

# WHY DESAL IN A RESERVOIR?

By forming a public-private partnership, LVMWD and OceanWell have established a blueprint for bringing innovative water solutions to market. The reservoir pilot tested everything **but** salt removal, emphasizing testing of the intake screen technology, which aims to minimize any harm to aquatic life.

The future of water in our region requires a strategy that continues to prioritize conservation, water reuse and the exploration of diverse future water supplies. Exploring desalination as part of these efforts provides a balanced, long-term approach to strengthening water reliability in our communities.

## The Big Idea Subsea Pods

Seawater  
Outfall

The patented seawater outfall is located well above the sea floor and releases only a mild brine with little or no impact on the subsea ecosystem.

Seawater  
Intake

At 400m depth, the intake water to a subsea pod is cold, clear and relatively free of organic life. Natural (free) energy, driven by gravity, is available to push seawater through a reverse osmosis (RO) membrane and remove salt. OceanWell's LifeSafe™ system is designed to maximize the survival of organisms and return them to the ambient ocean, alive.

Fresh water  
to shore

Freshwater is pumped to shore to maintain a pressure differential on the RO membranes and keep the process operating. While the pumps pressurizing the freshwater do require purchased energy, the projected energy savings compared to onshore desalination is up to 40% based on modeling and pilot validation.



# LVMWD x OceanWell



**PILOT STUDY**  
LAS VIRGENES RESERVOIR



# EXPLORING DESALINATION *for* LAS VIRGENES MUNICIPAL WATER DISTRICT & BEYOND

In Southern California, climate change and prolonged droughts have severely strained traditional water supplies. This crisis is particularly acute for water agencies that are highly dependent on the State Water Project (SWP) for their imported water.

Las Virgenes Municipal Water District (LVMWD) pursued a public-private partnership with OceanWell to pilot and help prove emerging desalination technology with potential as a drought-proof and climate-resilient local water supply for LVMWD's 70,000 customers. Since the partnership's launch, six additional SWP-dependent agencies have joined the effort to explore desalination.

In March 2025, OceanWell began testing of a pilot-scale subsea water-treatment system in Las Virgenes Reservoir to evaluate reliability, water quality, energy use, fouling behavior, and cleaning methods in a real-world operating environment.

By partnering with OceanWell, LVMWD is exploring an environmentally responsible approach to desalination that overcomes the historical drawbacks of traditional, land-based desalination plants.

## PILOT RESULTS By The Numbers



**40%**

Energy savings  
potential

**150k**

Gallons of  
water produced

**93%**

Uptime, over  
3+ months

Seawater desalination remains one of the state's few genuinely drought-proof water supply options. By running this pilot project at the Las Virgenes Reservoir, LVMWD is supporting science-based decision-making and developing empirical

data required to help guide the District's investments in future infrastructure and help state regulators modernize permitting frameworks and safely integrate new water technologies into California's supply portfolio.



**A blueprint  
for bringing  
innovative water  
solutions to State  
Water Project-  
dependent  
agencies.**

### Next Steps

The Las Virgenes Reservoir pilot represents a successful proof-of-concept. The next phase will focus on open-ocean testing to validate performance under full desalination conditions and advance toward commercial-scale deployment. Additionally, supporting amendments to the California Ocean Plan will help establish a responsible, statewide framework for research pilots, demonstration projects and future full-scale systems utilizing emerging offshore technologies.



### Key Finding #1

The OceanWell pilot system operated with high energy efficiency, achieving a low specific energy of approximately 1 kilowatt-hour per cubic meter of water processed (or treated).

## ENERGY EFFICIENCY



### Key Finding #2

Strong preliminary data suggests the LifeSafe™ intake system eliminates aquatic impingement and microorganisms can be returned from the intake system back to their habitat, unharmed.

## MARINE LIFE SAFETY



### Key Finding #3

During three months of continuous operation, the pod had 93% uptime and produced over 150,000 gallons of water, averaging 50 ppm of Total Dissolved Solids (TDS), 10x purer than drinking water standards.

## WATER PURITY & RELIABILITY

