This presentation premiered at WaterSmart Innovations

watersmartinnovations.com
Water Loss in California
3 Years of Mandatory Audits
What Have We Learned

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Program Manager - Sweetwater Authority
Chair - California Water Loss Control Collaborative

WSI 2019
Water Loss in CA

Waves of Change

- Regulatory Drivers
- Activities
  - WL TAP
  - Rules
  - WAV

- Outcomes
- Performance Standards
- Next Steps
State Regulation – SB 555

- Rules & technical standards
  (January 2017 ... March 2018)
- State assistance to urban water providers
  (Water Loss TAP)
- Validated water loss audits (October 1, 2017 & annually thereafter) including steps taken to:
  - increase data validity
  - reduce loss volumes
- Audits to be posted to website
- Water loss performance standard by 2020
Helping Water Systems

Water Loss Technical Assistance Program

Water Loss TAP

Goal was to provide:

• Training on AWWA Water Audit Methodology
• Level 1 Validation of Water Audits
• 452 Urban Water Agencies

WAVE 1
in-person work session

WAVE 2
teleconference work session

WAVE 3
in-person work session

WAVE 4
final validation Teleconference work session

Submission of level 1 validated audits
Within the Larger Context

Water Conservation a California Way of Life

**2016** (EO B-37-16)
State agencies directed to establish framework
13 required elements

**2017** (Implementation Report and EO B-40-17)
4 inter-related objectives Implementation actions
Within the Larger Context

AB-1668 Water management planning. (2017-2018)

SB-606 Water management planning. (2017-2018)
Phase 1: Establish Annual M36 Water Auditing
- Implement established requirement for annual M36 Water Audits
- Educate Regulatory Community on M36 Method and appropriate use of performance indicators
- Establish Statewide Water Loss Control Committee
- Develop State Manual and Training Framework
  - Provide extended, progressive training to utilities

Phase 2: Achieve Minimum Standard of Audit Reliability
- Augment DWR Data Management & Review Process
- Establish posting system and communication protocols
- Establish minimum standards of validation for quality assurance
- Determine by Agency or 3rd Party
- Establish validation program until certification program is in place
- Design and implement a Water Audit Validator Certificate program for sustained quality control
  - CA-NV Section Administers Water Auditor Validator Certification Program

Phase 3: Manage Water Loss Performance for Long-Term Reduction
- Suite of Performance and Process Measures
- System specific improvement over time in a cost-effective manner
- No universal targets
- Excessive thresholds established
- Annual audit submission threshold exceedances
- System specific progress review during Urban Water Management Plan submissions

Year 1  Year 2  Year 3  Year 4  Year 5  Year 6  Year 7
Water Audit Validator Certificate

The California Nevada Section of the American Water Works Association presents the Water Audit Validator Certificate Course Training Manual

Spring 2018
## Reporting Item: Water Audit Rules Reference

<table>
<thead>
<tr>
<th>Reporting Item</th>
<th>Water Audit Rules Reference</th>
<th>Purpose</th>
<th>Content</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 Validation Summary Notes</td>
<td>23 CCR § 638.3 Standardized Conduct for Validation of Water Loss Audits</td>
<td>Document level 1 validation findings and highlight next steps for water audit improvement</td>
<td>Basis of input derivations and DVG assignments Consistency of performance indicator notes Recommendations for further validation or improvement</td>
<td>Water Supplier’s water audit team</td>
</tr>
<tr>
<td>Certified Validation Report</td>
<td>23 CCR § 638.5 Audit Reporting Requirements</td>
<td>Summarize SB555 compliance</td>
<td>Identification of validator qualifications Description of recent water audit improvements and water loss control efforts Certification statement from Water Supplier executive staff.</td>
<td>Department of Water Resources</td>
</tr>
</tbody>
</table>
WUEdata - Water Audit Tool

WELCOME TO THE VALIDATED WATER LOSS AUDIT TOOL

Multiple reports have been submitted for this water supplier. Download reports using the links below or submit a new report.

