



# LEO J. VANDER LANS ADVANCED WATER TREATMENT FACILITY

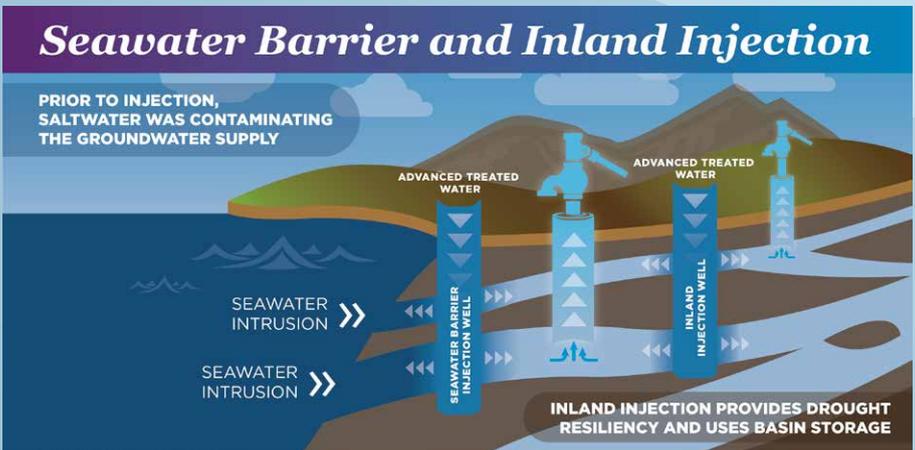
LEO J. VANDER LANS AWTF



## PROTECTING THE BASIN FROM SEAWATER INTRUSION WITH A SUSTAINABLE WATER SUPPLY

Groundwater over-pumping in the mid-1900s lowered groundwater levels to below sea level along the coast. This resulted in saltwater flowing into, or “intruding” into the groundwater aquifers which became “brackish,” or too salty for drinking.

In response, LA County constructed seawater barrier injection wells in the 1950s. The wells actively pump freshwater into the ground to create a water pressure “barrier” that keeps seawater out of the aquifers. The Seawater Barriers have successfully protected and replenished the aquifers in the WRD service area for decades.



*Leo J. Vander Lans*  
**Advanced Water Treatment Facility**  
Part of the WIN suite:



Water from LVL is used for freshwater injection at the Los Angeles County Public Works’ Alamitos Barrier Project—a series of injection wells at the southeastern tip of the Central Basin.

By using advanced treated recycled water to supply the injection wells, WRD is reducing the strain on imported water resources while strengthening reliability and drought-resilience for the system.

WRD is also installing an inland injection well onsite at the LVL facility that will inject LVL purified water into the underlying groundwater aquifer. This will add approximately 657 million gallons per year of sustainable water to the groundwater basin.

# Leo J. Vander Lans Advanced Water Treatment Facility



The Leo J. Vander Lans Advanced Water Treatment Facility (LVLAWTF) was built by the Water Replenishment District (WRD) in 2003 and expanded in 2014. The facility supplies up to 8 million gallons of highly purified recycled water per day to the Alamitos Barrier in Long Beach to protect the Central Groundwater Basin from seawater contamination and to help replenish the groundwater supply for the region which includes four million residents.

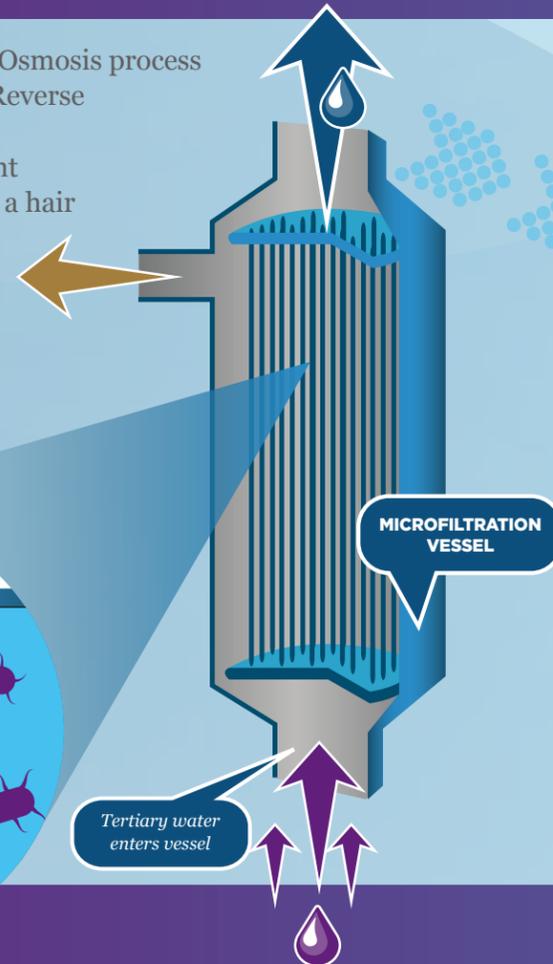


The 2014 plant expansion included a microfiltration (MF) backwash treatment system for a 95% MF recovery rate, and a 3rd stage reverse osmosis (RO) system for a 92% RO recovery rate. With these two systems, the LVLAWTF has the highest recovery rate of any microfiltration, reverse osmosis, ultraviolet disinfection and advanced oxidation indirect potable reuse plant in the country.



