

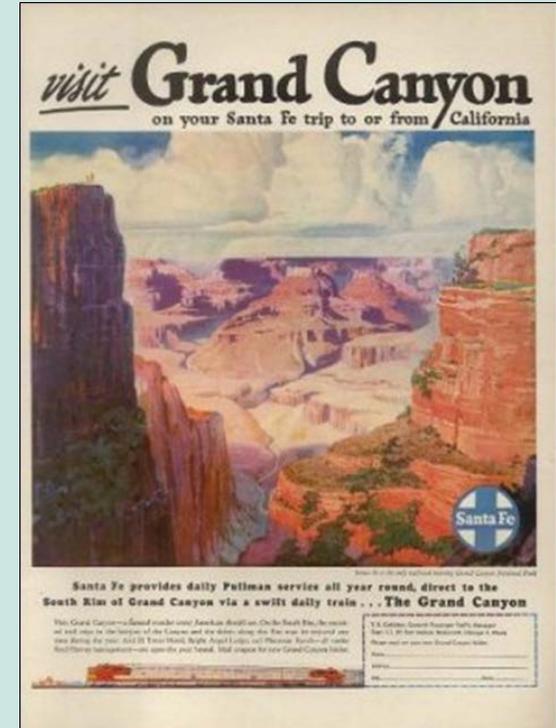


# Reclaimed Water Rules Revision Listening Session Workshop

Flagstaff, AZ  
May 5, 2016

# Reclaimed Water Timeline

- 1926** – Reuse of reclaimed water begins at South Rim, Grand Canyon
- 1972** – First reclaimed water rules, ADHS
- 1987** – EQA establishes ADEQ, which begins administering reclaimed rules
- 1999** – ADEQ gets clear legislative authority for permitting use of reclaimed water
- 2001** – New comprehensive rules transform program



