Direct Potable Reuse - THE ALTERNATIVE WATER SUPPLY
Water Supply Deficit

- SJRWMD District-Wide = 257 mgd
- Opportunity exists to meet future demands with direct potable reuse and conservation
- Conservation can reduce demand by 90-190 mgd for all type water uses
- Public Supply 46-120 mgd
- In CFWI 27 mgd public supply and 42 mgd total
DPR OPPORTUNITIES in SJRWMD

- 2010 Total Beneficial Reuse = 76 mgd
- 2010 Potential Existing Additional Water for Reuse = 98 mgd
- 2035 Potential New Additional Reclaimed Water for Reuse = 57 mgd
- Opportunity for 231 mgd of direct potable reuse!
DPR OPPORTUNITIES IN CFWI

- 2035 Wastewater collection = 314 mgd
- Reclaimed water increase = 121 mgd
- Potential for reclaimed water quality or DPR = 193 mgd
Water Use Allocation

Permitted Groundwater Allocations up for Renewal in CFWI by Water Management District

- SJRWMD
- SFWMD
- SWFWMD

Million Gallons per Day

Year

In SJRWMD, approximate 250 mgd fresh groundwater supply deficit

Assist in meeting MFLs and avoiding cost of much more expensive AWS

For the first time, the DWSP lists IPR/ DPR as viable options to meet future demands

Current and future reclaimed water supplies offer potential for direct and indirect potable reuse to meet these demands
Direct Potable Reuse Concept

Drinking Water Treatment

Consumer

Advanced Wastewater Treatment

Conventional Wastewater Treatment
City of Clearwater IPR Purification Process

Block Diagram

Reclaimed Water

UF

RO

AOP

REMOVES

Suspended Solids

Cryptosporidium

Giardia

Bacteria

Some Viruses

Heavy Metals

Inorganics

Organics

Viruses

NDMA

Low-Molecular-Weight Organics

Pharmaceuticals

PPCP’s

To Post Treatment
Direct Potable Reuse Cost

- Reclaimed water meets many of the potable water standards
- Additional treatment to potable standards is a small incremental cost increase
- Many WWTPs will be improving plants due to age and NNC requirements
- Take advantage of economy of conducting additional improvements to potable standards
Progressive Water Policies

- **California**: The Water Recycling Act of 2013 (AB-803) reclassified recycled water as a water resource. It had been previously classified as a waste product.

- **California**: The State Water Resources Control Board issued a general order on June 3, 2014 streamlining the permitting process for the use of nonpotable recycled water.

- **Oklahoma**: On May 30, 2014 the governor of Oklahoma signed water reuse regulation (SB 1187) making it possible for agencies to implement potable reuse projects.
U.S. Potable Reuse Projects*

*Source: WateReuse Association
AWS COSTS

- Punta Gorda RO Plant and wellfield $7/ gal capita; l O&M $2.56/1000

- City of Clearwater Indirect Potable Reuse $7/ gal capita; l O&M $1.80/1000
CARLSBAD, CA OCEAN WATER DESAL PLANT

- $700 MILLION/50 MGD = $14/GAL CAPITAL (with pipeline $1 billion)
- 50% efficient; 38 megawatts to pump 100 mgd
- “We will have one more spoke in the wheel” of diversifying the local water supply, Tom Wornham, chairman of the authority, said Wednesday*
- Recycling sewer water into drinking water will hopefully be the next spoke, he said.*

*(San Diego Union-Tribune, January 7, 2014)*
Expert Panel Criteria

- Viruses: 12 log
- Cryptosporidium: 10 log
- Total coliform bacteria: 9 log
**Expected Removal**

- Viruses: 12 log
- Cryptosporidium: 10 log
- Total coliform bacteria: 9 log

<table>
<thead>
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<th>Treatment Train</th>
<th>Log Removal</th>
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<tr>
<td></td>
<td>Viruses</td>
<td>Cryptosporidium</td>
<td>Total Coliform Bacteria</td>
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<td>13</td>
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</tbody>
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Overcome regulatory, scientific, technical, and attitudinal barriers:

- Conduct rigorous scientific research
- Communicate the research findings through public awareness programs
- Work with regulatory authorities to facilitate DPR implementation by local water utilities
WateReuse Association Research
Focus: Community Concerns

Three Phases for Gaining Public Acceptance

- Develop Strategic Communication Plans
- Develop Messaging Material and Methods
- Implement, Evaluate and Refine Plan
- Establish legitimacy
Requires the DEP to conduct a study on the expansion of the beneficial use of reclaimed water, stormwater and excess surface water

Submit a report to the Governor and Legislature by a specified date.

DEP is required to provide the public opportunity of input and comment

SJRWMD to conduct broad brush inventory of opportunity
Gaining Public Acceptance of DPR – WRRF-13-02

- Identify and clarify health and safety concerns related to DPR
- Identify concerns about reliability – What happens if something goes wrong?
- Develop communication tools to address emotional and intellectual concerns
- Develop a public outreach framework and messages that can be adapted by utilities for a variety of community audiences.
ACTION

- Work with legislators and FDEP to make statutory changes to allow DPR

- Work with WateReuse to use lessons from CA and TX so that Florida is a leader in IPR/DPR

- WMDs should participate in funding of demonstration projects (1 MGD or more)
District Water Supply Plans are written to identify potential adverse impacts if current sources are used to meet future demands.

AWS options are presented and IPR/DPR are viable options.
Direct Potable Reuse - THE ALTERNATIVE WATER SUPPLY