
Water exported:	+	?	9	3,186.050	acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	+	?	3	[radio buttons]	Value:		acre-ft/yr
	+	?					acre-ft/yr
	+	?	5				acre-ft/yr

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

WATER SUPPLIED: **1,942.950** acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered:	+	?	7	278.180	acre-ft/yr
Billed unmetered:	+	?			acre-ft/yr
Unbilled metered:	+	?		0.000	acre-ft/yr
Unbilled unmetered:	+	?		24.287	acre-ft/yr

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

AUTHORIZED CONSUMPTION: **302.467** acre-ft/yr

Click here: ?
for help using option buttons below

Pcnt:	1.25%	[radio buttons]	Value:		acre-ft/yr
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Use buttons to select percentage of water supplied OR value

Pcnt:	0.25%	[radio buttons]	Value:		acre-ft/yr
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Pcnt:	0.25%	[radio buttons]	Value:		acre-ft/yr
-------	-------	-----------------	--------	--	------------

WATER LOSSES (Water Supplied - Authorized Consumption)

1,640.483 acre-ft/yr

Apparent Losses

Unauthorized consumption:	+	?		4.857	acre-ft/yr
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Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	4	0.000	acre-ft/yr
Systematic data handling errors:	+	?	7	0.695	acre-ft/yr

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

Apparent Losses: **5.553** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **1,634.930** acre-ft/yr

WATER LOSSES: **1,640.483** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **1,664.770** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	7	46.4	miles
Number of active AND inactive service connections:	+	?	7	168	
Service connection density:	?			4	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 3 60.0 psi

COST DATA

Total annual cost of operating water system:	+	?	9	\$163,256	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	7	\$0.79	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+	?	7	\$2.11	\$/acre-ft <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 65 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: Customer metering inaccuracies
- 3: Billed metered



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

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+	Click to add a comment

Water Audit Report for: Amador Water Agency (Buckhorn - 0310012)
Reporting Year: 2015 1/2015 - 12/2015

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: ACRE-FEET 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.

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

WATER SUPPLIED

Volume from own sources:	+ ?	9	677.940	acre-ft/yr
Water imported:	+ ?	n/a		acre-ft/yr
Water exported:	+ ?	7	191.500	acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	9	9	9	9	Value:		acre-ft/yr
	+	?	+	?			acre-ft/yr
	+	?	+	?			acre-ft/yr

WATER SUPPLIED: 486.440 acre-ft/yr

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

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	9	395.950	acre-ft/yr
Billed unmetered:	+ ?	n/a		acre-ft/yr
Unbilled metered:	+ ?	n/a		acre-ft/yr
Unbilled unmetered:	+ ?	5	6.081	acre-ft/yr

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

AUTHORIZED CONSUMPTION: 402.031 acre-ft/yr

Click here: ?
for help using option buttons below

Pcnt:	1.25%	1.25%	1.25%	1.25%	Value:		acre-ft/yr
-------	-------	-------	-------	-------	--------	--	------------

Use buttons to select percentage of water supplied
OR
value

Pcnt:	0.25%	0.25%	0.25%	0.25%	Value:		acre-ft/yr
-------	-------	-------	-------	-------	--------	--	------------

WATER LOSSES (Water Supplied - Authorized Consumption)

84.410 acre-ft/yr

Apparent Losses

Unauthorized consumption: + ? 1.216 acre-ft/yr

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

Customer metering inaccuracies:	+ ?	7	0.000	acre-ft/yr
Systematic data handling errors:	+ ?	5	0.990	acre-ft/yr

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

Apparent Losses: 2.206 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 82.204 acre-ft/yr

WATER LOSSES: 84.410 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 90.490 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	3	91.2	miles
Number of <u>active</u> AND <u>inactive</u> service connections:	+ ?	3	2,398	
Service connection density:	?	?	26	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 3 50.0 psi

COST DATA

Total annual cost of operating water system:	+ ?	10	\$2,984,102	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$3.08	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+ ?	9	\$291.67	\$/acre-ft <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 80 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: Reporting Worksheet

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Water Audit Report for: **Amador Water Agency (Ione - 0310002)**
Reporting Year: **2015** / 1/2015 - 12/2015

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: ACRE-FEET 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.