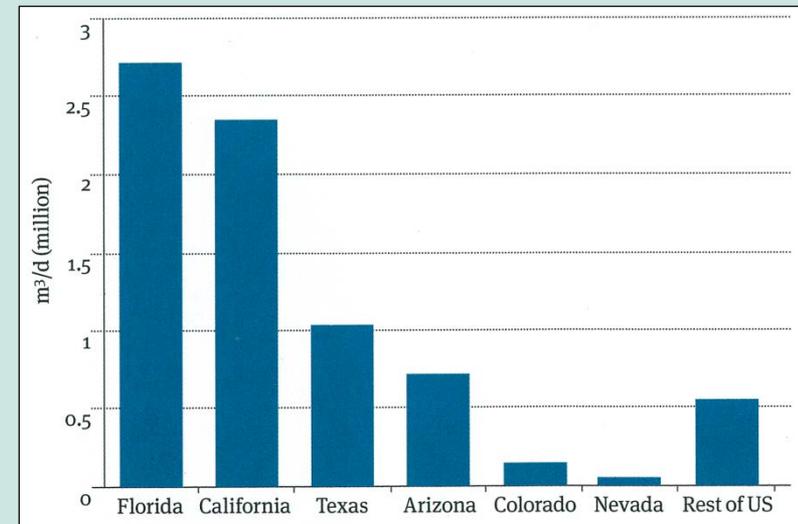
# Reclaimed Water Use

82% of reuse occurs in just four states, Arizona being one



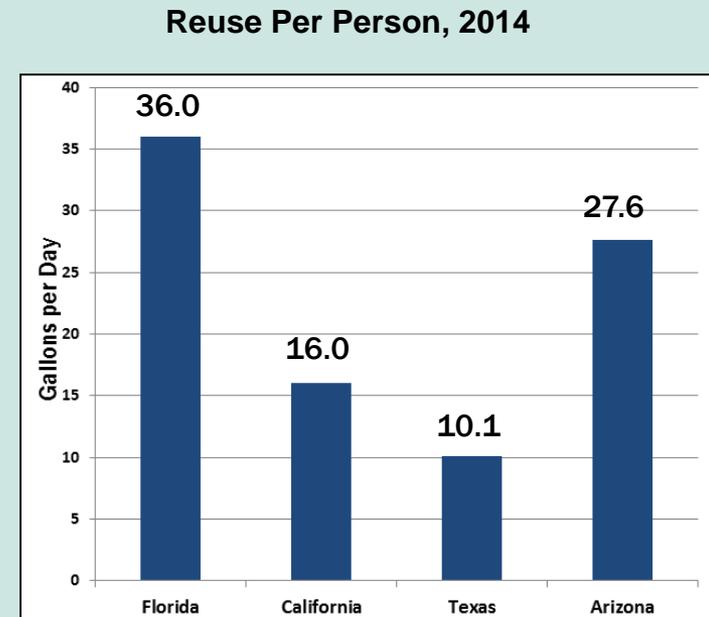
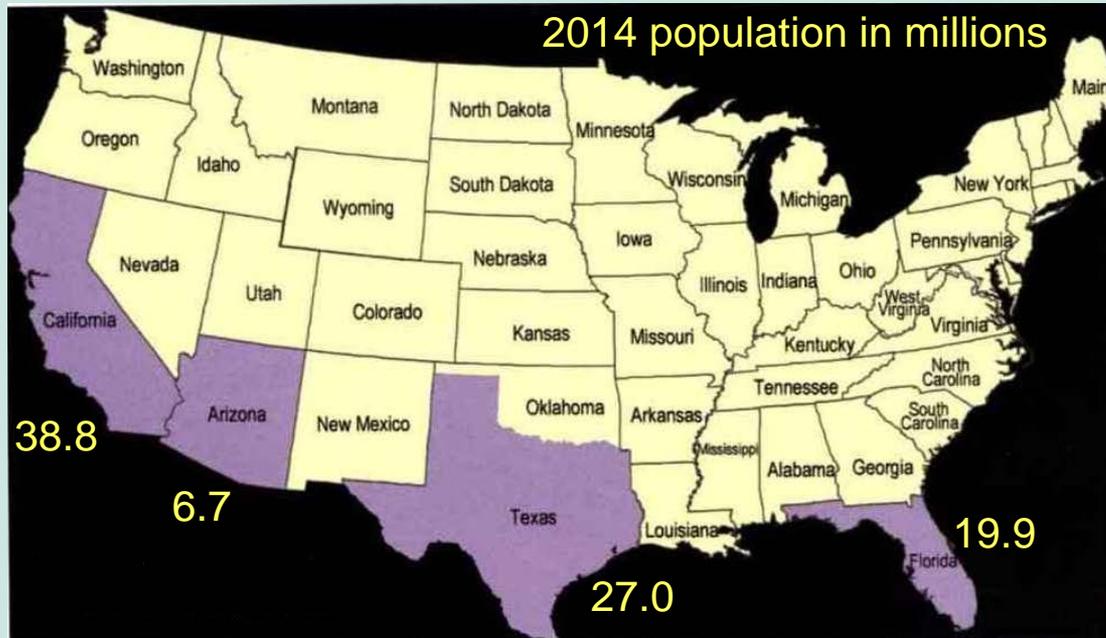
Map: Western Water, July/August 2008

Reused Wastewater Flows, 2014



Source: Bluefield Research

Arizona is 2nd highest nationally in per capita reuse



# Reclaimed Water Use

Water Reuse Capacity (AF/yr)		Reclaimed Water as % of Total Water Supply
Israel	510,000	20%
Singapore	80,783	30%
United States	3,400,000	3%
Florida	955,000	4%
California	807,000	2%
Texas	482,000	3%
Arizona	504,000	7%

**Source:  
Bluefield Research**



...but **#1** at integrating reuse into the water supply portfolio

# ***Excellent Current Regulatory Framework***

- 1. Nationally recognized as one of best**
- 2. Stringent treatment stds. for new/expanding WWTPs**
- 3. Of Arizona's 100 largest WWTPs**
  - 93 distribute for reuse**
  - 58 treat to Class A+/A standard**
- 4. In greater Phoenix area, 82 – 95% of treated wastewater is beneficially reused**

