

Welcome

Welcome to OneWater Nevada's field scale demonstration project tour, where you will learn how reclaimed water can be treated and purified to reach Category A+ status. Category A+ refers to reclaimed or recycled water which goes through advanced purification processes to produce water that meets or exceeds all Federal and State drinking water standards.

These demonstration project trailers are equipped with state-of-the art advanced water purification technologies. You can follow the purification steps and learn about how this remarkable technology can produce water that is cleaner and more pure than most bottled water.

Each trailer is furnished with informational signage to help you walk through and understand the treatment process.

Trailer 1: Filtration – a combination of materials act as filters to remove solids and pathogens.

Trailer 2: Ozonation and Biologically Active Filtration – biodegrades and removes dissolved organic constituents.

Trailer 3: Granular Activated Carbon and Ultraviolet Disinfection – removes trace amounts of remaining dissolved organic constituents, such as pharmaceuticals or disinfection byproducts; inactivates any remaining viruses and pathogens.

After this purification process, the water produced meets or exceeds all Federal and State drinking water standards. Purified water is then injected into the groundwater aquifer where further natural treatment occurs.

This Demonstration Project will allow OneWater Nevada to safely evaluate the feasibility of augmenting groundwater supplies with advanced purified water by monitoring and conducting data analysis at a small scale.

What Is OneWater Nevada?

- OneWater Nevada is a collaborative effort of regional agencies exploring an approach to extending the usefulness of our existing, local water resources for the future.
- The initial effort is to evaluate improving water utilization efficiency, providing operating flexibility during periods of water scarcity, and diversifying the region's water supply portfolio utilizing Nevada's newly adopted "A+" reclaimed water category.
- Collaborating agencies include: University of Nevada, Reno; Truckee Meadows Water Authority, Washoe County, City of Reno, City of Sparks, Western Regional Water Commission, Northern Nevada Water Planning Commission and Truckee Meadows Water Reclamation Facility.

Overall Goal of OneWater Nevada

- OneWater Nevada's goal is to evaluate treatment technologies and determine if Category A+ reclaimed water can offer long-range benefits to the Truckee Meadows water supply portfolio.
- The feasibility effort consists of multiple elements, including technical, social, environmental and financial analyses, regulatory compliance, public engagement, advanced treatment pilot testing, geotechnical investigations, and field scale treatment demonstration projects.



OneWaterNevada.com

Project Information Contact

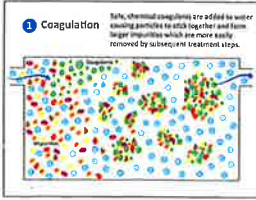
Lydia Peri, P.E., Emerging Resources Program Administrator
Truckee Meadows Water Authority
LPeri@tmwa.com • (775) 834-0247

OneWater Nevada Demonstration Project

Researching Advanced Purified Water Treatment Technologies



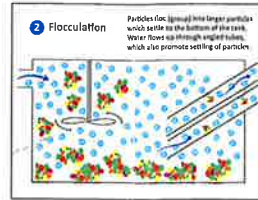
1 Coagulation



Safe chemical coagulants are added to water, causing impurities to stick together and form larger particles which are more easily removed.

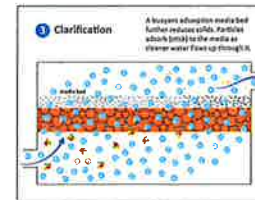
A poly aluminum chloride coagulant is used, which is the same coagulant used in Reno drinking water facilities.

2 Flocculation



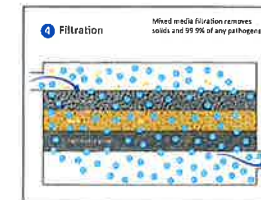
Particles floc (group) into larger particles which settle to the bottom of the tank. Water flows up through angled tubes, which also promote settling. As water flows up, heavy coagulated or floc particles settle to the bottom of the tank.

3 Clarification



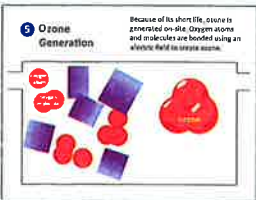
A buoyant adsorption media bed further reduces solids. Particles adsorb (stick) to the media as cleaner water flows up through it. Captured solids are periodically flushed from the media using an air/water combination.

4 Filtration



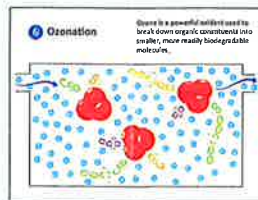
Mixed media filtration removes solids and 99.9% of any pathogens. This basic water treatment filtration step uses a bed of anthracite, sand and high-density garnet.

5 Ozone Generation



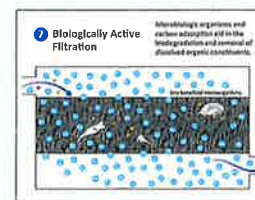
Because of its short life, ozone is generated on-site. Oxygen atoms and molecules are bonded using an electric field to create ozone. The ozone then becomes an important part of the next step in the purification process.

6 Ozonation



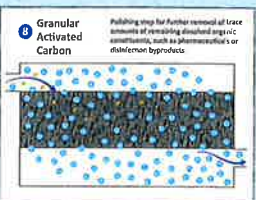
Ozone is a powerful oxidant used to break down organic constituents into smaller, more readily biodegradable molecules. The ozone is infused into the water, where it is effective in degrading organic substances in the water.

7 Biologically Active Filtration



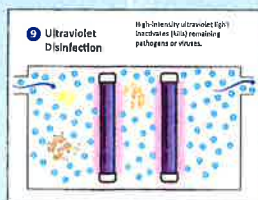
Microbiologic organisms and carbon adsorption aid in the biodegradation and removal of dissolved organic constituents. Biologically active filtration has become a major process in advanced water treatment, which is commonly used in developed countries such as America, Japan, Holland, Switzerland, and others.

8 Granular Activated Carbon



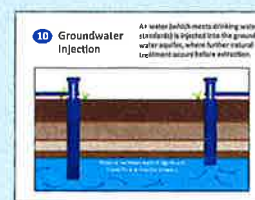
This is a "polishing" step for further removal of trace amounts of remaining dissolved organic constituents, such as pharmaceuticals or disinfection byproducts. Water flows through vessels containing granular activated carbon and compounds are adsorbed into the carbon.

9 Ultraviolet Disinfection



High-intensity ultraviolet light is used to inactivate (kill) remaining pathogens or viruses. The UV light is similar to the sun's rays, and could be used in conjunction with an oxidizer such as peroxide.

10 Groundwater Injection



A+ water (which meets drinking water standards) is injected into the groundwater aquifer, where further natural treatment occurs in the environment before extraction. The distance between wells is significant; travel time is months to years.

We hope you enjoy learning about the OneWater Nevada demonstration project and the technology that could be an important part of our sustainable water future.