<table>
<thead>
<tr>
<th>Year</th>
<th>PWS / Other IDs</th>
<th>Water Supplied</th>
<th>Authorized Consumption</th>
<th>Water Losses</th>
<th>Units</th>
<th>Submitted Date</th>
<th>Reviewed by DWR?</th>
<th>AWWA Spreadsheet</th>
<th>Validation Report</th>
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<tbody>
<tr>
<td>2016</td>
<td>371005</td>
<td>17817.32</td>
<td>16633.23</td>
<td>1184.09</td>
<td>acre-ft</td>
<td>09/29/2017</td>
<td>Approved</td>
<td>Download</td>
<td>Download</td>
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<tr>
<td>2017</td>
<td>371005</td>
<td>18138.68</td>
<td>17514.13</td>
<td>624.55</td>
<td>acre-ft</td>
<td>12/07/2018</td>
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<td>Download</td>
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<tr>
<td>2018</td>
<td>371005</td>
<td>17012.90</td>
<td>16840.56</td>
<td>172.54</td>
<td>acre-ft</td>
<td>10/01/2019</td>
<td>No</td>
<td>Download</td>
<td>Download</td>
</tr>
</tbody>
</table>

If you need assistance, please contact the WUEdata Help Desk.

WUEdata - Public Portal

Water Use Efficiency Data (WUEdata)

The Water Use Efficiency (WUE) data online submittal tool allows urban water suppliers to submit data to the California Department of Water Resources (DWR). This data is made available to the public through the links below:

Urban Water Management Plans (UWMPs)
- View 2015 UWMPs
- 2015 UWMP Data
- 2010 and 2005 UWMPs

Water Loss Audit Reports
- View Water Audit Reports
- Water Audit Report Data

2015 Agricultural Water Management Plans (AWMPs)
- View 2015 AWMPs
Statewide Program

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Year 1
Year 2
Year 3
Year 4
Year 5
Year 6
Year 7
Senate Bill 555 (2015)

Validated audit submissions to Department of Water Resources 1st October annually

October 2015
2016 - 2017
March 2018
August 2019
July 2020

Stakeholder workshops

Adoption

Senate Bill 555 (Urban Water Retailers)

Technical assistance funded by the State Water Board ($3.2 million)

Formal Rulemaking Process for adopting performance standards
- Life Cycle Cost Assessment
- California Environmental Quality Act
Data Reliability

High variability in water loss estimates

2017 → 2018 → 2019
Source meter accuracy
Meters aren’t accessible
Meters are owned by another agency
Volumetric testing feasibility isn’t known

Billing data pro-rating (supply and sales volumes not aligned)

Customer meter inaccuracy/testing (test data not available)

Pressure (field data not available and/or representative; many inputs are guesses)

CA water suppliers are still refining water audit data
Replicability of Results

- 305 suppliers participated in W2 and W4, providing consecutive water audits
- 43 (14%) showed a change in the real loss performance indicator greater than 15 gal/conn/day
Water Audit Validator – Next Steps

✓ Renewal requirements
✓ Need 2019 and beyond
✓ QA/QC
✓ Regular updates to content/exam questions/validator tools/website
✓ Retest options (after first years)
✓ Exam and grading methods
✓ Alignment with software V6 and M36 updates
WL TAP 2 - Next Steps

✔ Funding

✔ Elements
  - Component Analysis
  - Meters Accuracy
  - Pressure Monitoring
  - WLC Planning Guidance
Collaboration

CALIFORNIA WATER LOSS CONTROL COLLABORATIVE

CaliforniaWaterLoss.org
ca-nv-awwa.org

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Partnering Organizations:

Alliance for Water Efficiency

EPA WaterSense

The North American Water Loss Conference (NAWL) will assemble policy and technical experts on non-revenue water management in North America.