

This presentation premiered at WaterSmart Innovations

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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



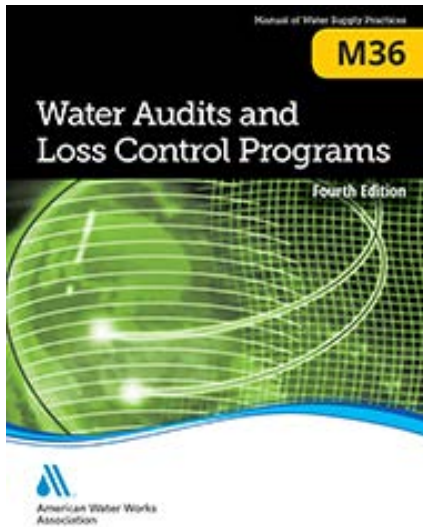
- Regulatory Drivers
- Activities
 - WL TAP
 - Rules
 - WAV

Waves of Change



- Outcomes
- Performance Standards
- Next Steps

Regulatory Driver



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

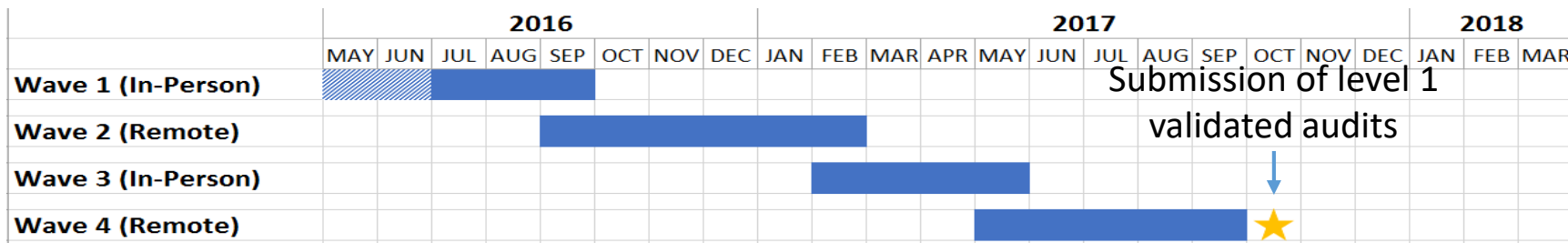
teleconference work session

WAVE 3

in-person work session

WAVE 4

final validation
Teleconference work session



Within the Larger Context

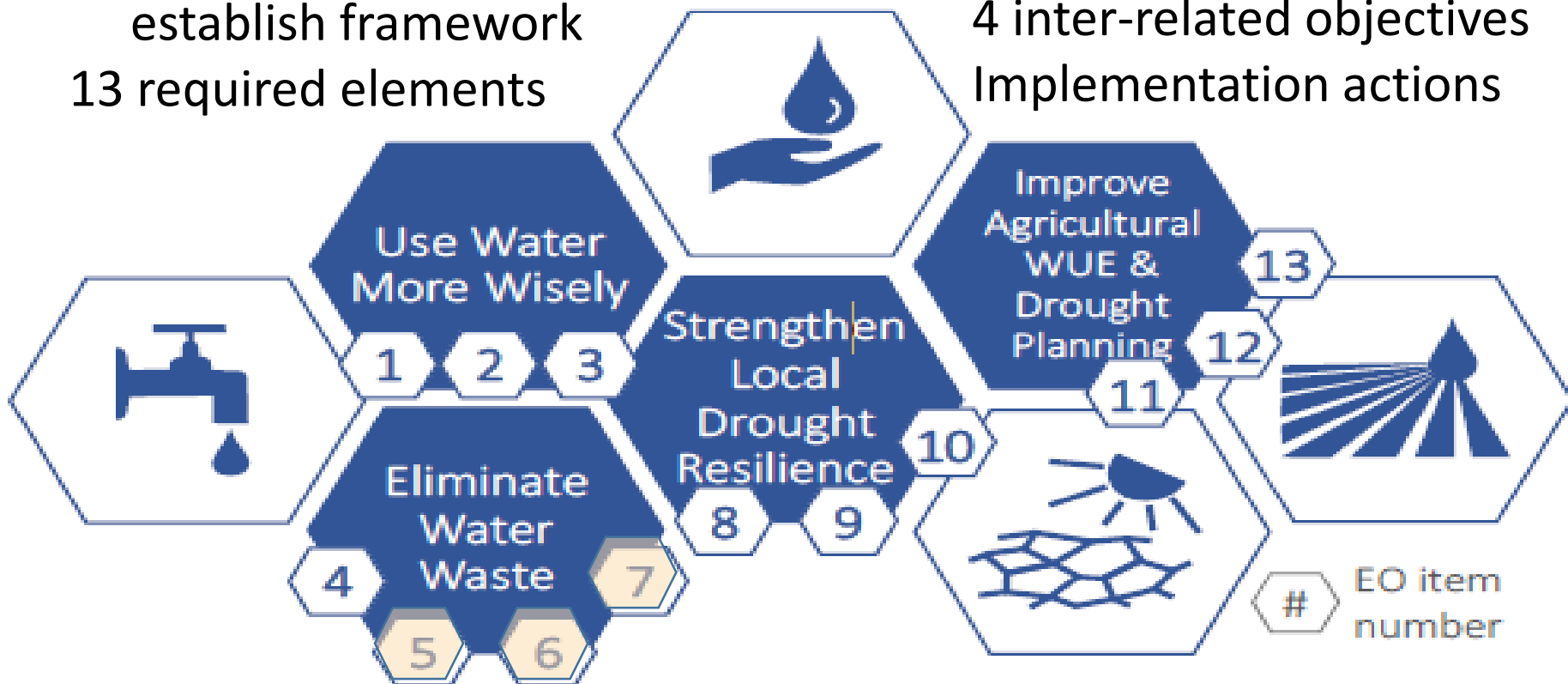
Water Conservation a California Way of Life

