



Municipal
Conservation

BMP Program
BMP Program

System Audits,
Metering, &
Leak Detection

March 10, 2009
Workshop

Identifying Lost & Unaccounted for Water: A Case Study in Apache Junction



Frank Blanco, Director
A.J. Water Utilities
Communities Facilities District



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Notification of 2000
through 2006 Gallons Per
Capita per Day (GPCD)
and Lost and Unaccounted
for Water Percentages
(11.97% - 22.17%)



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FINAL REPORT

WATER SYSTEM AUDIT

Water System Audit

- HDR Consulting
- January 2004 thru June 2005



Waterline Leak Location Projects

- Utility Services; Hughes; HD Supply Waterworks;
- 2003; 2007



Bureau of Reclamation Grant

- Water Conservation Project
- November 2007 – ongoing



Water Systems Specialist

- Created new position
- Dedicated 80% to Conservation and LUA



Steel Tank Inspections

- Liquid Engineering Corporation
- January 2007



Hydrant flow measurements

- Flow measurement within 1%
- Previously estimated



Compare Billing Records to meter reads

- Identify out of range bills monthly
- Follow up with field check



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FINAL REPORT	Water System Audit
WATER SYSTEM AUDIT	• HDR Consulting • January 2004 thru June 2005

- Final Report Water System Audit WUCFD - Jan 2006
 - Analyzed AJ WUCFD meter measurement data
 - Period of 18 months
 - Findings for 12 month moving average
 - Production unaccounted for water = 5%
 - Customer Delivered/Consumption = 11%
 - Combined Total = 16%
 - Developed Overall Strategy for Reduction of Unaccounted-for Water (APPARENT)



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Waterline Leak Location Project

- Utility Services, 2003
- HD Supply Waterworks, 2007

Utility Service Associates (2003)

- 16 miles @ \$222.50/mi.
- Six *Consumer Side* leak sounds
- One *Undefined* leak sound
- Annual water loss 1,324,000 gallons

HD Supply Waterworks (2007)

- 41 miles @ \$277/mi.
- Three *Service* leak sounds
- One *Main Line* leak sound
- Annual water loss 5,256,000 gallons



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CONSERVING WATER FOR OUR FUTURE

• APPARENT LOSSES

- Meter replacement program (I)
- Meter testing/calibration
- Monitoring
 - Water production v. Deliveries
 - Information

• REAL LOSSES

- hydrant flushing
- tank repairs
- water main repairs, etc.
- Technology, Public Education, Public/Private

Reduce LUA



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Water Systems Specialist

- Created new position
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- **Dedicated position**
 - Salary applied towards shared funding
 - Specific job function related to Grant
 - Duties to continue after Grant
 - Research Apparent and Real Losses



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- REAL Water Losses
 - Estimated -
- Repairs
 - Optimize system operations
 - Reduce equipment runtime
 - Reduce energy costs
 - **Reduce LUA**



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Hydrant flow measurements

- Flow measurement within 1%
- Previously estimated

• Accuracy Counts

- Devices vary from \pm 1% to 10%

• Benefits

- Fire flows
- New development
- Reduced Apparent losses & LUA



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Compare Billing Records to meter reads

- Identify out of range bills monthly
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- Research prior years for reporting errors
 - Computerized records available for 2 yrs
 - Paper records for prior years
- Reconcile meter reads and bills
 - Coordinate office with field
- ADWR ANNUAL Reports (F-1 Part 2)
- APPARENT LOSSES = 68% (2008)

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LUA ± 8% (2008)

