



City of Phoenix

**Northeast Phoenix
Reclaimed Water
Recharge and Recovery**

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The Northeast Phoenix Reclaimed Water Recharge and Recovery Study (Study) was initiated to evaluate development of a reclaimed water recharge and recovery system to augment natural recharge in the Northeast Aquifer and to provide a new water supply for non-potable uses and, potentially, indirect potable reuse (IPR). While aquifer recharge and recovery is not a new concept in Arizona, there are few examples of recharge and recovery of reclaimed water in a potable aquifer.

Watercat was retained to review the water quality considerations associated with reclaimed municipal wastewater reuse and recharge and recovery, particularly for potable reuse. Watercat compiled a review of reclaimed municipal wastewater reuse issues, which include:

- microbial pathogens, including bacteria, viruses, and protozoa; disinfection byproducts (DBPs);
- organic constituents, which can pose health risks or lead to the growth of microbial pathogens;
- inorganic constituents such as metals and radionuclides; as well as salinity.

Watercat also reviewed regulatory issues associated with reclaimed water recharge and recovery. Regulatory considerations include potential negative impacts associated with reclaimed water reuse, its impact on underground sources of drinking water, and potential risks from subsurface interactions. However, regulatory considerations can also include the potential benefits of blending reclaimed water with native groundwater before potable reuse; potential water quality improvements from subsurface interactions; and the use of aquifers as an “environmental buffer” to provide an additional barrier to complement pre-injection treatment and other management measures.

Watercat prepared profiles of the regulatory, management and engineering approaches in use or under development for aquifer storage for indirect potable reuse at three project sites, as well as the regulatory approaches in states where those sites are located. The sites and states selected for case studies for this review were:

- Orange County Water District Groundwater Replenishment District (CA)
- El Paso Water Utilities Hueco Bolson (TX)
- Miami-Dade South District Water Reclamation Plant (FL)

Outcomes: In addition to producing the review report for City of Phoenix, Watercat worked with the City of Phoenix staff and RW Beck/SAIC team on development of a workshop for the Arizona Department of Environmental Quality ADEQ), Arizona Department of Water Resources (ADWR), and the Maricopa County Environmental Services Department (MCESD). This workshop enhanced the dialogue between the City of Phoenix and the agencies to review Arizona drinking water and aquifer protection regulations, and discuss Phoenix’s proposed reclaimed water ASR and IPR project could be permitted.