City of Prescott Aquifer Storage and Recovery

WATER EDUCATION by DROP by DROP

September 2019

Welcome to WaterSmart: Drop by Drop!

This interactive education series is brought to you by the City of Prescott. An informed community can make better short-term and long-term decisions concerning our water supply. Let's discuss water one drop at a time!

WaterSmart Factsheet Summary:

- *Recharge is a natural or manmade process where water infiltrates back into the ground and later may rejoin the water table.*
- *Recovery is done with the use of a well and pump to extract the supplies that had been stored either naturally or by manmade efforts.*
- *The City operates an aquifer storage and recovery facility to meet state requirements to improve ground water supplies.*

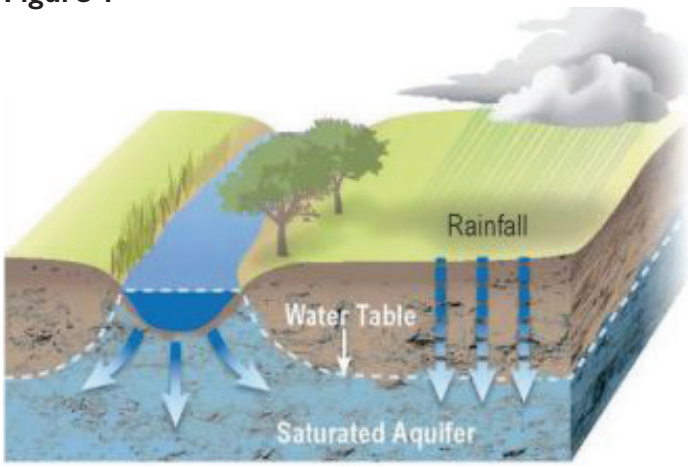
The City of Prescott operates an aquifer storage and recovery facility that recharges both surface water and reclaimed water (treated effluent) supplies in accordance with Arizona State Statutes. The use of recharged and recovered supplies meets both the State's and City's water management efforts for maintaining long-term groundwater supplies.

What is Aquifer Storage and Recovery?

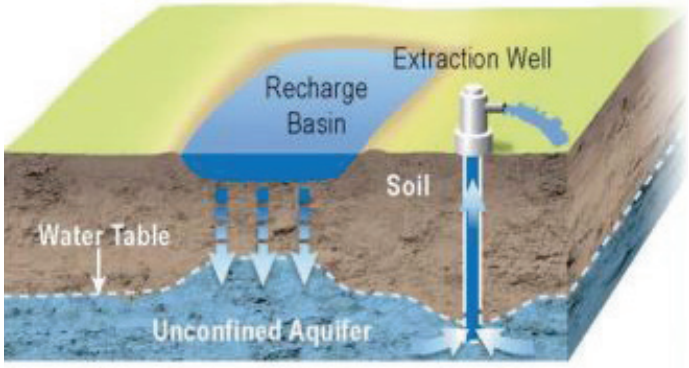
An aquifer storage and recovery facility, also termed a "recharge facility", follows one of the hydrologic processes known as percolation or infiltration. Infiltration is the process by which water moves downward from the land surface into the subsurface soil and rock, and can eventually reach a groundwater system (aquifer). Natural recharge occurs at the land surface and in stream channels, while artificial recharge occurs at manmade locations such as recharge basins or injection wells. See Figure 1.

Water supplies that have been recharged into the ground can be recovered for later use. The recovery of supplies is achieved using a well equipped with a pump; this well is typically located near the location of the recharge facility. The City holds two recovery permits, one for water that can be recovered at a later date and a second for water that is non-recoverable (permanent recharge). The recharged surface water supply must be recovered annually while the reclaimed supply can be recovered the same year, or left in the ground and banked for future use.

