



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: **City of Fresno (1010007)**
 Reporting Year: **2016** 1/2016 - 12/2016

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.

WATER SUPPLIED

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

Volume from own sources:	+	?	5	112,398.020	acre-ft/yr
Water imported:	+	?	n/a	0.000	acre-ft/yr
Water exported:	+	?	n/a	0.000	acre-ft/yr

Master Meter and Supply Error Adjustments

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

WATER SUPPLIED: **112,398.020** acre-ft/yr

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

AUTHORIZED CONSUMPTION

Billed metered:	+	?	9	103,038.468	acre-ft/yr
Billed unmetered:	+	?	n/a	0.000	acre-ft/yr
Unbilled metered:	+	?	10	42.876	acre-ft/yr
Unbilled unmetered:	+	?	5	280.995	acre-ft/yr

AUTHORIZED CONSUMPTION: **103,362.339** acre-ft/yr

Click here: ?
for help using option

Pcnt:	Value:	acre-ft/yr
	280.995	

Use buttons to select percentage of water supplied
OR
value

Pcnt:	Value:	acre-ft/yr
0.25%		

1.00%		acre-ft/yr
0.25%		acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

9,035.681 acre-ft/yr

Apparent Losses

Unauthorized consumption: **280.995** acre-ft/yr

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

Customer metering inaccuracies:	+	?	5	1,041.226	acre-ft/yr
Systematic data handling errors:	+	?		257.596	acre-ft/yr

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

Apparent Losses: **1,579.817** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **7,455.864** acre-ft/yr

WATER LOSSES: **9,035.681** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **9,359.552** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	9	1,810.39	miles
Number of active AND inactive service connections:	+	?	9	143,916	
Service connection density:	?			79	conn./mile main

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

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

Average operating pressure: **50.0** psi

COST DATA

Total annual cost of operating water system:	+	?	10	\$71,848,500	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	9	\$1.86	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+	?	5	\$152.10	\$/acre-ft

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 66 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: Variable production cost (applied to Real Losses)



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
Copyright © 2014, All Rights Reserved.

?	Click to access definition
+	Click to add a comment

Water Audit Report for: **City of Fresno**
 Reporting Year: **2017** **1/2017 - 12/2017**

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.

WATER SUPPLIED

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

Volume from own sources:	+ ?	5	121,079.641	acre-ft/yr
Water imported:	+ ?	n/a	0.000	acre-ft/yr
Water exported:	+ ?	n/a	0.000	acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:	acre-ft/yr
+ ?	5	
+ ?		
+ ?		

WATER SUPPLIED: **121,079.641** acre-ft/yr

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

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	9	110,520.840	acre-ft/yr
Billed unmetered:	+ ?	n/a	0.000	acre-ft/yr
Unbilled metered:	+ ?	10	48.124	acre-ft/yr
Unbilled unmetered:	+ ?	5	276.052	acre-ft/yr

AUTHORIZED CONSUMPTION: **110,845.016** acre-ft/yr

Click here: ? for help using option buttons below

Pcnt:	Value:	acre-ft/yr
	276.052	

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

10,234.625 acre-ft/yr

Apparent Losses

Unauthorized consumption: + ? **302.699** acre-ft/yr
 Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	5	1,116.858	acre-ft/yr
Systematic data handling errors:	+ ?		276.302	acre-ft/yr

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

Apparent Losses: **1,695.859** acre-ft/yr

Pcnt:	Value:	acre-ft/yr
0.25%		
1.00%		
0.25%		

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? **8,538.766** acre-ft/yr

WATER LOSSES: **10,234.625** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **10,558.801** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	1,854.4	miles
Number of active AND inactive service connections:	+ ?	9	146,212	
Service connection density:	?		79	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: + ? 4 50.0 psi

COST DATA

Total annual cost of operating water system:	+ ?	10	\$76,015,350	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	\$2.01	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	5	\$175.42	\$/acre-ft

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 66 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: Variable production cost (applied to Real Losses)



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
Copyright © 2014, All Rights Reserved.

?	Click to access definition
+	Click to add a comment

Water Audit Report for: **City of Fresno**
 Reporting Year: **2018** **1/2018 - 12/2018**

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.

WATER SUPPLIED

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

Volume from own sources:	+ ?	5	120,065.780	acre-ft/yr
Water imported:	+ ?	n/a		acre-ft/yr
Water exported:	+ ?	n/a		acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:			acre-ft/yr
+ ?	8	<input checked="" type="radio"/>	<input type="radio"/>	
+ ?		<input checked="" type="radio"/>	<input type="radio"/>	
+ ?		<input type="radio"/>	<input checked="" type="radio"/>	

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

WATER SUPPLIED: **120,065.780** acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	9	110,710.560	acre-ft/yr
Billed unmetered:	+ ?	n/a	0.000	acre-ft/yr
Unbilled metered:	+ ?	8	27.129	acre-ft/yr
Unbilled unmetered:	+ ?	5	300.164	acre-ft/yr

Click here: ?
for help using option buttons below

Pcnt:	Value:			acre-ft/yr
		<input type="radio"/>	<input checked="" type="radio"/>	300.164

Use buttons to select percentage of water supplied
OR value

AUTHORIZED CONSUMPTION: **111,037.853** acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