# *Arizona's Largest Reclaimed Water System*

## City of Tucson

- Serves 1000s of residential, M & I, and agricultural users

160 miles of purple pipe

18 golf courses

50 parks

65 schools (incl. Univ. of Arizona)

>700 single family homes

**Irrigating athletic field with reclaimed water,  
University of Arizona**



- **City of Flagstaff**

**13 schools (incl. NAU)**

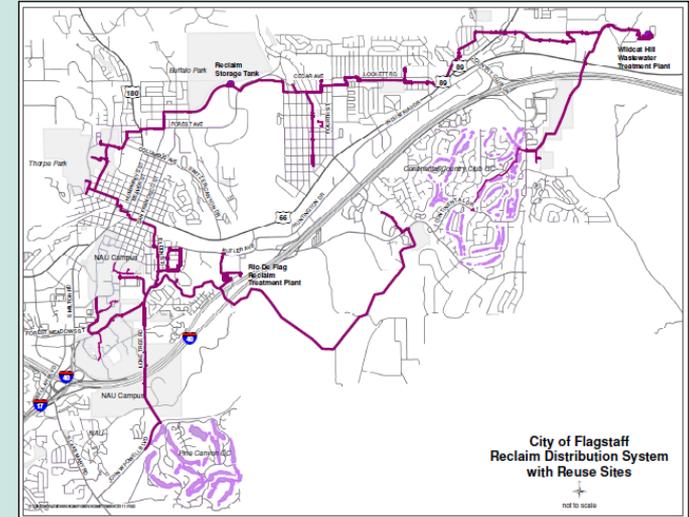
**18 parks & other landscaped sites**

**4 golf courses**

**2 cemeteries**

**1 ski area**

**1 industry: SCA Tissues**

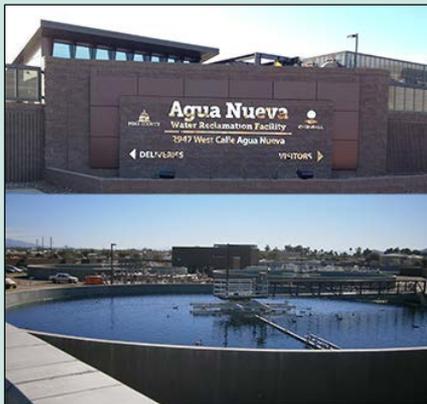


Irrigation with reclaimed water, NAU

# *Stringent Treatment Standards*

## New and expanding WWTPs must employ Best Available Demonstrated Control Technology (BADCT)

- Disinfect effluent so it is routinely pathogen-free
  - No *E. coli*, 4 of 7 daily samples
- Remove nitrogen to below 10 mg/l
- If for open access reuse (i.e., Class A+, A)
  - Filter effluent
  - Meet turbidity of 2 NTU or less (24-hour average)



**New Pima County  
Wastewater  
Reclamation  
Facility**

**Discharge  
below outfall**



# ***Five Reclaimed Water Quality Classes***

**Class A+, A → open access by public**

- pathogen-free
- denitrified (A+) } **BADCT**
- **filtration to meet turbidity <2 NTU**

**Class B+, B → restricted access uses**

- *E. coli limit ≈ Full Body Contact*

**Class C → limited restricted uses**

**Note: Total N <10 mg/l to gain the A+ or B+**

# ***Some Class A+ and A Allowable Uses***

- irrigation of food crops
- recreational impoundments
- residential/schoolyard irrigation
- toilet & urinal flushing
- fire protection systems
- snowmaking
- and more



