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Systematic Municipal Water Use Accounting and GPCD Calculations

John W. Longworth
NM Office of the State Engineer

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Systematic Municipal Water Use Accounting and GPCD Calculations

John W. Longworth, P.E. -- Chief
Water Use and Conservation Bureau
NM Office of the State Engineer



Background

- To provide standardization for administrative review
 - 40-Year Water Planning
 - Water Conservation Plans
 - Permitting Requirements
- Two considerations
 - System
 - End user

Water Use Accounting

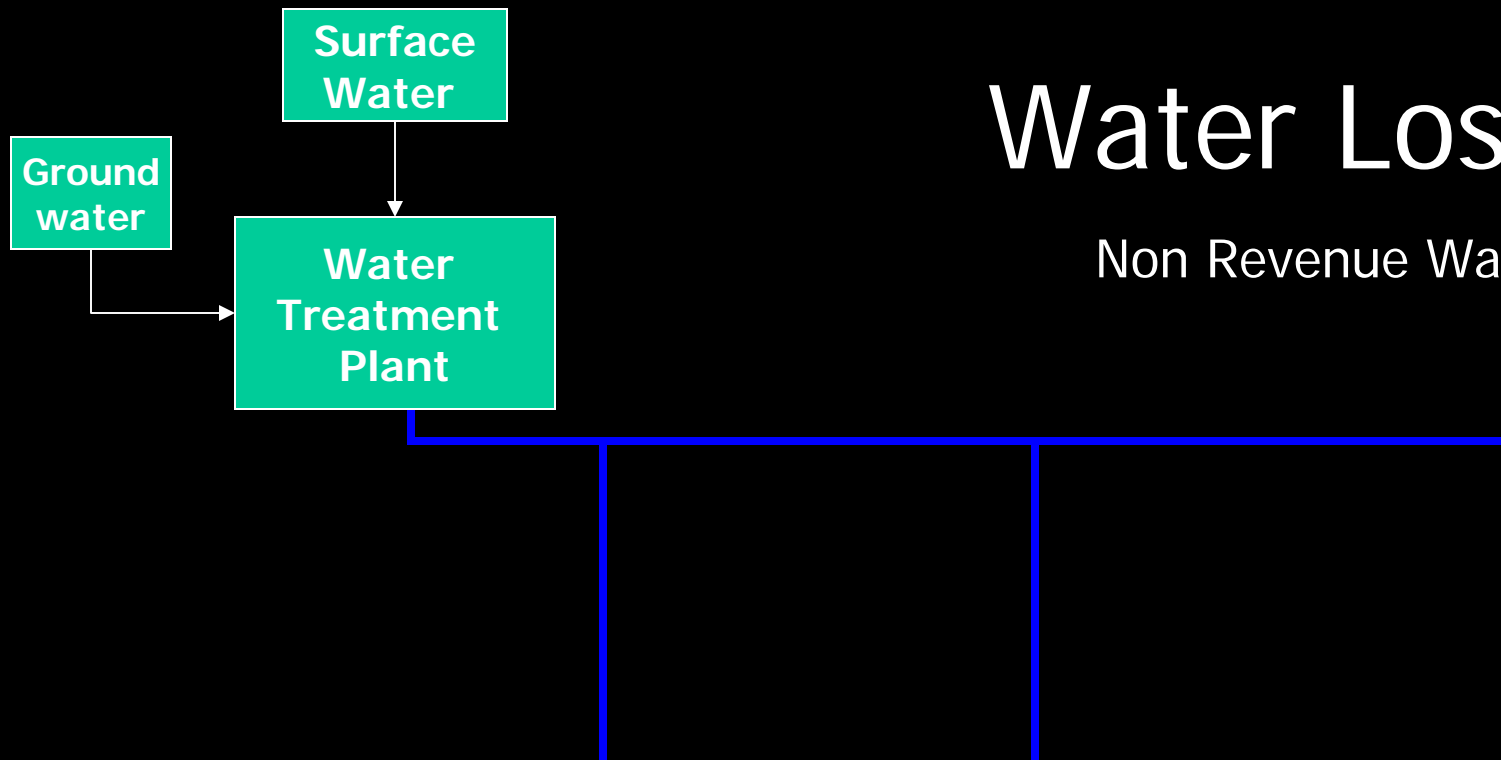
- AWWA Standards for Water System Audits
 - 1991 “Unaccounted for Water”
 - 2000 IWA/AWWA Water Balance
 - Provides consistent terminology
 - Water Use Accounting nothing left “unaccounted for”
 - Meaningful Assessment of Revenue and Non-Revenue Water
- System focus