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



California
LEGISLATIVE INFORMATION

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

SB-606 Water management planning. (2017-2018)

Statewide Program

Phase 1

Establish Annual M36 Water Auditing

Requirement

Implement established requirement for annual M36 Water Audits

Outreach

Educate Regulatory Community on M36 Method and appropriate use of performance indicators

Establish Statewide Water Loss Control Committee

Training & Tech Asst

Develop State Manual and Training Framework

Provide extended, progressive training to utilities

Phase 2

Achieve Minimum Standard of Audit Reliability

Data Management

Augment DWR Data Management & Review Process

Establish posting system and communication protocols

Validation

Establish minimum standards of validation for quality assurance

Determine by Agency or 3rd Party

Establish validation program until certification program is in place

Certification

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

Benchmarking

Suite of Performance and Process Measures

System specific improvement over time in a cost-effective manner

No universal targets
Excessive thresholds established

Compliance

Annual audit submission threshold exceedances

System specific progress review during Urban Water Management Plan submissions

Year 1

Year 2

Year 3

Year 4

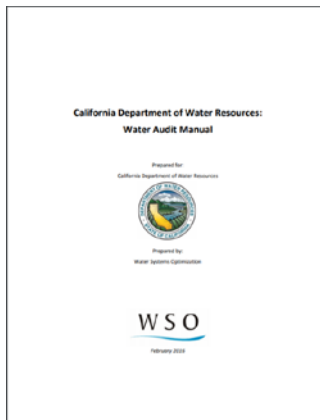
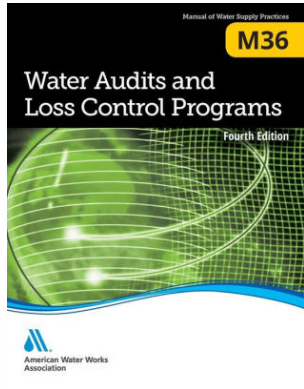
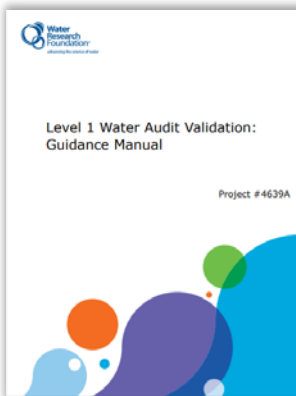
Year 5

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

Documentation

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

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: [Submit New Water Audit Data](#)

| Year | PWS / Other IDs | Water Supplied | Authorized Consumption | Water Losses | Units | Submitted Date | Reviewed by DWR? | AWWA Spreadsheet | Validation Report |
|------|-----------------|----------------|------------------------|--------------|------------|----------------|------------------|--------------------------|--------------------------|
| 2016 | 371005 | 17817.32 | 16633.23 | 1184.09 | acre-ft/yr | 09/29/2017 | Approved | Download | Download |
| 2017 | 371005 | 18138.68 | 17514.13 | 624.55 | acre-ft/yr | 12/07/2018 | No | Download | Download |
| 2018 | 371005 | 17012.90 | 16840.36 | 172.54 | acre-ft/yr | 10/01/2019 | No | Download | Download |