**Reclaimed Water  
Fire Hydrant**

**Viticulture with reclaimed water,  
Cottonwood (Yavapai College photo)**



# Reclaimed Water Quality Comparison

	Class A, A+ Std.	Class B, B+ Std.	Surface Water FBC Std.	SRP Canal Sample* (lowest)	SRP Canal Sample* (median)
<i>E. Coli</i> (cfu/100 ml)	0	200	126	17	500
Turbidity (NTU)	2	--	--	6	14

\*61 *E. coli* samples, 300 turbidity samples



**Town of Payson  
Green Valley Lake**  
(Class A+ reclaimed water)



**Saguaro Lake**  
(Full Body Contact standard)



**SRP Residential  
Irrigation, Phoenix**  
(no standard)

- 1. Keep up with the rapidly moving reclaimed/reuse field**
- 2. Sustainable water supplies are becoming increasingly important**
- 3. Advance ADEQ Strategic Goals**
  - a. Enhance Arizona's unique environment**
  - b. Support environmentally responsible economic growth**

# ***Rulemaking Process***

## ***Who's Involved?***

**Governor's  
Regulatory  
Review Council  
(GRRC)**

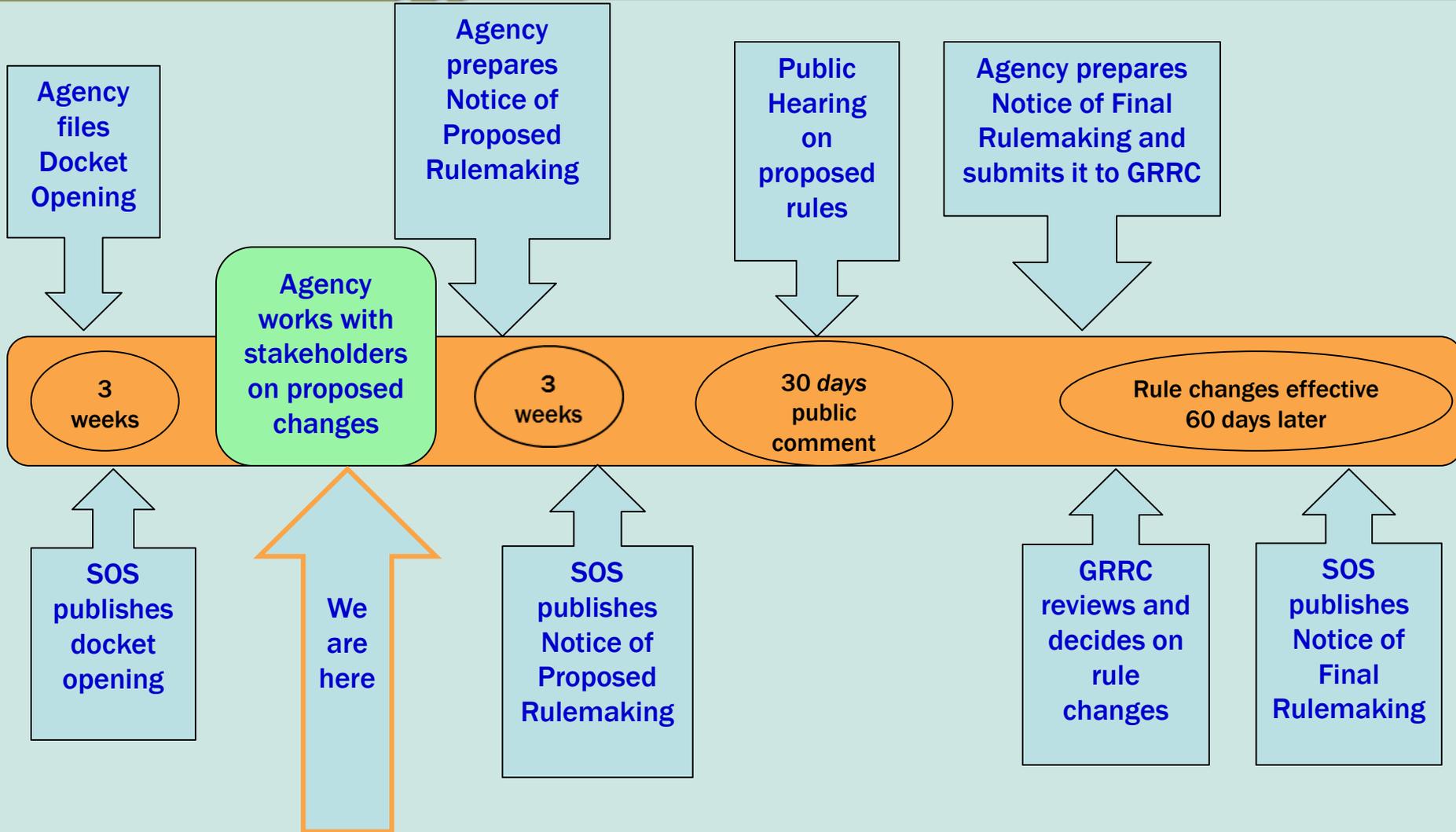
**Secretary of  
State's Office  
(SOS)**