AWWA Water Loss Accounting

System Input Volume (corrected for known errors)	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption (including water exported)	Revenue Water	
			Billed Unmetered Consumption		
	Water Losses	Unbilled Authorized Consumption	Unbilled Authorized Consumption	Unbilled Metered Consumption	Non- Revenue Water (NRW)
				Unbilled Unmetered Consumption	
		Apparent Losses		Unauthorized Consumption	
				Customer Metering Inaccuracies	
				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 Losses

Non Revenue Water

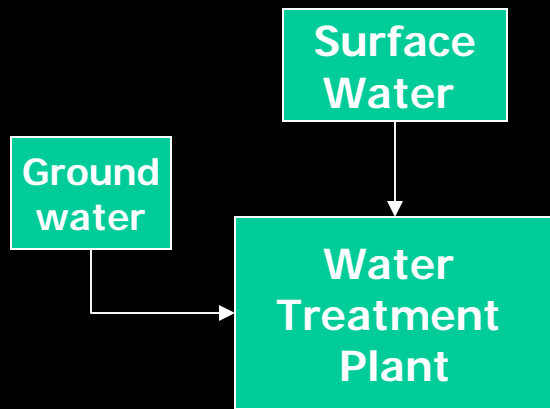


Apparent Losses

- Meter Inaccuracies
- Data Handling Errors
- Unauthorized Consumption

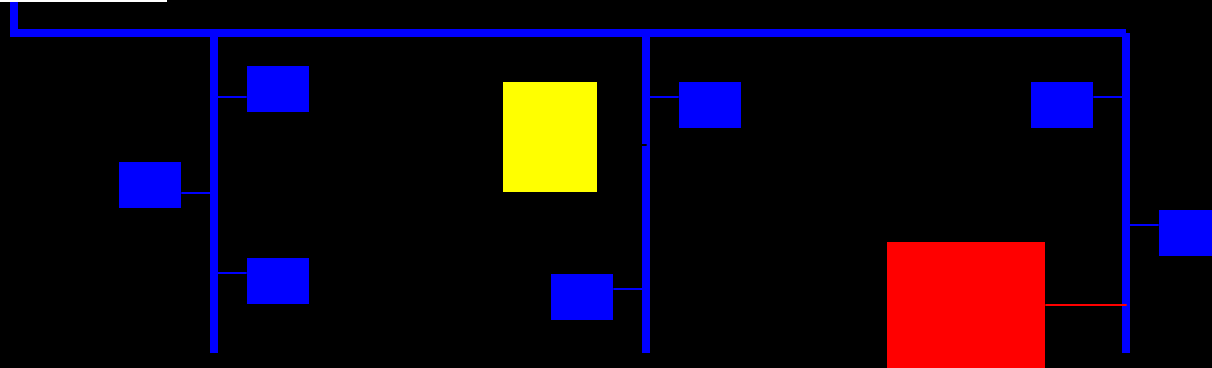
Real Losses

- Leaks in Distribution
- Overflows at Storage Tank



Authorized Consumption

Billed/Revenue Water

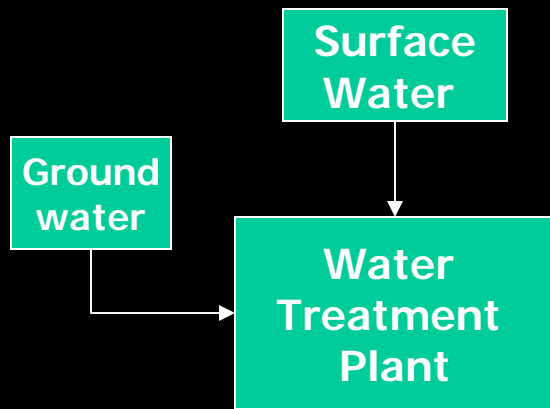


Billed Metered

- By Sector
 - SF Residential
 - MF Residential
 - Commercial
 - Institutional

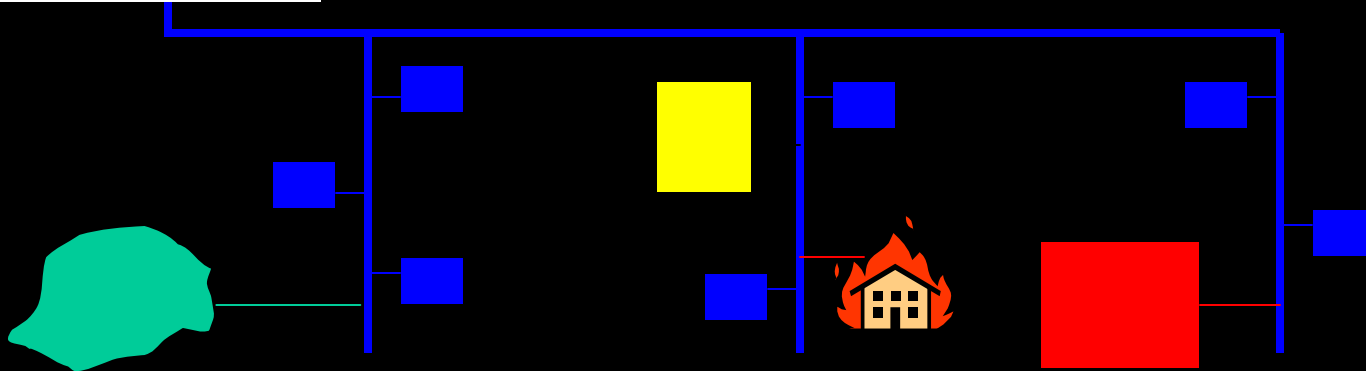
Billed Unmetered

- Estimates
- Flat rates



Authorized Consumption

Unbilled/Non Revenue Water



Unbilled Metered

- City Parks/Pools
- City Buildings

Unbilled Unmetered

- Fire Fighting
- Street Cleaning
- Line Flushing

AWWA Water Loss Accounting

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			Billed Unmetered Consumption	
	Unbilled Authorized Consumption	Unbilled Metered Consumption	Non- Revenue Water (NRW)	
		Unbilled Unmetered Consumption		
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	Water Losses Real Losses	Leakage on Transmission and Distribution Mains	Non- Revenue Water (NRW)	
		Leakage and Overflows at Utility's Storage Tanks		
		Leakage on Service Connections up to point of Customer metering		

