Danielle McPherson, Water Resource Specialist at WaterNow Alliance
Winner: AZ Pure Water Brew Challenge?

What: Public outreach campaign about water reuse and a state-wide beer competition

Why: Challenge public perceptions about water reuse and demonstrate protection of public health

How: Engage the public in conversations and education about water reuse
The water purification process

Using a multi-barrier purification process, we can transform recycled water into PURE water – A Proven Technology. The result is a Safe, Reliable and Sustainable water supply.

1. **ULTRAFILTRATION**
   - Removes: Suspended solids, Bacteria, Protozoa, Cryptosporidium, Giardia.

2. **REVERSE OSMOSIS**
   - Removes: Organics, Pharmaceuticals, Personal Care Products, Inorganics, Heavy metals, Viruses.

3. **UV/ADVANCED OXIDATION**
   - Destroys: Pathogens, Trace organics.

4. **GRANULAR ACTIVATED CARBON**
   - Removes: Trace organics, Disinfection byproducts, Remaining hydrogen peroxide.

5. **CHLORINE DISINFECTION**
   - Destroys: Pathogens, Viruses.

PURE Water
Beer!
AZ Pure Water Brew Challenge

26 Craft Breweries
Why is this important?

**Nonpotable Reuse**
Landscape and agricultural irrigation, cooling towers, toilet flushing, etc.

**Potable Reuse**
- Indirect Potable Reuse
- Direct Potable Reuse - Not currently permitted
All water is recycled!
Why is this important?

• Continue effective water management planning for the future

• 39% of Arizona’s water comes from the Colorado River

• Potable reuse is a reliable, locally controlled source of drinking water
Water recycling in Central Arizona

- **82%** of all effluent generated in Central AZ is reused
- **21%** Recharge
- **11%** Environment
  - Just 18% of effluent is discharged (uncommitted)
- **22%** Agriculture
- **22%** Power Generation
- **100%** Palo Verde Nuclear Plant uses reclaimed water for cooling
### Water recycling in Flagstaff

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Industrial</td>
<td>16%</td>
</tr>
<tr>
<td>Commercial use</td>
<td>6%</td>
</tr>
<tr>
<td>Municipal turf watering</td>
<td>6%</td>
</tr>
<tr>
<td>Institutional use (NAU)</td>
<td>8%</td>
</tr>
<tr>
<td>Turf watering</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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- Nearly 100% of all waste water generated is reused in the summer.
- 50% of reclaimed water is used on golf courses in Flagstaff.
- Nearly 80% of lawns at NAU are watered using reclaimed water.
Why is this important?

Nonpotable Reuse
Landscape and agricultural irrigation, cooling towers, toilet flushing, etc.

Potable Reuse
Indirect Potable Reuse
Direct Potable Reuse – Not currently permitted

Department of Environmental Quality is currently rewriting the reuse rules and may include standards for potable reuse by the end of 2017
Why potable reuse?

- Reliable, locally controlled water resource
- Doesn’t require a dedicated distribution system
- Cost compared to:
  - Desalination – 50% more expensive, 46% more greenhouse gas emissions
  - Securing new water resources
The challenge is not whether the technology is capable of making reclaimed water safe for human consumption...

Public perceptions will be the most difficult challenge.

Tackling the “yuck” factor
What’s next?

• Replicable & Scalable
  • What’s next for purified reclaimed water in Arizona?
  • Will my city start using purified reclaimed water soon?

• Continuing outreach effort

• Stay tuned for updates!

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Danielle McPherson
Water Resource Specialist, WaterNow Alliance
dm@waternow.org