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

WATER SUPPLIED

Volume from own sources: + ? 9 1,038.640 acre-ft/yr
Water imported: + ? [] [] acre-ft/yr
Water exported: + ? [] [] acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt: [] [] [] [] Value: [] [] [] []
+ ? 3 [] [] [] [] acre-ft/yr
+ ? [] [] [] [] acre-ft/yr
+ ? [] [] [] [] acre-ft/yr

WATER SUPPLIED: 1,038.640 acre-ft/yr

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

AUTHORIZED CONSUMPTION

Billed metered: + ? 7 973.140 acre-ft/yr
Billed unmetered: + ? [] [] acre-ft/yr
Unbilled metered: + ? [] [] acre-ft/yr
Unbilled unmetered: + ? 5 12.983 acre-ft/yr

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

AUTHORIZED CONSUMPTION: 986.123 acre-ft/yr

Click here: ?
for help using option buttons below

Pcnt: 1.25% [] [] [] [] Value: [] [] [] []
[] [] [] [] acre-ft/yr

Use buttons to select percentage of water supplied OR value

Pcnt: 0.25% [] [] [] [] Value: [] [] [] []
[] [] [] [] acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

52.517 acre-ft/yr

Apparent Losses

Unauthorized consumption: + ? 2.597 acre-ft/yr

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

Customer metering inaccuracies: + ? 5 0.000 acre-ft/yr
Systematic data handling errors: + ? 7 2.433 acre-ft/yr

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

Apparent Losses: 5.029 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 47.488 acre-ft/yr

WATER LOSSES: 52.517 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 65.500 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains: + ? 5 50.6 miles
Number of active AND inactive service connections: + ? 4 1,971
Service connection density: ? 39 conn./mile main

Are customer meters typically located at the curbside or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 5 70.0 psi

COST DATA

Total annual cost of operating water system: + ? 9 \$2,168,379 \$/Year
Customer retail unit cost (applied to Apparent Losses): + ? 7 \$3.08 \$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses): + ? 7 \$138.34 \$/acre-ft Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 74 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: Customer metering inaccuracies
- 2: Volume from own sources
- 3: Billed metered



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

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Water Audit Report for: **Amador Water Agency (La Mel - 0310019)**
Reporting Year: **2015** 1/2015 - 12/2015

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: ACRE-FEET 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.

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

WATER SUPPLIED

Volume from own sources: + ? 9 12.250 acre-ft/yr
Water imported: + ? 12.250 acre-ft/yr
Water exported: + ? 12.250 acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt: 6 Value: 12.250 acre-ft/yr
Pcnt: 6 Value: 12.250 acre-ft/yr
Pcnt: 6 Value: 12.250 acre-ft/yr

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

WATER SUPPLIED: 12.250 acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered: + ? 7 12.060 acre-ft/yr
Billed unmetered: + ? 12.060 acre-ft/yr
Unbilled metered: + ? 12.060 acre-ft/yr
Unbilled unmetered: + ? 5 0.153 acre-ft/yr

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

AUTHORIZED CONSUMPTION: 12.213 acre-ft/yr

Click here: ?
for help using option buttons below

Pcnt: 1.25% Value: 12.250 acre-ft/yr

Use buttons to select percentage of water supplied OR value

Pcnt: 0.25% Value: 12.250 acre-ft/yr

Pcnt: 0.25% Value: 12.250 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

0.037 acre-ft/yr

Apparent Losses

Unauthorized consumption: + ? 0.031 acre-ft/yr

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

Customer metering inaccuracies: + ? 3 0.000 acre-ft/yr
Systematic data handling errors: + ? 7 0.030 acre-ft/yr

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

Apparent Losses: 0.061 acre-ft/yr

Check input values; APPARENT LOSSES should be less than WATER LOSSES

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? -0.024 acre-ft/yr

WATER LOSSES: 0.037 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 0.190 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains: + ? 7 1.3 miles
Number of active AND inactive service connections: + ? 7 57
Service connection density: ? 44 conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 5 47.0 psi

COST DATA

Total annual cost of operating water system: + ? 9 \$69,182 \$/Year
Customer retail unit cost (applied to Apparent Losses): + ? 7 \$3.08 \$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses): + ? 6 \$374.21 \$/acre-ft Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 72 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: Customer metering inaccuracies
- 2: Volume from own sources
- 3: Billed metered



AWWA Free Water Audit Software: Reporting Worksheet

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Water Audit Report for: **Amador Water Agency (Camanche - 0310021)**
 Reporting Year: **2015** 1/2015 - 12/2015

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: ACRE-FEET 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.