## STAGE 1 MICROFILTRATION

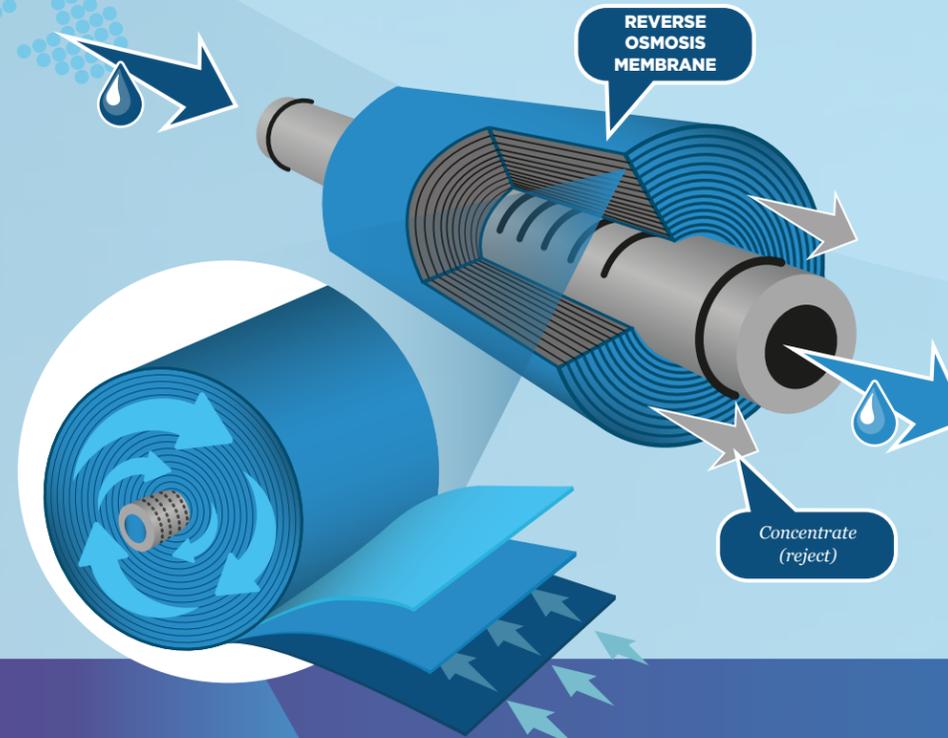
- > Pre treatment before Reverse Osmosis process
- > Extends the useful life of the Reverse Osmosis membranes
- > Makes treatment more efficient
- > Filters are the size of 1/300 of a hair



