This presentation premiered at WaterSmart Innovations

watersmartinnovations.com
Statewide Water Loss Training & Technical Assistance
for Small Water Systems

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Georgia Environmental Finance Authority

WaterSmart Innovations 2014

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U.S. Drought Monitor

July 26, 2011

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm

Released Thursday, July 28, 2011

Author: Brad Rippey, U.S. Department of Agriculture
### Timeline of Events

<table>
<thead>
<tr>
<th>Year(s)</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-2010</td>
<td>Drought in Georgia</td>
</tr>
<tr>
<td>2010</td>
<td>Georgia passes Water Stewardship Act of 2010 which requires water loss audits</td>
</tr>
<tr>
<td>March 2012</td>
<td>Large water systems (&gt;10,000) submit first AWWA water loss audit</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>GEFA hires consultant to train 100+ small water systems (3,300 – 10,000) on how to conduct and submit a AWWA water loss audit</td>
</tr>
<tr>
<td>March 2013</td>
<td>Small water systems (3,300 - 10,000) submit their first AWWA water loss audit</td>
</tr>
</tbody>
</table>
Water Stewardship Act of 2010

Phased approach based on service population size*:

• Systems with >10,000 population, audit due March 1, 2012 based on 2011 data
• Systems with 3,300 to 10,000 population, audit due March 1, 2013 based on 2012 data
• On going annual requirement
• Infrastructure leakage index (ILI)
• In accordance with the American Water Works Association (AWWA) method/standard

Audits submitted to Georgia Environmental Protection Division and results will be posted online

*Water systems above 3,300 represent 80% of Georgia population
• Utilized existing resources
  – AWWA M36 Manual and Software
  – Metropolitan North Georgia Water Planning District
  – 2014: Addition of sample calculations addendum
  – Manual to be revised to include systems serving below 3,300
Small Water System Audit
Training - Phase I

Program Design:
• Identified list of eligible systems (3,300 – 10,000 population)
• Issued RFP to locate a training contractor
• Negotiated terms of contract and structure of training program
  • Negotiation challenging due to uncertainty of how many small water systems would participate in training (variable costs vs. fixed costs)
  • Created tiered pricing structure based on marketing effort. More system participation = Greater contract value

Training Contractor Responsibilities:
• Marketed the training program to small water systems
• More than 95% (~110 of 115) signed up for the 9-month in-depth training program
• Established geographically beneficial training locations (7 locations)
• Training program encouraged small water systems to bring consulting engineer
• 100% water audit submission by deadline
Small Water System Audit Training – Phase I
Small Water System Audit Training – Program Overview

- Webinar – kick off: June 2012
- Workshop 1: Basics: June 2012
- 2011 Practice Audit & Validation Call: July 2012
- Workshop 2: Next Steps & Momentum: August 2012
- Homework Phase: Sept – Dec 2012
- Workshop 3: Showtime for 2012 Audit: Jan-Feb 2013
- 2012 Audit Validation Call: Feb 2013
- Submittal of your 2012 Water Audit to EPD: March 2013
Small Water System Feedback: Some of the Biggest Surprises

• “Apparent and Real loss - didn't realize how much could be lost through faulty meters.”
• “Updating/performing audit was easier than originally thought.”
• “Amount of money we do not collect”
• “Impact of water loss on finances”
• “The more money/water we find, the less we may need to borrow for capital projects”
Program Design
• Identified lists of eligible systems (3,300 – 10,000)
• Only those small water systems that submitted their water loss audit by deadline were eligible (~109 of 117)

Program Manager Responsibilities
• Analyze data to determine where money should be spent:
  • No capital improvement projects
  • No ongoing soft costs
• Develop application process to prioritize projects
• Draft RFPs to locate qualified companies to provide the technical assistance
• Manage technical assistance projects via multiple contractors
• Advisor to small water system in project scope
Small Water System Technical Assistance - All Priority Areas for Improvement

- Volume from own sources
- Billed metered
- Customer metering inaccuracies
- Master meter error adjustment
- Water imported
- Water exported
- Unbilled metered
- Customer retail unit cost (applied to...)
Small Water System Technical Assistance – Phase II

51 projects
Small Water System Technical Assistance – Phase II Program Structure

- Hired two contractors per project type for negotiation purposes
- Program Manager manages the daily activities of contractors