**Agency  
ADEQ**



**Stakeholders**

# Rulemaking Process



## **Reclaimed Water Conveyances (18 AAC, Chapter 9, Article 6)**

### **R18-9-601. Definitions**

### **R18-9-602. Pipeline conveyances**

### **R18-9-603. Open water conveyances**



**Reclaimed water pipeline,  
City of Chandler**



# ***Rules Under Consideration***

**Direct Reuse of Reclaimed Water (18 AAC, Chapter 9, Article 7)**

**Scope: Permits, permitting process**

**R18-9-701 & 702. Definitions & applicability of rules**

**R18-9-703. Transition of permits**

**R18-9-704. General requirements, including signage**

**R18-9-705 & 706. Individual permit requirements**

**R18-9-707. Individual permit with industrial wastewater influence**



# ***Rules Under Consideration***

**Direct Reuse of Reclaimed Water (18 AAC, Chapter 9, Article 7)**

**Scope: Permits, permitting process**

**R18-9-708. Overall general permit requirements**

**R18-9-709 & 710. General permit renewal, transfer, revocation**

**R18-9-712 – 716. General permits for Class A+, A, B+, B, and C water**

**R18-9-717. General permit for blending facility**

**R18-9-718. General permit for reclaimed water agent**

**R18-9-720. Enforcement and penalties**

# *Rules Under Consideration*

**Direct Reuse of Reclaimed Water (18 AAC, Chapter 9, Article 7)**

**Scope: Permits, permitting process**

**R18-9-711. General permit for private residential gray water use**

**R18-9-719. General permit for other gray water use**



**Home gray water irrigation**  
Photo credit: Brad Lancaster



**Large-scale gray water use**  
Barrett Honors College, ASU



# ***Rules Under Consideration***

**Reclaimed Water Quality Standards (18 AAC, Chapter 11, Article 3)**

**Scope: Standards and allowed end uses**

**R18-11-301 & 302. Definitions and applicability**

**R18-11-303 – 307. RWQS, Classes A+, A, B+, B, and C**

**R18-11-308 & 309. RWQS for industrial use and unlisted uses**

**Appendix A. Table of allowed end uses**

# ***What these revisions don't cover***

- **BADCT treatment requirements for WWTPs (under APP)**
- **Fees for reclaimed water permits (fee rules)**
- **Criteria for recharge of reclaimed water**
  - permitted under APP
  - ADWR permit needed, too
- **Development of certified operator classification for reclaimed water distribution systems**
  - would fall under operator certification rules



# ***Today's Listening Session Workshop Process***

## **Five Categories:**

- 1. Conveyances/Infrastructure**
- 2. Permits/Permitting Process**
- 3. End Uses and Reclaimed Water Quality Standards**
- 4. Gray Water**
- 5. Other**

# ***Today's Listening Session Workshop Process***

- Write suggested changes/improvements on Post-it notes (20 minutes total)
- Post to the appropriate topic category
- Summary of Post-it notes for each category