



Water Loss Audit Update

- SB 555, October 2015 – requires all water agencies submit to DWR a Water Loss Audit Report annually by October 1
- Audit reports must be validated by a state-certified validator
- Water Audits must be included in the water Agency's Urban Water Management Plan (every five years, next due 2020)
- Audit reports must be consistent with terminology and reporting methods recognized by AWWA



Water Loss Audit Update

AWWA M36 WATER BALANCE

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Water Exported		Revenue Water
			Billed Metered Consumption		
			Billed Unmetered Consumption		
	Water Losses	Unbilled Authorized Consumption	Unbilled Metered Consumption		Non-revenue Water
			Unbilled Unmetered Consumption		
		Apparent Losses	Unauthorized Consumption		
			Customer Metering Inaccuracies		
			Systematic Data Handling Errors		
		Real Losses	Leakage on Transmission and Distribution Mains		
			Leakage and Overflows at Utility's Storage Tanks		
Leakage on Service Connections up to point of Customer metering					



Water Loss Audit Update



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:
Reporting Year:

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 66 out of 100 ***

System Attributes:

Apparent Losses:	<input type="text" value="236.587"/>	acre-ft/yr
+ Real Losses:	<input type="text" value="521.627"/>	acre-ft/yr
= Water Losses:	<input type="text" value="758.214"/>	acre-ft/yr

Unavoidable Annual Real Losses (UARL): acre-ft/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): acre-feet/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



Water Loss Audit Update

- Water Loss Prevention

 - **Real Losses**

 - prioritize the investigation and repair of water main leaks, main breaks, and sheared hydrants
 - Department's goal is to respond and shut down main breaks and sheared fire hydrants within one hour
 - Department's goal is to investigate and repair reported distribution service leaks within 24 hours
 - Capital Improvement Programs



Water Loss Audit Update

- Water Loss Prevention, cont'd

Apparent Losses

- AWWA M36 Water Audits
- Meter Testing/Replacement
- Review of customer meter data
- Right sizing meters

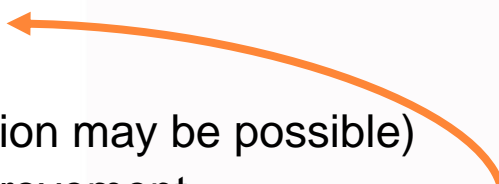


Water Loss Audit Update

What's a Normal Amount of Water Loss?

Benchmark to a systems theoretical minimum level of water loss (UARL).

- 1 – 2 times the UARL = very well managed system
- 2 – 3 times the UARL = doing pretty good
- 3 – 4 times the UARL = average performer
(some easy reductions with leak detection may be possible)
- 4 – 5 times the UARL = definite room for improvement
- > 5 time the UARL = Leak detection easily justified



	Infrastructure Leakage Index
2016	2.1
2017	2.6