AWWA WLCC Free Water Audit Software: Reporting Worksheet

 WAS v4.2

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? Click to access definition

Water Audit Report for: San Antonio Water System (TWDB Water Loss Audit)

Reporting Year: 2010 1/2010 - 12/2010

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

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

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	10	65,164.000	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	?	10	3,429.680	under-registered MG/Yr
Water imported:	?	10	3,587.000	MG/Yr
Water exported:	?	10	8,424.000	MG/Yr
WATER SUPPLIED:			63,756.680	MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	9	52,709.000	MG/Yr		
Billed unmetered:	?	n/a	0.000	MG/Yr		
Unbilled metered:	?	n/a	0.000	MG/Yr		
Unbilled unmetered:	?	3	796.960	MG/Yr		796.960
AUTHORIZED CONSUMPTION:	?		53,505.960	MG/Yr		

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

WATER LOSSES (Water Supplied - Authorized Consumption) 10,250.720 MG/Yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?		159.392	MG/Yr	0.25%	

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

Customer metering inaccuracies:	?	6	2,196.208	MG/Yr	4.00%	
Systematic data handling errors:	?	5	123.000	MG/Yr		
Apparent Losses:	?		2,478.600			

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

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:	?	7,772.120	MG/Yr
WATER LOSSES:		10,250.720	MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER:	?	11,047.680	MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	10	5,216.0	miles	
Number of active AND inactive service connections:	?	10	385,634		
Connection density:			74	conn./mile main	
Average length of customer service line:	?	10	0.0	ft	(pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	10	85.0	psi	

COST DATA

Total annual cost of operating water system:	?	10	$160,000,000	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	10	$5.29	$/1000 gallons (US)
Variable production cost (applied to Real Losses):	?	10	$242.44	$/Million gallons

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	17.3%
Non-revenue water as percent by cost of operating system:	9.5%
Annual cost of Apparent Losses:	$13,111,794
Annual cost of Real Losses:	$1,884,273

Operational Efficiency Indicators

Apparent Losses per service connection per day:	17.61	gallons/connection/day
Real Losses per service connection per day*:	55.22	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
? Unavoidable Annual Real Losses (UARL):	2,670.13	million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	7,772.12	million gallons/year
? Infrastructure Leakage Index (ILI) [CARL/UARL]:	2.91	

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

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 91 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: Unauthorized consumption

3: Systematic data handling errors

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

TEXAS WATER DEVELOPMENT BOARD

P.O. BOX 13231, CAPITOL STATION

AUSTIN, TX 78711-3231

WATER AUDIT REPORTING FORM 2010

If further assistance is needed, contact Mark Mathis at Mark.Mathis@twdb.state.tx.us or 512.463.0987.

A. Water Utility General Information

1. Water Utility Name: SAN ANTONIO WATER SYSTEM

2. Contact:

   2a. Name: ELLIOTT FRY

   2b. Telephone #: 210-233-3657

   2c. Email Address: elliott.fry@saws.org

3. Reporting Period: From 1/1/2010 To 12/31/2010

4. Source Water Utilization, percentage: Surface Water 4.00 % Ground Water 96.00 %

5. Population Served:

		Assessment Scale
5a. Retail Population Served	1,360,284	
5b. Wholesale Population Served	16,877	
6. Utility's Length of Main Lines, miles	5,216.00	5
7. Number of Wholesale Connections Served	3	
8. Number of Retail Service Connections Served	385,631	
9. Service Connection Density (Number of retail service connections/Miles of main lines)	73.93	
10. Average Yearly System Operating Pressure (psi)	85.00	5
11. Volume Units of Measure:	MG	

B. System Input Volume

12. Produced Water	65,164.00	4
13. Production Meter Accuracy (enter percentage)	95.00 %	4
14. Corrected Input Volume	68,593.68	
15. Water Imported	3,587.00	5

16. Water Exported	8,424.00	5
17. System Input Volume (Corrected input volume, plus imported water, minus exported water)	63,756.68	

C. Authorized Consumption		Assessment Scale
18. Billed Metered	52,709.00	3
19. Billed Unmetered	0.00	0
20. Unbilled Metered	0.00	3
21. Unbilled Unmetered	796.96	0
22. Total Authorized Consumption	53,505.96	

D. Water Losses		
23. Water Losses (Line 17 minus Line 22)	10,250.72	

E. Apparent Losses		
24. Average Customer Meter Accuracy (Enter percentage)	96.00 %	3
25. Customer Meter Accuracy Loss	2,196.21	
26. Systematic Data Handling Discrepancy	123.00	3
27. Unauthorized Consumption	159.39	0
28. Total Apparent Losses	2,478.60	

F. Real Losses		
29. Reported Breaks and Leaks (Estimated volume of leaks & breaks repaired during the audit period)	161.00	3
30. Unreported Loss (Includes all unknown water loss)	7,611.12	0
31. Total Real Losses (Line 29, plus Line 30)	7,772.12	
32. Water Losses (Apparent + Real) (Line 28 plus Line 31) = Line 23	10,250.72	
33. Non-revenue Water (Water Losses + Unbilled Authorized Consumption)	11,047.68	

(Line 32, plus Line 20, plus Line 21)

G. Technical Performance Indicator for Apparent Loss

34. Apparent Losses Normalized (Apparent Loss Volume/# of Retail Service Connections/365)	0.00

H. Technical Performance Indicators for Real Loss

35. Real Loss Volume (Line 31)	7,772.12
36. Unavoidable Annual Real Losses, volume (calculated)	2,668.49
37. Infrastructure Leakage Index (calculated) (Equals real loss volume divided by unavoidable annual real losses)	2.91260
38. Real Losses Normalized (Real Loss Volume/# of Service Connections/365) (This indicator applies if service connection density is greater than 32/mile)	0.00
39. Real Losses Normalized (Real Loss Volume/Miles of Main Lines/365) (This indicator applies if service connection density is less than 32/mile)	0.00

I. Financial Performance Indicators		Assessment Scale
40. Total Apparent Losses (Line 28)	2,478.60	
41. Retail Price of Water	$5,290.00000	5
42. Cost of Apparent Losses (Apparent loss volume multiplied by retail cost of water, Line 40 x Line 41)	$13,111,794.00	
43. Total Real Losses (Line 31)	7,772.12	
44. Variable Production Cost of Water* (*Note: in case of water shortage, real losses might be valued at the retail price of water instead of the variable production cost.)	$242.44000	5
45. Cost of Real Losses (Real Loss multiplied by variable production cost of water, Line 43 x Line 44)	$1,884,272.77	
46. Total Assessment Scale		53
47. Total Cost Impact of Apparent and Real Losses	$14,996,066.77	