# Direct Potable Reuse-THE ALTERNATIVE WATER SUPPLY



28th Annual Environmental Permitting Summer School

<u>July 23-25, 2014</u>

**TETRA TECH** 

Chuck Drake, PG

## 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



#### **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



## SJRWMD District Water Supply Plan

- 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**



#### City of Clearwater IPR Purification Process Block Diagram



### **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.

**TETRA TECH** 

#### U.S. Potable Reuse Projects\*

#### \*Source: WateReuse Association





- Punta Gorda RO Plant and wellfield \$7/ gal capita; IO&M \$2.56/1000
- City of Clearwater Indirect Potable Reuse \$7/ gal capita;I 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

**TETRA TECH** 

"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)

## Trussell Associates: WRRF 11-02

- Expert Panel Criteria
- Viruses: 12 log
- Cryptosporidium: 10 log
- Total coliform bacteria: 9 log





Viruses: 12 log *Cryptosporidium:* 10 log Total coliform bacteria: 9 log
Treatment Train
Log Removal

		Viruses	Cryptosporidium	Total Coliform Bacteria
	CAS-MF-RO-UV/H2O2-Cl2	15	12	18
	CAS-O3-MF-RO-UV/H2O2	15	13	18
	CAS-UF-O3-BAC-UV	14	11	16
	CAS-O3-BAC-UF-UV	14	11	16
	CAS-MF-O3-BAC-UV	13	11	16
>	CAS-O3-BAC-MF-UV	13	11	16



#### WateReuse Associations Research Path to Achieve DPR Initiative Goal

- Overcome regulatory, scientific, technical, and attitudinal barriers:
- Conduct rigorous scientific research

TETRA TECH

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



### LEGITIMACY



### SENATE BILL 536- RECLAIMED WATER STUDY

- 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

**TETRA TECH** 

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)



#### **ACTION**

- 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



28th Annual Environmental Permitting Summer School

<u>July 23-25, 2014</u>

**TETRA TECH** 

Chuck Drake, PG