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 | View 2015 UWMPs, attached documentation, and official letters from DWR to the supplier. | Number of 2015 Urban Water Management Plans (UWMPs) Submitted to DWR 427 Urban Water Suppliers* 11 Suppliers under the reporting threshold* 6 Regional Alliances *Section 10617 of the California Water Code defines an "Urban water supplier" as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. |
| 2015 UWMP Data | Download data submitted by water suppliers for each UWMP Table. For more information regarding table definitions and uses, see DWR's website - 2015 Urban Water Management Plans . | |
| 2010 and 2005 UWMPs | View 2005 and 2010 UWMP data on the California Department of Water Resources website. Select the "Data Retrieval" tab to view links to the data. | |

Water Loss Audit Reports

| | |
|--|---|
| View Water Audit Reports | View AWWA v5 Spreadsheets and Certified Validation Reports submitted to DWR by suppliers. |
| Water Audit Report Data | Download data extracted from AWWA v5 spreadsheets submitted to DWR by suppliers. |

2015 Agricultural Water Management Plans (AWMPs)

| | |
|---------------------------------|--|
| View 2015 AWMPs | View uploaded 2015 AWMP documentation. |
|---------------------------------|--|

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Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7

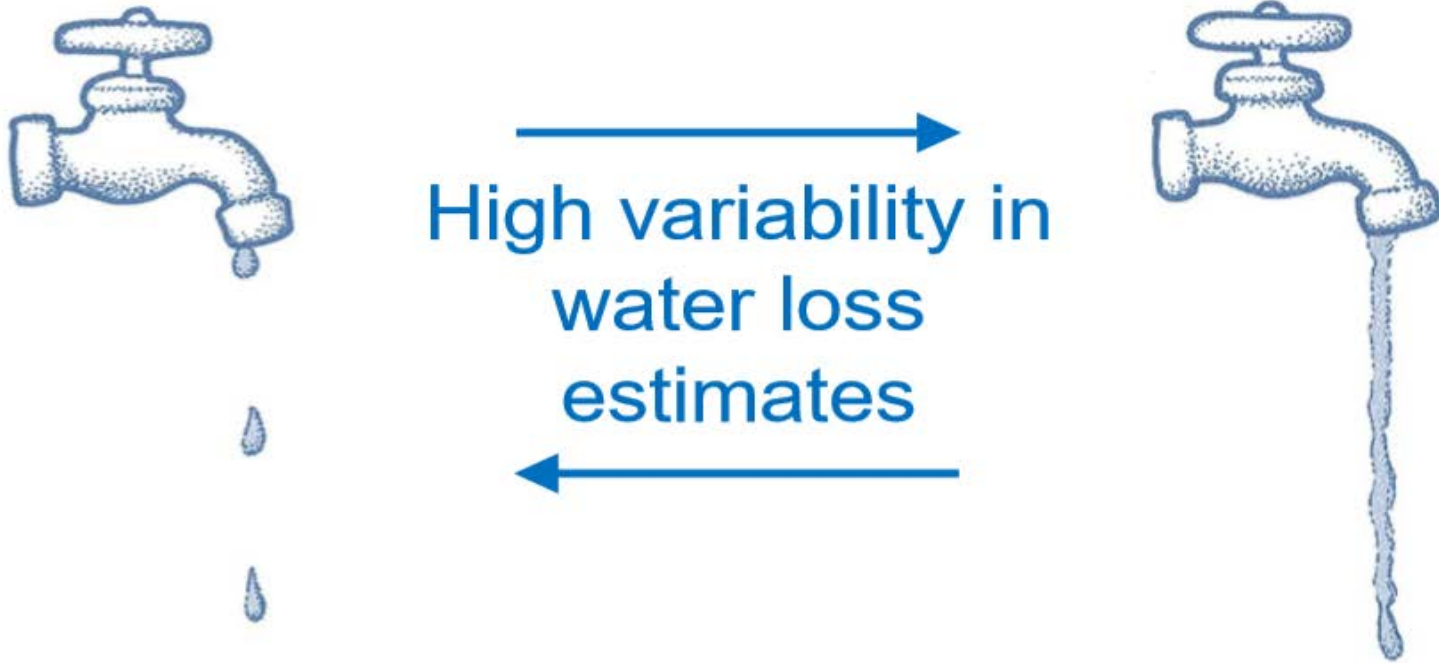
Senate Bill 555 (2015)

