RECLAIMED WATER REUSE IN ARIZONA

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Purple Pipes: Promises and Precautions for Water Reuse
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Pre-2001

- ~150 Individual permits
- WQ Standards were complex and confusing
- Monitoring/compliance by end user
- Construction approvals of pipelines
- No graywater reuse permits
2001 to Present

Reclaimed Water Quality Standards:
- 5 Classes based on protection of human health and the environment
- Uses based on RWQ class
- Industrial reclaimed water

Reclaimed Water Permits
- General and individual permits

Technical standards for conveyances
Reuse Now

APP and Reclaimed Water permitting are complimentary:

- WQ monitoring by STF under individual APP
- General permit approach for most reuse
- Individual permit option retained

Industrial APPs usually contain the monitoring requirements
Reclaimed Water Permits

![Bar chart showing the number of permits for Type 2 GP, Type 3 GP, and Individual categories. The chart indicates a significantly higher number of permits for Type 2 GP compared to the other two categories.]
Type 2 Reclaimed Water Permits

- Class A+
- Class A
- Class B+
- Class B
- Class C
Reuse in AZ

Direct Reuse:
• Regulated under the Reclaimed Water Permitting Program

Beneficial Use:
• Permitting is not required
• Significant volumes used
Reuse in AZ

Challenges:
- Planning and infrastructure
  - Multiple efforts to develop standards
- Salt concentration in reclaimed water & soils
- Microconstituents (EDCs, PPCPs)
  - Treatment effectiveness
## Estrogenic Activity in WWTPs

Influent/Effluent Estrogenic Activity at Selected AZ WWTPs (2006)

<table>
<thead>
<tr>
<th>Facility</th>
<th>Influent</th>
<th>Effluent</th>
<th>Fraction Removal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roger Road</td>
<td>$3 \times 10^{-10}$</td>
<td>$2 \times 10^{-10}$</td>
<td>0.33</td>
</tr>
<tr>
<td>Ina Road</td>
<td>$4 \times 10^{-11}$</td>
<td>$5 \times 10^{-12}$</td>
<td>0.88</td>
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<tr>
<td>Avra Valley</td>
<td>$1 \times 10^{-9}$</td>
<td>$2 \times 10^{-12}$</td>
<td>0.998</td>
</tr>
<tr>
<td>Randolph Park</td>
<td>$2 \times 10^{-10}$</td>
<td>$&lt; 2 \times 10^{-12}$</td>
<td>$&gt; 0.99$</td>
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<tr>
<td>Wildcat</td>
<td>$1 \times 10^{-10}$</td>
<td>$4 \times 10^{-12}$</td>
<td>0.96</td>
</tr>
<tr>
<td>Rio de Flag</td>
<td>$1.5 \times 10^{-10}$</td>
<td>$&lt; 6 \times 10^{-13}$</td>
<td>$&gt; 0.996$</td>
</tr>
</tbody>
</table>
Contact Information

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