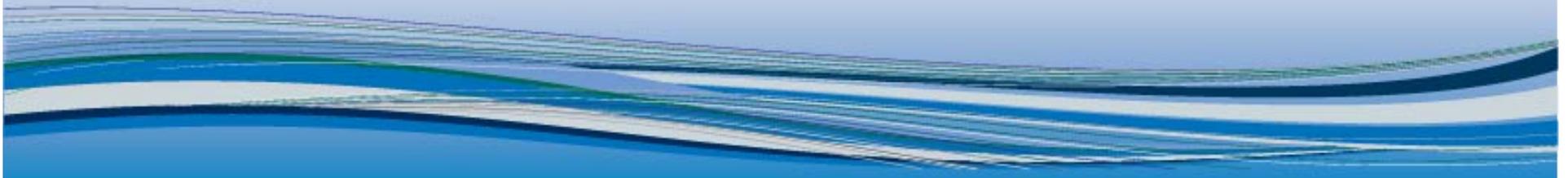
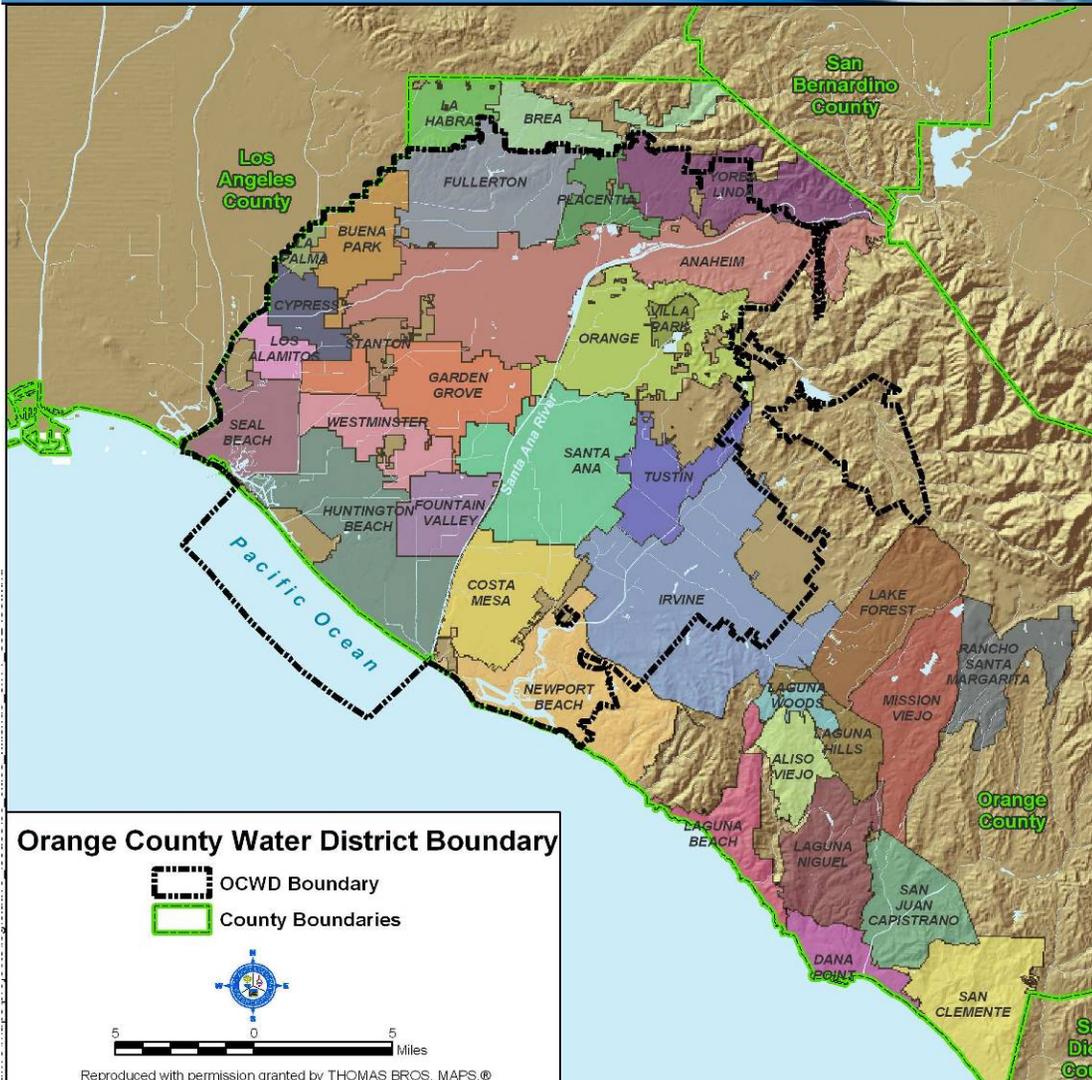




