Systematic Municipal Water Use Accounting and GPCD Calculations

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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

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<tr>
<th>System Input Volume (corrected for known errors)</th>
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<th>Billed Metered Consumption (including water exported)</th>
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Water Losses

Non Revenue Water

Ground water

Surface Water

Water Treatment Plant

Apparent Losses

• Meter Inaccuracies
• Data Handling Errors
• Unauthorized Consumption

Real Losses

• Leaks in Distribution
• Overflows at Storage Tank
Authorized Consumption

Billed/Revenue Water

**Ground Water**

**Surface Water**

**Water Treatment Plant**

**Billed Metered**

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

**Billed Unmetered**

- Estimates
- Flat rates
Authorized Consumption
Unbilled/Non Revenue Water

Ground water

Surface Water

Water Treatment Plant

Unbilled Metered
- City Parks/Pools
- City Buildings

Unbilled Unmetered
- Fire Fighting
- Street Cleaning
- Line Flushing
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NM Water Use Accounting Pilot Projects

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

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?

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