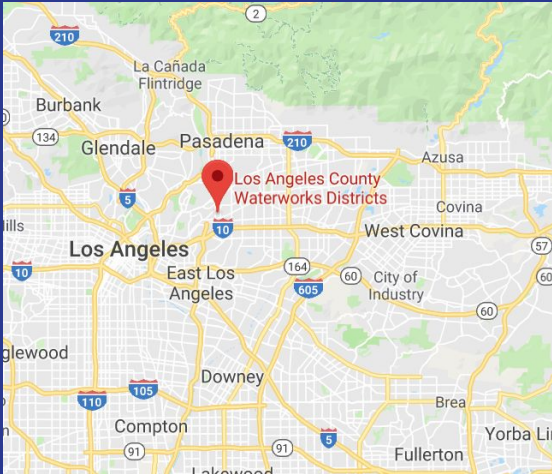


# Los Angeles County Waterworks




1000 S. Fremont Ave  
Alhambra, CA 91803



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# Objectives

- **Discuss background of the LA County Waterworks District**
  - **Regulations and Restrictions of the area**
  - **Properties of the contaminant**
  - **Health & Environmental Impact of contaminant**
  - **Unique Features**
  - **Social Injustices**
  - **Disregard for human life & environment**
- 

A photograph of several large, cylindrical, light-colored water storage tanks in an industrial setting. The tanks are arranged in a row, receding into the distance. The sky is clear and blue. The ground is a flat, light-colored surface, possibly concrete or gravel. The text is overlaid on the image.

## MISSION STATEMENT

“To provide reliable, high-quality water and responsive customer care in a safe, cost-effective, sustainable, and environmentally responsible manner; and to foster mutual respect, professional growth, and a positive workplace.”

# Background

- LACWD supplies water to over 240,000 people
- They serve five Districts including:
  - Kagel Canyon
  - Malibu
  - Val Verde
  - Acton
  - Antelope Valley
- Operates and maintains Marina Del Water System and Rancho Los Amigos Water System
- Manages the water quality program for Peter J. Pitchess Rancho Water System



| District Name  | Date Established   | No. of Service Connections | Estimated Population |
|--|--------------------|----------------------------|----------------------|
| Los Angeles County<br>Waterworks District No. 21,<br>Kagel Canyon - <a href="#">View Map</a>   | December 9, 1935   | 240                        | 547                  |
| Los Angeles County<br>Waterworks District No. 29,<br>Malibu - <a href="#">View Map</a>   | September 29, 1959 | 7,514                      | 22,333               |
| Los Angeles County<br>Waterworks District No. 36,<br>Val Verde - <a href="#">View Map</a>  | April 30, 1963     | 1,353                      | 5,176                |
| Los Angeles County<br>Waterworks District No. 37,<br>Acton - <a href="#">View Map</a>  | August 13, 1963    | 1,406                      | 6,507                |
| Los Angeles County<br>Waterworks District No. 40,<br>Antelope Valley - <a href="#">View Map 1</a> ,<br><a href="#">View Map 2</a> , <a href="#">View Map 3</a> | November 4, 1993   | 57,466                     | 210,089              |
| <b>Total</b>   |                    | <b>67,979*</b>             | <b>244,652</b>       |



# Background

LACWD provides customers with water from three sources:

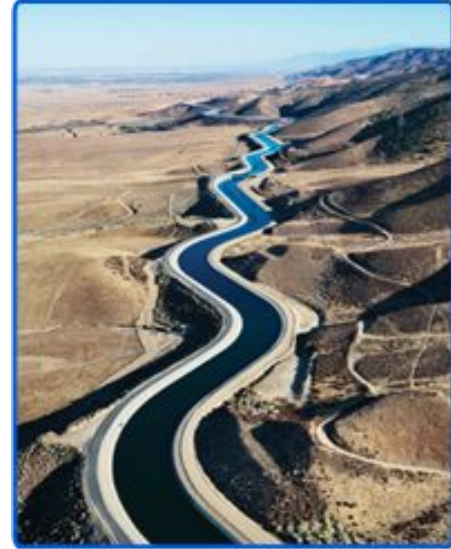
- Local groundwater
  - Undergoes treatment
- Water imported through the State Water Project (SWP)
  - very difficult to predict, due to changing weather conditions and environmental impacts that can result in pumping restriction
- The Colorado River Aqueduct (CRA)
  - LACWD owns and operates groundwater production wells

## California Water Project



# State Water Project (SWP)

- System of reservoirs, pump stations, storage facilities, power plants, and 660 miles of pipes and canals that span two-thirds the length of CA
- LACWD purchases imported water from local SWP contractors or regional wholesale water agencies
- Majority of SWP is collected as runoff and snowmelt from the Northern California & Sierra Nevada Mountains
- Due to sediments and organics in the water it must be treated before consumption





# Colorado River Aqueduct

- Stretches 240 miles from Lake Havasu on the CA-AZ border to Lake Mathews in Riverside County
- CA takes over 5 million acre feet of water per year from CRA
  - They are only entitled to 4.4 million acre feet
- If local groundwater is available LACWD owns and operates groundwater production wells to pump water to the surface
  - Water is disinfected & pumped into distribution system



# State Restrictions

- Don't water your lawn 48 hours after it rains
- Don't wash down sidewalks and driveways
- Don't allow runoff from your property
- Don't wash motor vehicles with a hose unless it has shut-off nozzle
- Don't operate fountains or decorative water features unless water is recirculated
- Restaurants can only serve water to customers upon request



# Water Conservation

## How to Save Water

Use a watering can to water plants.



