

Groundwater Replenishment and Seawater Intrusion Prevention Project

BACKGROUND

All drinking water provided by Soquel Creek Water District is from the Mid-County Groundwater Basin. The State of California has designated this basin as “critically overdrafted.” That means we’re pumping out more water than the basin can naturally replenish through rainfall — which causes two serious problems: a shortage of available water, especially during a drought, and seawater moving inland and contaminating our only water supply.

PWS will address those two water supply issues. It will take already treated wastewater (that otherwise would be pumped out into the ocean) and instead pump it to a new water purification center where it will undergo a state-of-the-science, three-step purification process.

You can be assured that the purified water is safe and clean — it will be tested regularly to ensure it meets all federal and state drinking water standards. PWS will employ some of the same purification methods used by baby food manufacturers, and other industries where ultra-purified water is required. Removing or neutralizing pathogens such as viruses has been part of most water treatment processes for many years — and advanced water purification goes even farther. The purification process, including microfiltration, reverse osmosis, and ultraviolet light with advanced oxidation, is proven to produce clean, safe, near-distilled water. Purified recycled water is already being used for groundwater recharge in other parts of California, including Monterey, and throughout the world.

The purification will take place at the new Water Purification Center—which will be located near Highway 1 and Chanticleer Avenue— and then this water will be conveyed to the Seawater Intrusion Prevention Wells to replenish the basin and create a barrier against seawater intrusion. This will result in preserving the basin — and our precious water supply — for the community and the families of today and the future.

PROJECT BENEFITS

PROVIDES A BARRIER AGAINST SEAWATER INTRUSION

Helps prevent seawater intrusion from moving farther inland and contaminating drinking water wells. Southern Santa Cruz County, Monterey County, and many other communities around the world are challenged with seawater intrusion.

RELIABLE AND DROUGHT-PROOF WATER SUPPLY

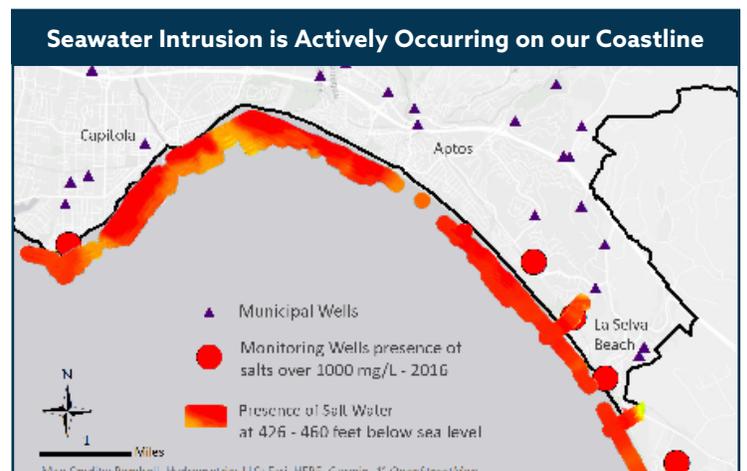
Provides a sustainable, drought-proof supply of water that is available year-round, to supplement our overdrafted groundwater supply.

HIGH-QUALITY WATER Uses proven technology (see back), provides purified water that meets all state and federal water quality criteria and is cleaner than most bottled water.

BENEFICIAL REUSE OF EXISTING SOURCE Reduces ocean discharge by 25%. Instead of treated wastewater being wasted to the Pacific Ocean, it will be purified and put to beneficial reuse by storing it underground for environmental protection and to keep groundwater wells salt-free.

TIMELINESS Water rights, that are typical of surface water projects, and marine issues, that are typical of desalination projects, will not apply to PWS, thus potentially reducing the time to acquire permits.

ECONOMIC VITALITY Estimated to support over \$900 million dollars in economic benefits to our community.



WHY PURIFIED WATER?

Many communities with long-term water shortages have either implemented or are currently evaluating purified water projects. Orange County Water District has been purifying recycled water to use as groundwater replenishment for over 40 years. Utilities in San Diego, Los Angeles, the San Francisco Bay Area, Monterey, and Silicon Valley are all seriously considering or implementing purified water as a part of



Orange County Water District's Groundwater Replenishment System has produced over 200 billion gallons of purified water and has been in operation for 40 years. (photo credit: Orange County Water District)

PURE WATER SOQUEL TIMELINE AND MILESTONES

2014

- Soquel Creek Water District Board approves further evaluation of Purified Water for Groundwater Replenishment as a water supply option

2014-2018

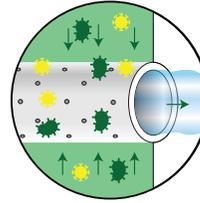
- District awarded over \$2 million in grant funding from the State Water Resources Control Board and the US Bureau of Reclamation for planning and technical evaluation
- National Water Research Institute, a third party expert review panel, gives thumbs up and declares the Project is feasible and protective of public health
- District conducts environmental review under CEQA and certifies Environmental Impact Report
- District Board approves Project

2019-2022

- District selected for \$50M Prop 1 Grant, \$36M State Seawater Intrusion Control low interest loan from the State of California and \$88M low interest loan from US EPA Wifia program
- District is in permitting, design, and construction
- Goals of the Project are to be operational by the end of 2022/beginning of 2023 and aid in meeting state mandate of sustainability by 2040

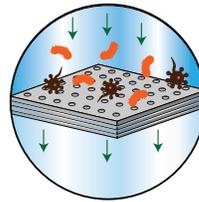
UNDERSTANDING THE WATER PURIFICATION PROCESS

Most advanced water purification processes involve a multi-stage process of micro-filtration, reverse osmosis, and ultraviolet light with advanced oxidation.



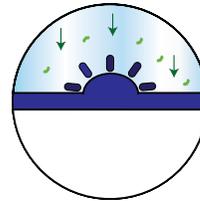
MICRO-FILTRATION

Water moves through a bundle of straw-like filters. Each filter is perforated with small holes 1/300th the width of human hair! These holes allow water to pass through while removing solids, bacteria, protozoa, and many viruses.



REVERSE OSMOSIS

Contaminants 100x smaller than a virus, as well as chemicals, are stopped by this barrier, resulting in water that's near distilled quality. This same process is used by bottled water companies, baby food manufacturers, and for kidney dialysis.



ULTRAVIOLET LIGHT (UV) & ADVANCED OXIDATION PROCESS

Concentrated UV light, similar to the sun's rays, and an oxidant such as bleach, together destroy remaining trace level chemicals and pharmaceuticals.

TECHNICAL & ENVIRONMENTAL STUDIES

Numerous studies have been conducted to help inform the planning and implementation of the project. These include:

Feasibility Study — completed December 2017

Geochemical Characterization — Phase I completed October 2016, Phase 2 underway

Water Quality/Constituents of Emerging Concern (CEC) Testing — completed December 2017; Reviewed and approved by a scientific technical advisory panel

Groundwater Modeling — completed June 2018

Cost Evaluation — completed December 2018

Environmental Impact Report — completed

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