Senate Bill 555
(Urban Water
Retailers)

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



Data Reliability



2017 → 2018 → 2019

Common Data Challenges

Source meter accuracy

Meters aren't accessible

Meters are owned by another agency

Volumetric testing feasibility isn't known

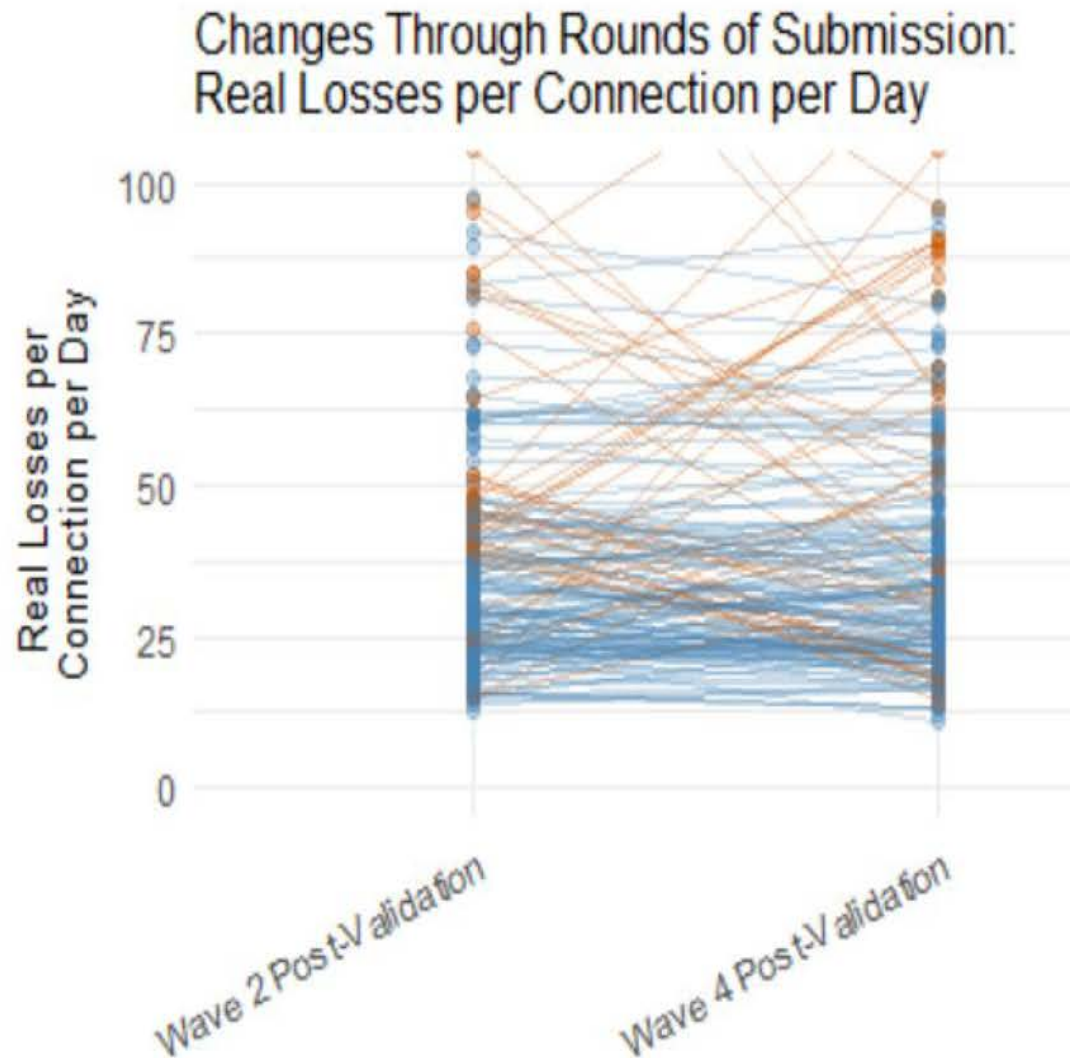
Billing data pro-rating (supply and sales volumes not aligned)

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



Sue Mosburg – Chair, California Water Loss Control Collaborative, Sweetwater Authority
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**American
Water Works
Association**



NORTH AMERICAN WATER LOSS 2019

NASHVILLE, TENNESSEE
DECEMBER 3-5

Partnering Organizations:



**Alliance
for Water
Efficiency**



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