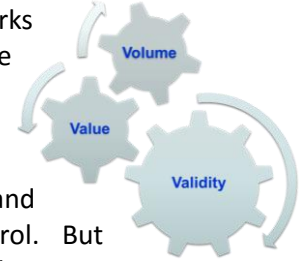
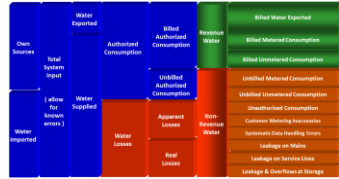


Level 1 Water Audit: Understanding Your Losses in Terms of Volume, Value and Validity



Every year, every month, every week and every day - every utility spends money on non-revenue water.

Even those with no active programs to find and fix it – they still spend and many over-spend through uncaptured revenues and wasted expenses. The American Water Works Association (AWWA) M36 Manual for Water Audits and Loss Control Programs details the industry best-practice for water loss accounting. Cavanaugh – a recognized industry leader in water loss management – was a principle contributing author to this



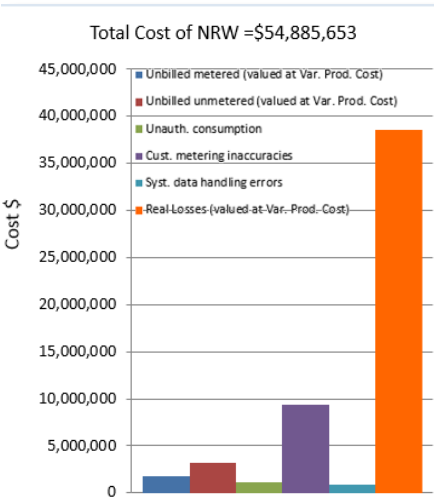
authoritative reference book. The “top-down” M36 water audit is the starting point for every utility to understand where they need to focus next steps for water loss control. But even the most sophisticated information systems in our utilities were not designed specifically for water loss control and analysis – which means that data which is immediately available for the “top-down” approach can carry hidden errors that wreak havoc on the accuracy of the AWWA water balance. For this reason – a basic validation step – known as Level 1 Validation – must be part of the top-down audit.

So the real first step is establishing an annual audit you can rely on. Cavanaugh has had the privilege of working with over 1,000 water utilities for AWWA top-down water auditing and validation. Our team can help you take this first critical step on your journey to optimum.

A Level 1 Water Audit will show your utility’s current standing for the AWWA metrics in terms of volume, value and validity – with defensible documentation of the audit basis.

The essential outcomes from the Level 1 Water Audit are

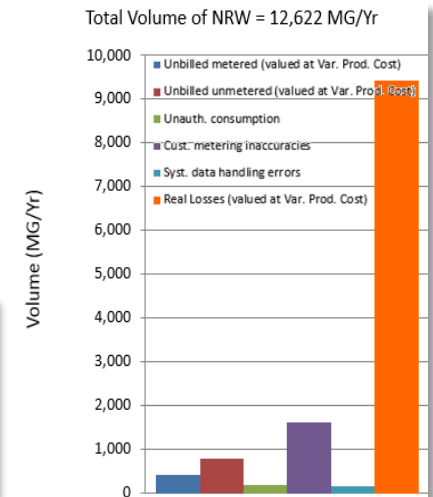
AWWA Water Loss Control Committee Water Audit Software Subcommittee Data Validation Form																		
Interview Date	Water Utility Participants																	
10/08/15	Dan Mackay, Mike Garrow, Jonathan Sabara, Rich Stroneman, Scott McChilcald, J.P. Michael, Charles P.S.																	
Water Utility Name, Audit Year Reviewed	Validation	Water Audit Data Validity	Infrastructure Leakage Index (flows submitted date)															
Chubb Vista, CA 2013/14 (Acce-Free)	95	0.89																
Evaluation of Water Audit Components – Quantities & Data Gradings																		
<table border="1"> <thead> <tr> <th>Component</th> <th>Grade</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>Water Audit Data Validity</td> <td>95</td> <td>Excellent</td> </tr> <tr> <td>Infrastructure Leakage Index</td> <td>0.89</td> <td>Very Good</td> </tr> </tbody> </table>										Component	Grade	Notes	Water Audit Data Validity	95	Excellent	Infrastructure Leakage Index	0.89	Very Good
Component	Grade	Notes																
Water Audit Data Validity	95	Excellent																
Infrastructure Leakage Index	0.89	Very Good																



What is the annual cost of my current water loss program, including the uncaptured revenues and wasted expenses

Clear next steps – including improvements to data where warranted before longer term investments are justified.

Functional Focus Area	Water Loss Control Planning Guide			
	Level I (0-25)	Level II (25-50)	Level III (50-75)	Level IV (75-90)
Audit Data Collection	Launch auditing and/or commission address production metering deficiencies	Establish business processes for customer metering and billing functions and set up audit operations. Identify data gaps	Establish data collection and validation processes for production and customer metering	Refine data collection processes and establish accurate business processes
Short-term loss control	Research information on best practices and/or commission program. Begin benchmarking analysis of customer billing system	Chart Area: Research a wide range of the utility's customer metering, leak survey, unaccounted consumption, etc.	Establish ongoing metering system for customer meter accuracy, billing, and unaccounted consumption	Refine, validate and expand ongoing programs based upon economic justification
Long-term loss control	Begin to address long-term metering program. Replicate customer meter replacement, meter testing, leak survey, replacement program, new customer billing system or Automated Meter Reading (AMR) system	Begin to assemble economic business case for long-term metering program. Identify data gaps and develop data management plan	Conduct detailed planning, budgeting and analysis of long-term metering program. Implement long-term metering program	Conduct long-term metering program. Implement long-term metering program



Every year, every month, every week and every day - every utility spends money on non-revenue water.

Contact us today to learn more.

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