

Should I be worried about pharmaceuticals and other CECs in purified recycled water?

The short answer is

NO

Testing at the Pure Water Demonstration Facility has shown that advanced purified recycled water is safe for our customers.



Constituents of Emerging Concern and Advanced Water Purification



Constituents of Emerging Concern (CECs) are typically unregulated chemicals that include hormones, pharmaceuticals, and personal care products. The National Research Council (NRC) published a 2012 study that examined the presence of CECs in purified recycled water¹. A similar study was conducted by Stanford University in 2022². These and other studies like them consistently confirm the safety of water purified by advanced treatment systems, like the one being proposed by Las Virgenes-Triunfo. When compared to conventional water supplies, including mountain runoff and groundwater, purified recycled water is repeatedly shown to be the highest quality water.

The advanced treatment process proposed by the Las Virgenes - Triunfo Joint Powers Authority (JPA) has undergone extensive testing at the Pure Water Demonstration Facility located at the Las Virgenes Municipal Water District Headquarters in Calabasas, California. This Facility takes water that has been treated at the JPA's Tapia Water Reclamation Facility for non-potable reuse and purifies it through advanced treatment. The results show that advanced treatment completely removed CECs, removed them to levels that could not be detected, or reduced CECs to levels so low that there would be NO health impact. The same treatment process has been used for many years at other locations throughout the world.

1 - <https://nap.nationalacademies.org/catalog/13303/water-re-use-potential-for-expanding-the-nations-water-supply-through>

2 - <https://www.nature.com/articles/s41893-022-00985-7>

Parts Per Million
(milligrams per liter)

3 drops added to a 42-gallon rain barrel



Parts Per Billion
(micrograms per liter)

1 drop added to a large tanker truck



Parts Per Trillion
(nanograms per liter)

10 drops added to the Rose Bowl filled with water



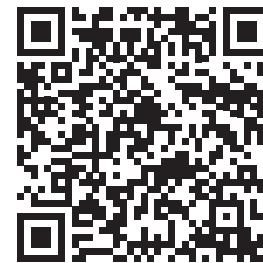
Parts Per Quadrillion
(picograms per liter)

2 teaspoons added to the Great Salt Lake



Expert research teams and public health professionals have concluded that the concentrations of CECs in purified recycled water, if even detectable, are orders of magnitude lower than a biological response or health impact. For example, acetaminophen (Tylenol) was detected in one sample after advanced treatment at 8.4 nanograms per liter or parts per trillion. To put this into perspective, knowing that one dose of acetaminophen is typically 500 milligrams, a person would need to drink the equivalent of 24 Olympic-size swimming pools all at once to receive one dose - which of course is not possible! The purification process is so complete that minerals need to be added back into the purified water before its use.

A complete list of CECs and test results can be located and reviewed by accessing the QR code below and proceeding to page 181 of the report:



This report can also be accessed at **OurPureH2O.com/PerformanceReports**

PFAS

PFAS, a class of compounds commonly referred to as “forever chemicals,” includes two regulated and closely scrutinized chemicals: perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Although PFAS are starting to be regulated, these compounds are still considered an “emerging concern.”

PFOA and PFAS are proposed for drinking water standards. **PFOA and PFAS were NOT detected in advanced treated water.**



PFAS can be found in many consumer products, including non-stick cookware and water-proof clothing and enters our water systems through use and degradation of these products.

Pharmaceuticals and Personal Care Products (PPCP)

The JPA’s advanced treated water was tested for a suite of PPCPs. **Most pharmaceuticals were NOT detected in the advanced treated water.**

Some pharmaceuticals were detected at extremely low levels in the advanced treated water. Their detection at such low levels does not constitute a health and safety concern. For example, Naproxen was detected in one sample at 0.4 parts per trillion, which is 500,000 times less than the concentration needed to have any impact on the human body.



Pharmaceuticals find their way into the wastewater system through human excretion or from flushing them down the drain.

Hormones

Estrogen is a compound that was tested for in the advanced treated water. Testing for estrogen provides evidence of the ability for advanced treatment to remove a broader group of hormones. **Estrogen was NOT detected in the advanced treated water.**



Hormones also enter our water through human excretion.

Proven Technology

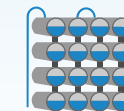
The Pure Water Project will use a state-of-the-art advanced water purification process to transform recycled water into drinking water. This proven process has been used throughout California, the U.S., and internationally for more than a decade.



STEP 1

MEMBRANE FILTRATION

Bundles of membrane filters remove large particles hormones and bacteria.



STEP 2

REVERSE OSMOSIS

High pressure filters remove smaller bacteria & viruses, salts, pharmaceuticals, pesticides, and PFAS from the water.



STEP 3

ADVANCED OXIDATION

UV light and chlorine is used to break down any remaining contaminants and disinfect water.



STEP 4

PURE WATER

The final product is a highly purified water that exceeds federal and state drinking water standards.