NM Water Use Accounting Pilot Projects

- Gallup
 - Ruidoso
 - Las Vegas
 - Rio Rancho – results pending
- } online at www.ose.nm.us

It provides detailed understanding of where all the water is going.

GPCD Calculations

- Researched other state's approaches
- Proposed methodology
 - Obtained outside peer review
- End users measure

GPCD Research

- States implementing standardized GPCD
 - Kansas, Arizona, Texas and Florida
- All States had unique methodology
 - Similarities
 - Diversion over population
 - Differences
 - Adjustments to diversions
 - Concerns
 - Populations calculation
 - Difficult to compare -- System

NMOSE Proposed Methodology

- More than one “GPCD” necessary to paint comparable picture
 - Total System
 - Residential
- Population calculated by:
 - Persons per household from US Census Bureau
 - Single family residential connections
 - Multifamily units
 - Vacancy rate from US Census Bureau
- Monthly or seasonal averages helpful for conservation assessment

NMOSE Proposed Methodology

- Residential GPCD = total residential billed/
residential population
- Total System = total production/ (residential
population + multifamily population)
- Difference between total system and
residential = ICI and system losses
 - Considering these as separate indicators

Implementation

NMOSE is currently:

- Evaluating the research, peer reviews and pilot projects
- Evaluating the benefits of a potential pilot of the GPCD methodology
- Considering all options for implementation of both the water use accounting and GPCD methodologies

Questions?

Contact information:

John Longworth

john.longworth@state.nm.us

505-827-6121

www.ose.state.nm.us/water-info/conservation