Take shorter showers – use a timer.



Mulch around plants to hold water in the soil.



Turn the tap off when brushing teeth or soaping hands.

Be a leak detective – check taps and hoses.



Use the half flush on the toilet.

## WATER CONSERVATION

The average American uses about 100 gallons of water each day. Read these quick tips compiled from [WaterUseItWisely.com](http://WaterUseItWisely.com) as a reminder for easy ways we can significantly reduce water usage around the home.

## 5 WAYS to conserve WATER in the KITCHEN

1

Use your dishwasher – it uses less water than washing dishes by hand. Make sure it's a full load before running it, and you'll save up to 1,000 gallons per month.

2

If you have to wash a few pots by hand, turn the water off if you're not rinsing. Better yet, instead of running the water while you scrub pots and pans, **soak them in soap and water.**



Use a designated water bottle or glass to refill all day allowing you to cut down the number of glasses to wash.

4

Wash fruits and vegetables in a **pot of water** rather than running the water over them. Defrost food in the refrigerator rather than running it under the faucet. Cook food in as little water as possible. It also helps retain more of the nutrients.




5



If you accidentally drop ice cubes, don't throw them in the sink – place them in a house plant, instead! You can collect the water you use to rinse your fruits and vegetables and use it to water house plants, too.

# Properties of the Contaminant - Arsenic

- Naturally present in aquifers
- Naturally occurring in rocks, soil, water, air, plants, etc.
- Typically exceeds EPA drinking water standard of 10 ( $\mu\text{g}/\text{L}$ ) in groundwater throughout most of SW U.S.
  - In 2006 EPA lowered the MCL of arsenic in drinking water from 50 to 10 ( $\mu\text{g}/\text{L}$ )
- Can also be released into the environment through natural activities such as:
  - Volcanoes
  - Forest fires
  - Erosion of rocks



**LADIES**

If you desire a transparent, CLEAR, FRESH complexion, free from blotch, blemish, roughness, coarseness, redness, freckles, or pimples, use

**DR. CAMPBELL'S**  
**SAFE ARSENIC COMPLEXION WAFERS**  
—AND—  
**Fould's Medicated Arsenic Complexion Soap.**

The only real true beautifiers in the world. *Warranted to give satisfaction* in every case or money refunded. Wafers by mail, \$1; six large boxes, \$5. Soap, per cake, 50 cents.

Address, H. B. FOULD, 214 Sixth Avenue, New York.

**SOLD BY DRUGGISTS EVERYWHERE.**

# Health Impacts of Arsenic

- Poisonous at high doses
- Cancers due to exposure over time: lung, kidney, bladder, skin, and others.
- Water with 10 ppb arsenic can lead to cancer in 1 in 2,000 people over a lifetime
- EPA limit for exposure to risk is 1 in 10,000 people
- The higher the amount, the lower the risk ratio
- Children exposed to arsenic show harm to brain development



# Environmental Impacts of Arsenic

- Affects growth and productivity in plants
- Ends up in freshwater plants that fish eat
- Alters genetic makeup of fish
- Birds eat the contaminated fish and die