**Program Manager**

- **Finished Water Meter Contractor**
  - 21 meters in 11 systems
- **Finished Water Meter Contractor**
  - 18 meters in 6 systems
- **Leak Detection Contractor**
  - 330 miles in 11 systems
- **Leak Detection Contractor**
  - 420 miles in 12 systems
- **Customer Meter Testing Contractor**
  - 110 meters in 6 systems
- **Customer Meter Testing Contractor**
  - 142 meters in 5 systems
Small Water System Technical Assistance – Customer Meter Testing (CMT)

CMT Global Statistics Summary

<table>
<thead>
<tr>
<th></th>
<th>Displacement</th>
<th>Compound/Fireline/Ultrasonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>total # meters</td>
<td>66</td>
<td>91</td>
</tr>
<tr>
<td>Pass</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Fail</td>
<td>16</td>
<td>47</td>
</tr>
<tr>
<td>N/A</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Customer Meter Testing

- 54% PASS
- 40% FAIL
- 6% Inconclusive or Untestable
FWM Global Statistics Summary

- Total # meters: 39
- Pass: 19
- Fail: 11
- Inconclusive: 7
- Total # meters not tested: 18%

Finished Water Meter Flow Verification

- 33% UNTESTABLE
- 49% FAIL
- 18% PASS

INVESTING IN GEORGIA'S ENERGY, LAND & WATER RESOURCES
Production costs include chemical and energy costs

<table>
<thead>
<tr>
<th>Finished Water Meter Flow Verification</th>
<th>Number of Participating Water Systems</th>
<th>Number of Finished Water Meters tested</th>
<th>Number of meters passing within AWWA accuracy limits</th>
<th>Average inaccuracy for meters not passing within AWWA accuracy limits (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17</td>
<td>28</td>
<td>7</td>
<td>13%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer Meter Testing</th>
<th>Number of Participating Water Systems</th>
<th>Number of Customer Meters tested</th>
<th>Number of meters passing within AWWA accuracy limits</th>
<th>Average inaccuracy for meters not passing within AWWA accuracy limits (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>147</td>
<td>84</td>
<td>24%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pilot Leak Detection</th>
<th>Number of Participating Water Systems</th>
<th>Number of miles of distribution line surveyed</th>
<th>Number of leaks found</th>
<th>Annual leakage volume found (Mgal)</th>
<th>Annual Energy Cost Savings ($)</th>
<th>Annual Chemical Cost Savings ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23</td>
<td>731</td>
<td>118</td>
<td>270</td>
<td>35,700</td>
<td>67,800</td>
</tr>
</tbody>
</table>
Georgia's water loss initiatives are gaining national attention

Stepping Up Water Loss Control
Lessons from the State of Georgia

For any state or agency looking to increase adoption of M36, there are several key takeaways from Georgia's new auditing requirements:

- **State agencies and their partners should place emphasis on the value and usefulness of M36 for utilities.** Beyond instituting any auditing requirement, states should highlight the benefits of this practice in helping utilities improve business operations.

- **Data validation is paramount.** Water loss audits and future planning must be based on accurate and reliable audit results in order to effectively improve water systems.

- **Encourage strong relationships between state and local governments.** It is critical for states to have a strong commitment to providing training resources and support to utilities as the M36 auditing method.

- **Public reporting.** Sharing audit results improves accountability and understanding between a utility and its customers.

- **Training sessions.** The auditing process can be important to provide engaging trainings that help explain the benefits of adopting the M36 method.

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THE AMERICAN WATER WORKS ASSOCIATION (AWWA) AND INTERNATIONAL WATER ASSOCIATION (IWA) WATER AUDITING METHODOLOGY PRODUCT (M36) IS NATIONALLY RECOGNIZED AS THE BEST METHOD FOR ACHIEVING A ROBUST AND STANDARDIZED WATER LOSS AUDIT. IT ALLOWS UTILITIES TO RATE THEIR DATA VALIDITY AND IDENTIFY INTERNAL ISSUES, WHILE HELPING STATES AND REGIONS TO LOOK AT WIDER-SCALE WATER LOSS TRENDS. THIS ENABLES THEM TO MORE EFFECTIVELY REDUCE WATER WASTE, AND MAKE A STRONGER ECONOMIC CASE FOR INFRASTRUCTURE REINVESTMENT AND OTHER WATER LOSS INITIATIVES.²
Small Water System Technical Assistance – Phase Ila Program Structure

- Hired one contractors per project type for negotiation purposes
- 48 projects

Back By Popular Demand!

GEFA

Program Manager

Finished Water Meter Contractor
- 34 meters in 13 systems

Leak Detection Contractor
- 680 miles in 22 systems

Customer Meter Testing Contractor
- 281 meters in 13 systems
Requirements or References to AWWA M36 Methodology for Water Auditing & Loss Control