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

WATER SUPPLIED

Volume from own sources:	+	?	9	194.560	acre-ft/yr
Water imported:	+	?			acre-ft/yr
Water exported:	+	?	n/a		acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	+	?	3		acre-ft/yr
Value:					acre-ft/yr
Pcnt:	+	?			acre-ft/yr
Value:					acre-ft/yr

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

WATER SUPPLIED: **194.560** acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered:	+	?	7	152.100	acre-ft/yr
Billed unmetered:	+	?			acre-ft/yr
Unbilled metered:	+	?			acre-ft/yr
Unbilled unmetered:	+	?	5	2.432	acre-ft/yr

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

AUTHORIZED CONSUMPTION: **154.532** acre-ft/yr

Click here: ?
for help using option buttons below

Pcnt:	1.25%				acre-ft/yr
Value:					acre-ft/yr

Use buttons to select percentage of water supplied OR value

Pcnt:	0.25%				acre-ft/yr
Value:					acre-ft/yr

Pcnt:	5.00%				acre-ft/yr
Value:	0.25%				acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

40.028 acre-ft/yr

Apparent Losses

Unauthorized consumption:	+	?		0.486	acre-ft/yr
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Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	3	8.005	acre-ft/yr
Systematic data handling errors:	+	?	7	0.380	acre-ft/yr

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

Apparent Losses: **8.872** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **31.156** acre-ft/yr

WATER LOSSES: **40.028** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **42.460** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	5	18.1	miles
Number of active AND inactive service connections:	+	?	7	730	
Service connection density:	?			40	conn./mile main

Are customer meters typically located at the curbside or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	+	?	7	70.0	psi
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COST DATA

Total annual cost of operating water system:	+	?	9	\$578,234	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	7	\$3.08	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+	?	7	\$196.93	\$/acre-ft

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 73 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: Customer metering inaccuracies
- 2: Volume from own sources
- 3: Billed metered



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association

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+	Click to add a comment

Water Audit Report for: **Amador Water Agency (Tanner)**
 Reporting Year: **2015** **1/2015 - 12/2015**

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: ACRE-FEET 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.

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

WATER SUPPLIED

Volume from own sources:	+	?	9	1,908.970	acre-ft/yr
Water imported:	+	?			acre-ft/yr
Water exported:	+	?	7	964.780	acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:	acre-ft/yr			
+	?	3	<input type="radio"/> <input type="radio"/>		acre-ft/yr
+	?		<input type="radio"/> <input type="radio"/>		acre-ft/yr
+	?	5	<input type="radio"/> <input type="radio"/>		acre-ft/yr

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

WATER SUPPLIED: **944.190** acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered:	+	?	7	749.790	acre-ft/yr
Billed unmetered:	+	?			acre-ft/yr
Unbilled metered:	+	?		0.000	acre-ft/yr
Unbilled unmetered:	+	?	5	11.802	acre-ft/yr

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

AUTHORIZED CONSUMPTION: **761.592** acre-ft/yr

Click here: ?
 for help using option buttons below

Pcnt:	Value:	acre-ft/yr
1.25%	<input type="radio"/> <input type="radio"/>	

Use buttons to select percentage of water supplied
 OR
 value

Pcnt:	Value:	acre-ft/yr
0.25%	<input type="radio"/> <input type="radio"/>	

Pcnt:	Value:	acre-ft/yr
0.25%	<input type="radio"/> <input type="radio"/>	

WATER LOSSES (Water Supplied - Authorized Consumption)

182.598 acre-ft/yr

Apparent Losses

Unauthorized consumption:	+	?		2.360	acre-ft/yr
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Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	5	0.000	acre-ft/yr
Systematic data handling errors:	+	?	7	1.874	acre-ft/yr

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

Apparent Losses: **4.235** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **178.363** acre-ft/yr

WATER LOSSES: **182.598** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **194.400** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	5	68.8	miles
Number of active AND inactive service connections:	+	?	5	1,609	
Service connection density:	?			23	conn./mile main

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

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	+	?	5	110.0	psi
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COST DATA

Total annual cost of operating water system:	+	?	9	\$2,684,660	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	7	\$3.08	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+	?	7	\$93.19	\$/acre-ft

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 72 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: Customer metering inaccuracies
- 2: Water exported
- 3: Billed metered