9,027.927 acre-ft/yr

Apparent Losses

Unauthorized consumption: + ? **300.164** acre-ft/yr

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

Customer metering inaccuracies:	+ ?	5	1,118.563	acre-ft/yr
Systematic data handling errors:	+ ?		276.776	acre-ft/yr

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

Apparent Losses: **1,695.503** acre-ft/yr

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

1.00%		<input type="radio"/>	<input checked="" type="radio"/>	
0.25%		<input checked="" type="radio"/>	<input type="radio"/>	

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **7,332.423** acre-ft/yr

WATER LOSSES: **9,027.927** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **9,355.220** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	1,854.7	miles
Number of active AND inactive service connections:	+ ?	9	146,608	
Service connection density:	?		79	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: + ? 10 53.3 psi

COST DATA

Total annual cost of operating water system:	+ ?	10	\$82,960,821	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	10	\$2.33	\$/1000 litres
Variable production cost (applied to Real Losses):	+ ?	5	\$178.06	\$/acre-ft

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 66 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: Variable production cost (applied to Real Losses)



AWWA Free Water Audit Software: Worksheet

FWAS v6.0

American Water Works Association

Water Audit Report for: **City of Fresno**
 Audit Year: **2019** **Jan 01 2019 - Dec 31 2019** **Calendar**

Click 'n' to add notes To edit water system info: [go to start page](#)
 Click 'g' to determine data validity grade

To access definitions, click the **input name** All volumes to be entered as: **ACRE-FEET PER YEAR**

Water Supplied Error Adjustments

choose entry option:

WATER SUPPLIED	Volume from Own Sources: <input type="text" value="n"/> <input type="text" value="g"/>	115,544.090	Acre-ft/Yr	<input type="text" value="n"/> <input type="text" value="g"/>	5.00%	<input type="text" value="percent"/>	<input type="text" value="under-registration"/>	<small>VOSEA WIEA WEEA</small>
	Water Imported: <input type="text" value="n"/> <input type="text" value="g"/>	0.000	Acre-ft/Yr					
	Water Exported: <input type="text" value="n"/> <input type="text" value="g"/>	0.000	Acre-ft/Yr					

WATER SUPPLIED: 121,625.358 Acre-ft/Yr

AUTHORIZED CONSUMPTION

BMAC	Billed Metered: <input type="text" value="n"/> <input type="text" value="g"/>	106,485.360	Acre-ft/Yr				
BUAC	Billed Unmetered: <input type="text" value="n"/> <input type="text" value="g"/>	0.000	Acre-ft/Yr				
UMAC	Unbilled Metered: <input type="text" value="n"/> <input type="text" value="g"/>	52.635	Acre-ft/Yr				
UUAC	Unbilled Unmetered: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="3"/>	266.213	Acre-ft/Yr			<input type="text" value="0.25%"/> <input type="text" value="default"/>	

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 106,804.208 Acre-ft/Yr

WATER LOSSES

14,821.149 Acre-ft/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="3"/>	266.213	Acre-ft/Yr			<input type="text" value="0.25%"/> <input type="text" value="default"/>	
CMI	Customer Metering Inaccuracies: <input type="text" value="n"/> <input type="text" value="g"/>	1,076.141	Acre-ft/Yr			<input type="text" value="1.00%"/> <input type="text" value="percent"/>	<input type="text" value="under-registration"/>
UC	Unauthorized Consumption: <input type="text" value="n"/> <input type="text" value="g"/> <input type="text" value="3"/>	266.213	Acre-ft/Yr			<input type="text" value="0.25%"/> <input type="text" value="default"/>	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 1,608.568 Acre-ft/Yr

Real Losses

Real Losses: 13,212.581 Acre-ft/Yr

WATER LOSSES: 14,821.149 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 15,139.998 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains: <input type="text" value="n"/> <input type="text" value="g"/>	1,862.2	miles				
Nc	Number of service connections: <input type="text" value="n"/> <input type="text" value="g"/>	147,633				(including fire hydrant lead lengths)	
	Service connection density: <input type="text" value="n"/> <input type="text" value="g"/>	79	conn./mile main			(active and inactive)	
Lp	Are customer meters typically located at the curbstops/property line? <input type="text" value="Yes"/>						
AOP	Average length of customer service line has been set to zero and a data grading of 10 has been applied						
	Average Operating Pressure: <input type="text" value="n"/> <input type="text" value="g"/>	50.0	psi				

COST DATA

CRUC	Customer Retail Unit Charge: <input type="text" value="n"/> <input type="text" value="g"/>	\$2.33	\$/1000 gallons (US)				
VPC	Variable Production Cost: <input type="text" value="n"/> <input type="text" value="g"/>	\$230.95	\$/acre-ft			Total Annual Operating Cost	
						\$106,528,917	\$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

Click 'g' for 10 parameter(s), then complete all visible data grading questions to enable the Data Validity Score to calculate

[go to dashboard](#)

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

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

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:	<input type="text"/>	gal/conn/day
Unit Apparent Losses:	<input type="text"/>	gal/conn/day
Unit Real Losses ^a :	<input type="text"/>	gal/conn/day
Unit Real Losses ^b :	<input type="text"/>	gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)