A joint effort of the
Orange County Water District and Orange County Sanitation District



Orange County Water District (OCWD)



- OCWD, formed in 1933, is responsible for managing and protecting the Orange County groundwater basin
- The basin is non-adjudicated and overlying cities can pump 65% of their water supply as groundwater
- The basin provides water for over 2.3 million people

Orange County Water District Boundary

- OCWD Boundary
- County Boundaries

5 0 5 Miles

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What Is The GWRS?

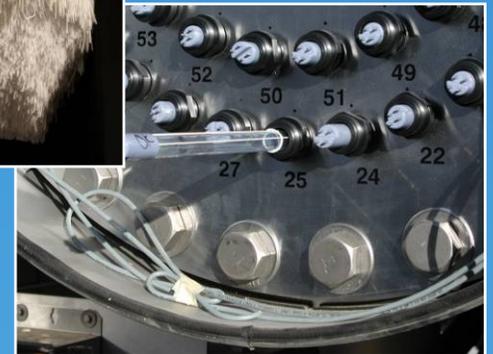
- New 70-million-gallons per day (mgd) advanced water purification facility
- Takes sewer water that otherwise would be wasted to the ocean, purifies it to near distilled quality and then recharges it into the groundwater basin
- Provides a new 72,000 acre-feet per year (afy) source of water, which is enough water for nearly 600,000 people
- Operational since January 2008



How Does The GWRS Work?

100% of water is treated through microfiltration, reverse osmosis and ultraviolet light with hydrogen peroxide

- Microfiltration: Tiny, straw-like plastic membranes filter out bacteria, particles and protozoa
- Reverse Osmosis: Water is forced through the molecular structure of the RO membranes where dissolved chemicals, pharmaceuticals and viruses are removed
- Ultraviolet Light with Hydrogen Peroxide: As a safety barrier, water is exposed to UV with H_2O_2 that disinfects and destroys potential harmful trace organics



GWRS Proven Reliability

- **California Department of Public Health developed permit requirements**
- **Test for over 200 compounds with all results well below permit levels or at non-detection (ND) levels**
 - **28 Volatile Organic Compounds – All ND**
 - **39 Non-Volatile Synthetic Organic Compounds – All ND**
 - **8 Disinfection By-Products – All ND**
 - **10 Unregulated Chemicals – All but one ND, all below permit levels**
 - **51 Priority Pollutants – All ND**
 - **16 Endocrine Disrupting Chemicals and Pharmaceuticals – All ND**

Benefits Of GWRS



- **Creates a new water supply**
- **Reuses a wasted resource**
- **Increases water supply reliability**
- **Offsets imported water cutbacks**
- **Costs comparable to imported water**
- **Uses half the energy compared to importing water from Northern California and one-third the energy of desalinating seawater**
- **Improves quality of water in the basin**

Project Funding and Timing

- **Capital Cost: approximately \$481 million**
 - Split equally between OCWD and OCSD
- **Costs comparable to imported water**
 - Project received \$92 million in state and federal grants, and \$4 million per year (21 year) operation and maintenance subsidy from Metropolitan Water District
 - Costs \$479 per acre-ft (\$893 per acre-ft without subsidies)



What Have We Learned From GWRS?

- **Public can accept indirect potable reuse projects if:**
 - need is clear
 - outreach is effective and ongoing
 - elected officials and community leaders make commitment
 - quality is higher than alternatives
 - regulators have ongoing oversight
- **The more people know about GWRS the more they accept it**



What's Next?

- **Expand the capacity of the plant from 70 mgd to 100 mgd.**
 - **Bids were received July 18, 2011**
 - **Low bidder McCarthy - \$115.1 million**
 - **Contract was awarded on September 7, 2011**
 - **Project completion scheduled for October 2014**
- **Project will produce an additional 31,000 afy, which is enough water for nearly 250,000 people.**

GWRS Aerial View