**REMOVES:** MOST BACTERIA, FINE PARTICLES, SEDIMENTS

## STAGE 2 REVERSE OSMOSIS

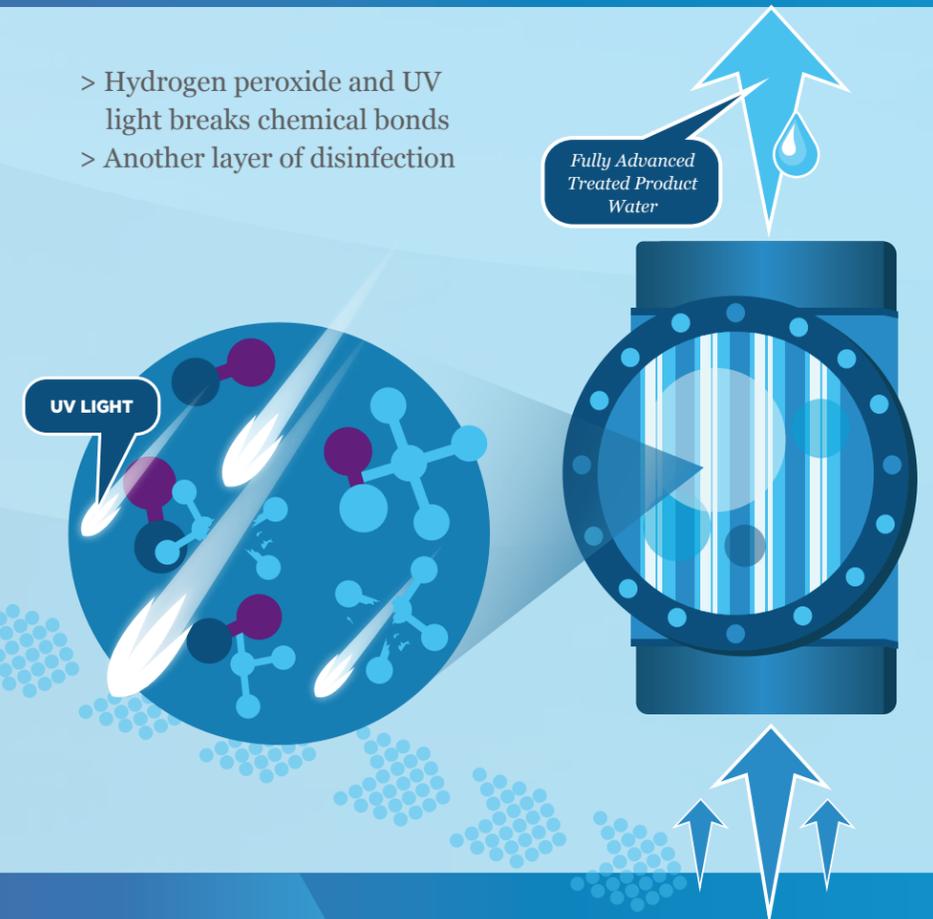
- > Thin film membrane filters at molecular level
- > Only water molecules can go through
- > Over 99% of contaminants are removed at this process
- > Best available technology for removing contaminants
- > Microscopic Level



**REMOVES:** ORGANIC MATERIAL, MOST VIRUSES, PESTICIDES, SALT, IONS

## STAGE 3 DISINFECTION WITH ADVANCED OXIDATION

- > Hydrogen peroxide and UV light breaks chemical bonds
- > Another layer of disinfection



**REMOVES:** PHARMACEUTICALS, VIRUSES, CARCINOGENS, PERSONAL CARE PRODUCTS, INDUSTRIAL ADDITIVES/CHEMICALS

## ABOUT WRD

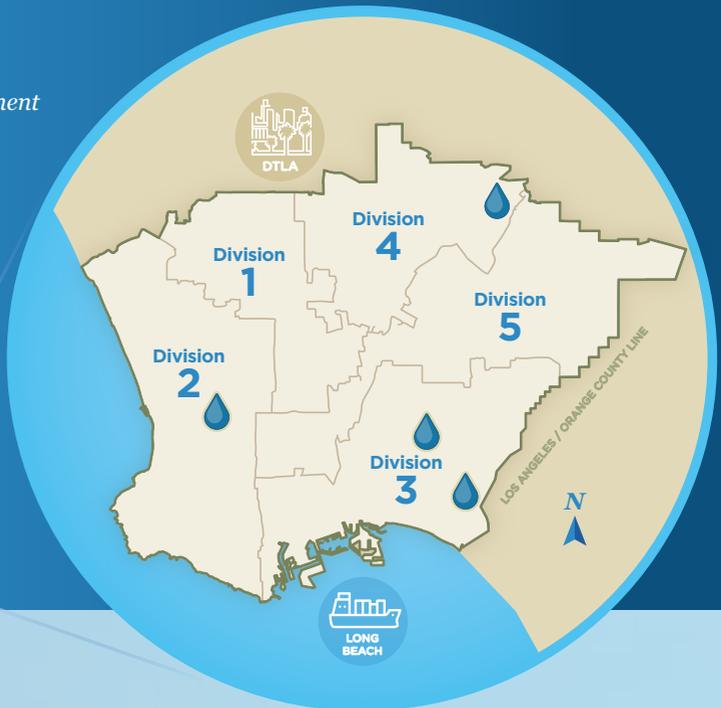
The Water Replenishment District (WRD) was established in 1959 to manage, protect, and replenish the Central and West Coast Groundwater Basins. WRD achieves its mission by:

- » Using effective and environmentally sound basin management practices and serving as the Administrative Body of the Watermaster for both basins
- » Monitoring and remediating the groundwater basins affected by natural and human-made contaminants
- » Owning and managing two advanced water treatment facilities and a groundwater desalter

*WRD manages and protects two of the most utilized urban groundwater basins in the nation. Groundwater from these basins provides nearly 50% of the total water supply for the four million residents in WRD's 43-city service area which covers 420 square miles in southern Los Angeles County. WRD ensures that a reliable and locally sustainable supply of high-quality groundwater is available through replenishment with recycled water and stormwater capture.*

The Water Replenishment District's service area in southern Los Angeles County

 = WRD Facility



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