Water Reuse

Robert R. Puente
President/Chief Executive Officer

National Association of Regulatory Utility Commissioners
November 18, 2019
Nation's Longest History of Reuse

1718:
Acequia system reused wastewaters

1894:
First collection system to sewage farm

1901:
Mitchell Lake part of large irrigation system
Mitchell Lake
Growth Projections

All projections in 1970s and 80s were for large increases in effluent flow
Growth Projections

Growth did not occur because of aggressive conservation
Recycled Water Program

Water for CPS Energy

Water for Reuse System

Water for Instream Benefit
Water for CPS Energy
Water for Reuse System

Recycled Water System

River flow augmentation locations

Medio Creek WRC

Leon Creek WRC

Dos Rios WRC
Consumptive Uses of Recycled Water

- landscaping
- golf courses
- cooling towers
- industrial processes
Non-Consumptive Uses
Water for Instream Benefit

SAWS recycled water effluents are a critical contribution to the San Antonio River during drought periods.

fish kill on San Antonio River, 1980s

Conquista Crossing on the San Antonio River near Falls City
Water for Instream Benefit
San Antonio/Guadalupe basin
Environmental, Tourism & Economic Benefits
NARUC Annual Meeting and Education Conference

“Leading the Way Exploring Opportunities”

November 17 - 20, 2019
Artesian’s Service Area

- Water Service
- Wastewater Service
- Service Line Protection
- Contract Operations
Our Business Today

Total Water Resource Management

WELL SUPPLY
Deep Aquifers

WATER TREATMENT PLANT
Design, Build, Operate, Own

RESIDENCE
Water, Wastewater, Service Line Protection

WASTEWATER TREATMENT PLANT
Design, Build, Operate, Own

DISPOSAL
Aquifer Recharge
Where we started
Back to the Source
Reusing/Recharging Wastewater in Delaware
Artesian Wastewater Management

$26.8 Million CapEx
Last five years

5
Wastewater facilities

650 Million
Gallons recycled annually

23 Square Miles
Service area
Regulated Wastewater Service Area

Sussex Regional Recharge Facility (SRRF)

Reserves at Lewes Landing WWTP

Beaver Creek WWTP

Heron Bay WWTP

Stonewater Creek WWTP
Rapid Infiltration Basins ("RIBS)
Using “Recycling to” “Reuse"
Delivering Cost-Effective Solutions

New Cooperative Agreements with Sussex County

Combined millions in cost savings for Artesian and Sussex County
SRRF LAGOON
90 MILLION GALLONS
FARMING/UTILITY SERVICE
A PARTNERSHIP
FARMING/UTILITY SERVICE
A PARTNERSHIP
Preserving Farms, Forests and Open Space
NARUC Annual Meeting and Education Conference

“Leading the Way Exploring Opportunities”

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Yes, I can drink it?

Presentation to NARUC Water Committee
By Richard C. Svindland, P.E.
President, California American Water
Nov. 18, 2019
Presentation Topics

• Water Sources

• Types of Recycled Water

• DPR & IDPR

• Examples of DPR & IDPR & Costs

• Items for Consideration
Sources

Surface Water

Groundwater
Sources, cont’d
Types of Recycled Water

Pebble Beach – Golf Course Irrigation
“Purple Pipe”

Source: Google Earth & West Basin website
DPR & IDPR

- DPR = Direct Potable Reuse
- IDPR = In-Direct Potable Reuse
- AWPF = Advanced Water Purification Facility
- AWWTF = Advanced Wastewater Treatment Facility
Example of IDPR – City of San Diego

Source: Pure Water San Diego website
Example of IDPR – Monterey, CA

Source: Monterey One Water website
Example of DPR – Big Spring, Tx
## Typical Costs – to get to Potable Water

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<th>Total Cost (Capex &amp; O&amp;M)</th>
<th>($/1000 gal)</th>
<th>($/AF)</th>
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<td>GW</td>
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*Based on CAW experience

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**Based on EPWater – Civil Engineering, Nov. 2019**
Items for Consideration

• Every project is unique with different cost drivers and sensitivities.

• How to address revenue requirement resulting from reduced water sales?

• Are environmental buffers truly needed (IDPR vs DPR)

• If DPR becomes norm, how do we test in real time?

• Is IDPR or DPR really “Drought Proof”? 

Coronado Example
THANK YOU