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- January 2007



Hydrant flow measurements

- Flow measurement within 1%
- Device name goes here



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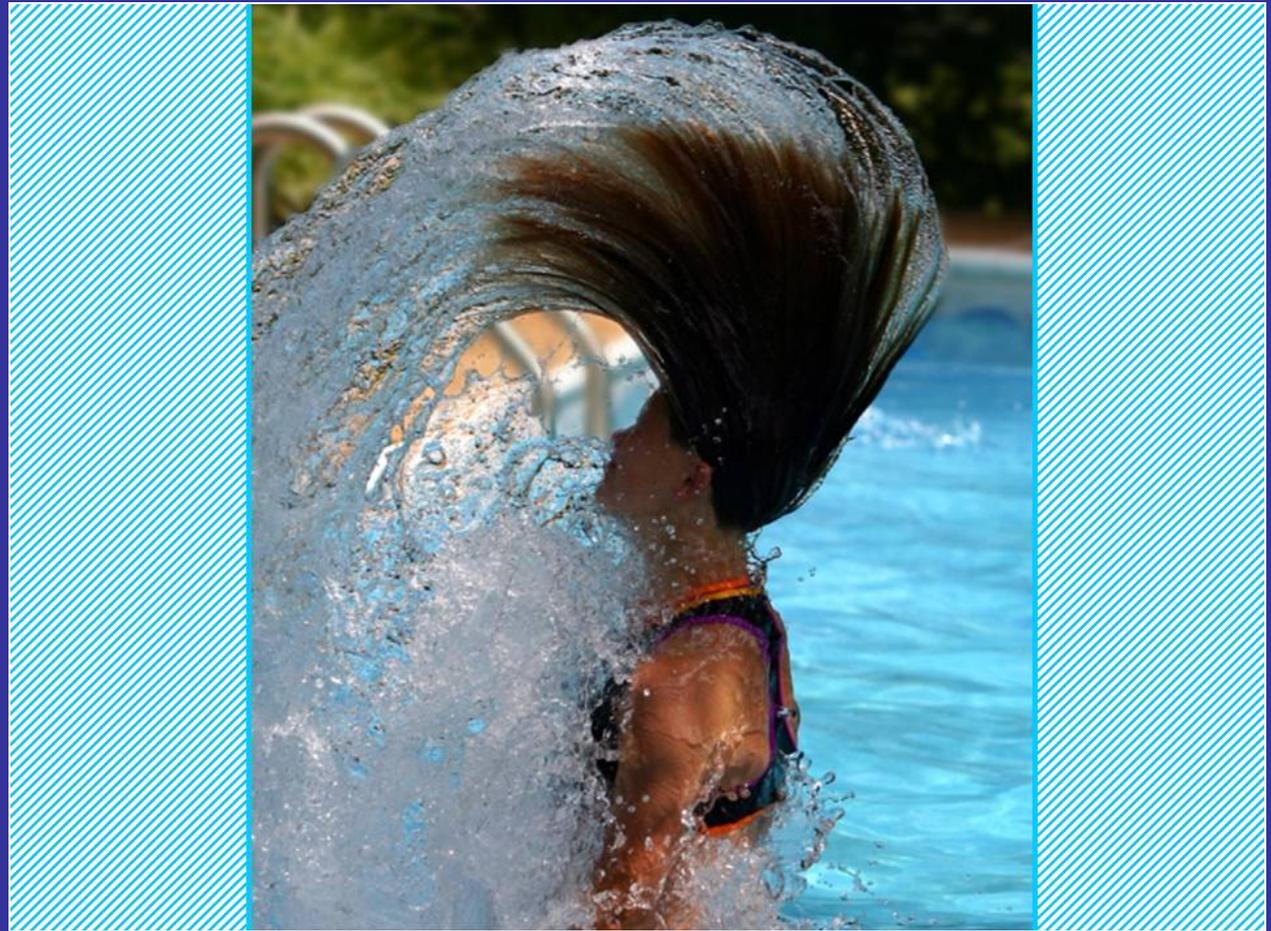


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Frank L. Blanco, CPM, Apache Junction Water Utilities Community Facilities District (WUCFD) Director.

Frank Blanco, an Arizona native originally from Yuma, received an AAS degree from Arizona Western College and a Bachelor of Interdisciplinary Studies degree with a concentration in Organizational Studies from ASU. He completed the Paradise Valley Community College Safety, Health, and Environmental Studies program and is a Certified Public Manager.

Prior to entering the water industry, Mr. Blanco worked six years in Civil Engineering Design for the City of Tempe. He has worked as a water professional for over 23 years and holds certifications in Water Treatment, Wastewater Treatment, and Water Distribution from ADEQ. Mr. Blanco retired from the City of Phoenix in February, 2007 and is currently the Apache Junction WUCFD Director.