

# Safe Application of Reclaimed Water Reuse in the Southwestern United States

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Water reuse has become more common due to the scarcity of fresh water resources and competition for high quality water. However, knowledge gaps still exist regarding the behavior of contaminants from reclaimed wastewater in soil and water systems. Researchers, regulators, and users worked to identify the potential problems, research, and educational needs in promoting the safe use of reclaimed wastewater. Investigator studied the:

- 1) fate and transport of trace organic contaminants, such as pharmaceuticals and personal care products (PPCPs) and endocrine disrupting compounds (EDCs) in the soil and water receiving reclaimed wastewater. The mobility of most of the trace organic compounds was found to be low, and no groundwater contamination was observed. However, potential for adverse effects to soil and water cannot be overlooked.
- 2) presence and persistence of waterborne and water-based

pathogens remaining in reclaimed wastewater following disinfection, and the potential microbial and chemical changes possible after disinfection within reclaimed wastewater distribution systems. Significant microbial growth and re-growth was determined to occur post-disinfection of both system types, which suggests the importance of protecting public health by monitoring the reclaimed wastewater distribution system.

- 3) wastewater treatment levels and distribution systems that integrate reused water as a component of existing water systems

- 4) use of computer models to assess the salinity effect on crop growth. Several commonly used computer simulation models that assess the salinity effect on crop growth

were evaluated. The tested models are useful tools for planning water reuse projects.

In the public sphere, concerns remain over the real or perceived risks of reclaimed wastewater reuse, and as a result, municipal decision-making can be influenced more by public perception of risks rather than by

scientific assessments. Presentations, field day tours, and educational publications and technical journal articles have been made available to the general public. Community work

and water reuse conferences have been established. The increasing use of recycled wastewater in the southwestern states can at least partially be attributed to these efforts.

Preliminary research from this project has allowed project partners to leverage funding from several granting agencies and public and private partnerships

including the Arizona Department of Environmental Quality (ADEQ), the WaterReuse Association, and many utility partners.



City of Peoria (Arizona) irrigation covers in residential park



Purple pipe

Pollutant loads to surface and ground water are reduced due to increasing use of reclaimed wastewater for irrigation, and as a result, decreasing release of wastewater to surface water.



City of Tucson distribution system



City of Tucson signage