Figure 1



Natural recharge



Artificial Recharge

Source: California Water Plan Update 2009

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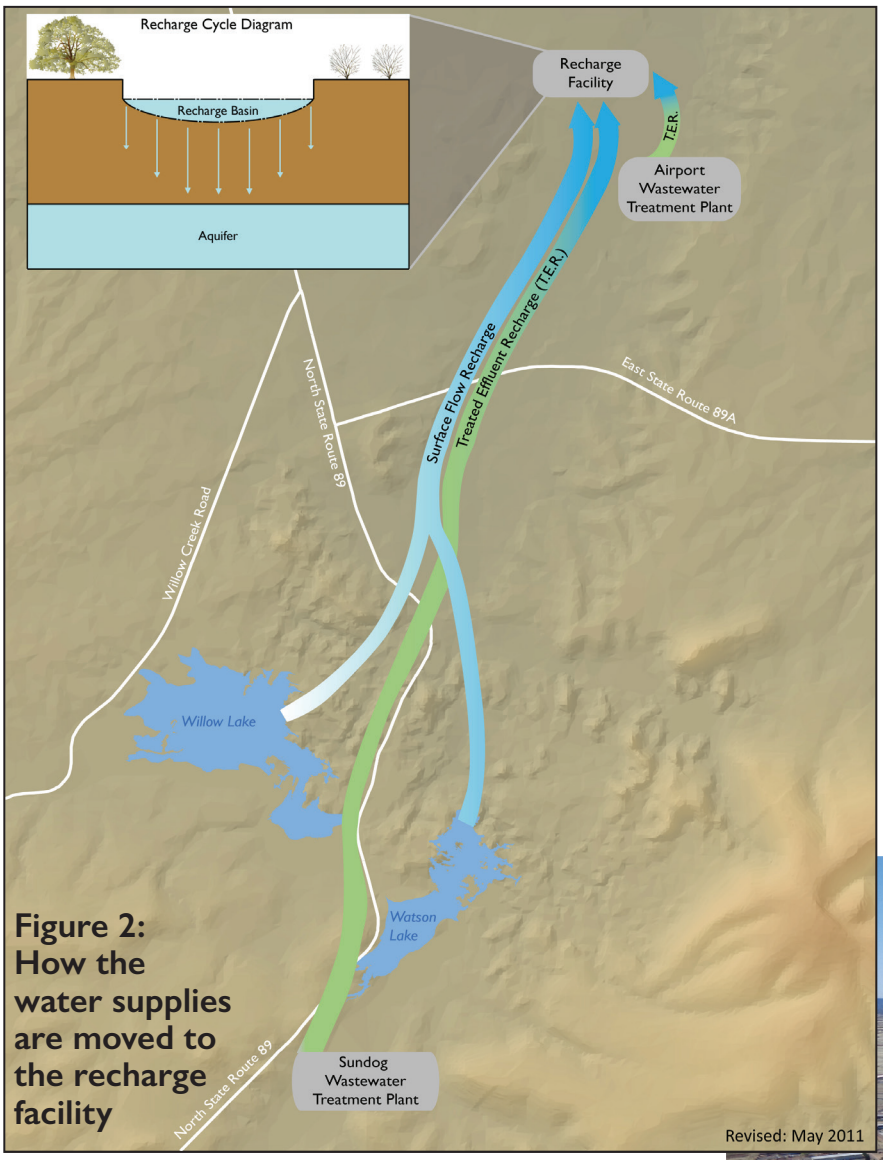

Figure 2: How the water supplies are moved to the recharge facility

City's Recharge Facility

City of Prescott's recharge facility is permitted to store up to 12,000 acre-feet per year (1 acre-foot = 325,851 gallons), a combination of surface water and reclaimed supplies. Pending weather conditions, the City may divert surface water supplies from the Watson and Willow Lake Reservoirs to the recharge facility in a volume between 0 and 3,861 acre-feet per year. Based on a legal determination assumed by the City in 1998, surface water supplies may only be diverted to the recharge facility from April 1st through November 30th; however, under certain circumstances surface water recharge may commence before April. Reclaimed supplies are more predictable, on average 2,806 acre-feet per year is sent to the recharge facility. Reclaimed supplies can be recharged throughout the year, but these supplies are first made available to reclaimed water contracts (golf courses and industrial use). The City has eight wells identified in State permits to recover water supplies that have been recharged.

Figure 3: Aerial view of the City's recharge basins

Did you know?

The potable water supplies served to lands annexed into the City on November 8, 2011 or later, of 250 acres or more, requires that all effluent generated by the new development be permanently recharged? (City Charter, Article 1, Section 4.b.)

Be WaterSmart!

The primary benefit of an ASR project is to enhance or increase water supply for drought mitigation. The stored water can be pumped out of the aquifer (recovered), treated, and utilized as a freshwater supply when additional water is needed during periods of drought.

(Source: FEMA, February 2017)

Water Smart™

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