



Aquifer recharge

Why and how



Why is a well being drilled in west Sedona near the wastewater treatment facility?

The city has hired a contractor to drill what's known as a point of compliance well, also called a monitoring well, to add to an existing monitoring well the city has used since 2002 to monitor the quality of water returned to the aquifer, as well as the general condition of the aquifer.

The treated wastewater that the city injects is A+ quality. The city conducts daily tests on the treated wastewater to ensure it meets the standards for A+ quality.

The city is drilling the new monitoring well because the Arizona Department of Environmental Quality determined the new location would provide more accurate data based on environmental conditions in the surrounding area. ADEQ requires the city to frequently test and report data on water quality and aquifer condition to protect the health of the environment.

The new well should be completed and operational by the end of 2017. When the work is done, the wellhead will not be visible from SR 89A.

Why does the city inject (return) water to the underground aquifer?

It is good for the environment and is a responsible use of resources. In 2017, the Sustainability Alliance, a coalition of nonprofits in north and central Arizona, recognized the city at a Bronze level as part of a Sustainable Business Certification assessment. One of the factors for achieving this level of certification was the city's commitment to recharging the aquifer, reuse of reclaimed water and A+ water quality standards.

Residents of Sedona generate 1.1 million gallons of wastewater every day. That water has to be returned to the environment some way. Sedona returns its treated, A+-quality water to the environment in a combination of three ways:

- Places it in wetland marshes and ponds near the treatment facility, where it is used by plants and evaporates
- Sprinkled onto the ground through spray Irrigation, where it seeps into the earth and aquifer

Are there compounds left in the wastewater after treatment?

Yes, there are some, present in very small amounts.

Water quality is regulated by ADEQ and the city must meet daily water quality parameters in order inject. Our treatment process produces the highest quality of effluent recognized by the state regulatory agency (A+) and the city must demonstrate that it meets requirements daily, weekly, and monthly.

In addition to testing our effluent daily, prior to injection, we are required to also conduct tests on the groundwater at four different monitoring points throughout our 400 acres on a monthly basis. The city conducted laboratory testing for 112 different compounds in 2014, including pharmaceuticals, herbicides, food additives, personal care product compounds and other consumer chemicals.

The study, which tested CEC levels in both raw wastewater and treated effluent, found that the city's treatment process reduces the levels of these compounds, called Contaminants of Emerging Concern, in the original water by approximately 99 percent. Our testing measured CECs in levels of nanograms per milliliter, or parts per trillion (the equivalent of one drop of water in 20 Olympic-sized swimming pools of 13.2 million gallons). At at 99 percent reduction of CECs, this is a very high level of water quality and recharging the aquifer is part of good stewardship of the environment.

- Injected directly into the aquifer where it may be stored and later reused, or move and be naturally filtered until it rejoins the groundwater system that feeds river and lakes.

The city uses a combination of methods because ponds, soils and the aquifer can only accept so much water at a time. That amount varies greatly depending on weather and soil conditions, evaporation rates that change daily, osmosis by plants, and seasonal fluctuations in rain and snowfall. The city's Point of Compliance wells are placed in specific areas to detect the influence of the sprays, wetlands and injection activities on groundwater.

The way the city treats, monitors, stores and disposes of water is closely regulated by state and federal laws and regulations, and is monitored continuously by certified wastewater operators and chemists.

You can help protect Sedona's water

Never flush anything down the toilet except human waste and toilet paper. Don't flush trash, cigarettes, waste food, diapers, dental floss, sanitary products or pharmaceuticals. The proper way to dispose of medicines is in the trash or at the Rx drop box at the Sedona Police Department.

In the kitchen, don't pour oil or grease down the drain. Soak up large amounts with newspaper or paper towels, then seal and throw them in the trash. Never allow hazardous compounds such as gasoline and other vaporous liquids to get into the sewer system.

You are welcome to visit Sedona's wastewater facility to see how the system works -- it is an interesting and educational tour. Call (928) 204-2234 to make reservations.



Sedona Wastewater Facility Nov. 2017

Lab tech Amy Collins, taking samples.