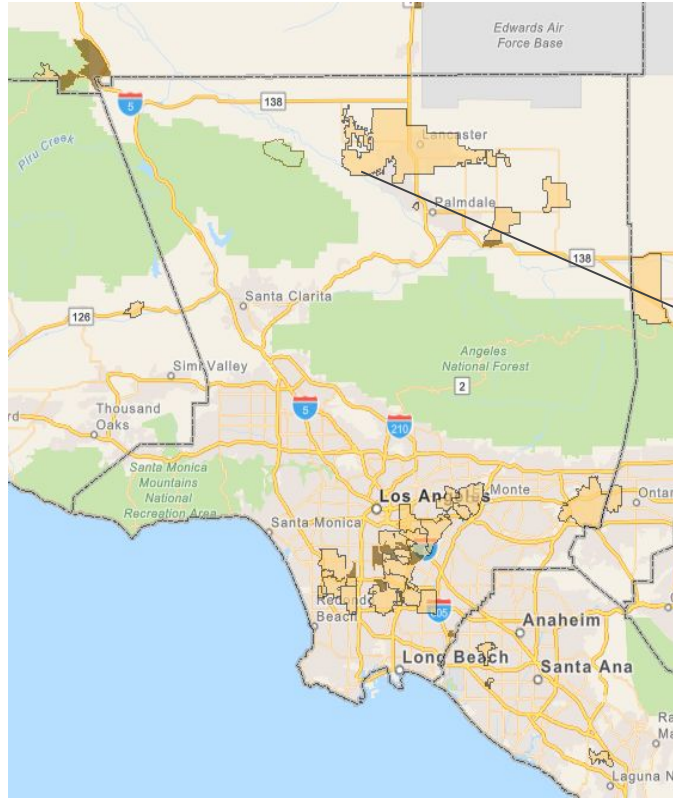


# Social Issues

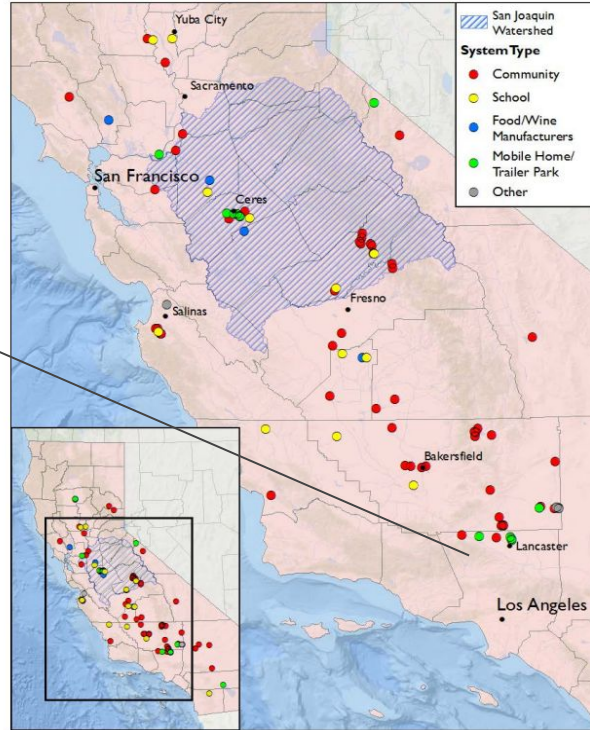
- The EPA found the State of California out of compliance with the Safe Drinking Water Act in April of 2013
- Communities from SF to LA have experienced 30-80  $\mu\text{g}/\text{L}$
- In wealthier communities, water was diluted or treated
- Smaller, rural communities had tap water violations from 2002-2010
- “Community water systems serving higher percentages of people of color had a 260% higher chance of having at least one (arsenic) violation.-Dr. Carolina L. Balazs, researcher.



# At Risk Disadvantaged Communities



Map 1. Public Water Systems with Illegal Levels of Arsenic, 2014-2015





# What's Being Done

LA's smaller water systems (communities) are reportedly still out of compliance with EPA.

Census report the communities have incomes lower than 80% of state median, which qualify as disadvantaged communities who can receive Assistance from the state's Safe and Affordable Drinking Fund established by Gov. Brown in 2018.



*Tim Watkins of the Watts Labor Community Action Committee displays bottles of tap water collected from residents of Watts.*

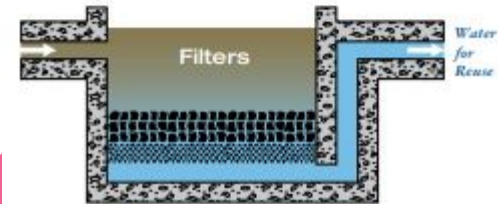
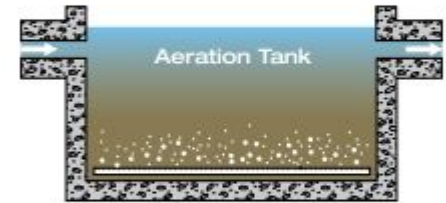
# Unique Feature - Water Recycling

- California is known for its long droughts
  - Wastewater is reused to conserve water supply
- Production of nearly 200 MGD
  - Reduces amount of imported water and helps replenish groundwater supply
- Recycled wastewater is safe for human contact



# Water Recycling Process

- Primary Treatment
  - Remove large suspended solids
- Secondary Treatment
  - Biodegrade organic matter
- Tertiary Treatment
  - Removal of remaining suspended materials
- Disinfection
  - Removal of pathogens and viruses



# Where does recycled wastewater go?

Total production of nearly 200 MGD

- About 50 MGD is delivered to groundwater recharge sites
- Remaining 150 MGD used at over 880 sites
  - Irrigation, fire fighting, toilet flushing, street cleaning



# Water Recycling Benefits



- Less freshwater is taken away from sensitive ecosystems
  - Lack of adequate flow decreases water quality and the ecosystem's health
- Irrigation reduces the need for chemical fertilizers
  - Residual nutrients survive water reclamation process
- Replaces existing drinking water supplies for non-potable use

# Water Recycling Benefits cont.



- Replenished groundwater supply increases available drinking water
- Cheaper and more dependable than potable water
  - Gives businesses incentive to stay in the area
- Saves energy
  - Don't have to pump as much imported water
  - Results in less air pollution
    - Improves air quality and quality of life

Saving  
Energy

Saving  
the  
Planet



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