

Calaveras Public Utility District

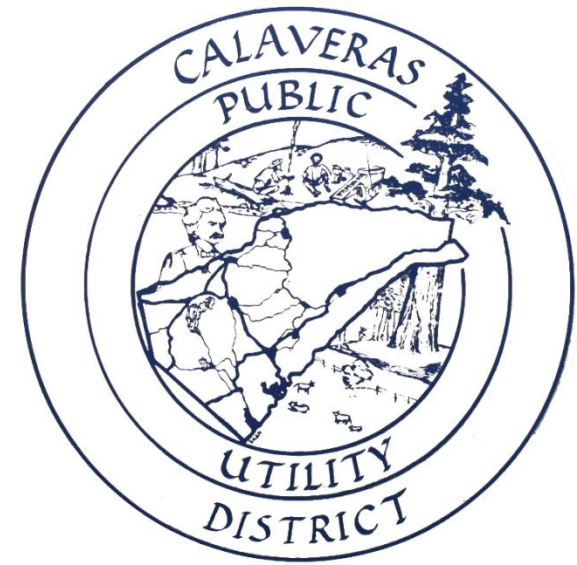
District Presentation

Operations Overview

Mokelumne Hill Townhall

Mathew Roberts

March 16, 2023



Who is CPUD?

- The District was formed in 1934 for the purpose of serving water to the communities of Mokelumne Hill and San Andreas
- Governed by a five-member Board
- 13 employees (8 field and 5 office Staff members)
 - Currently 4 full-time and 1 part-time staff in the Office
 - Currently 6 full-time, 1 part-time, and 1 vacancy in operations
- We have qualified and certified employees who distribute treated water to the customer's taps.
 - California Division of Drinking Water assigns a system rating and CPUD must have staff certifications that comply with the system rating.
 - The water provided to the District's customers must comply with strict regulatory standards to ensure safe and reliable water.

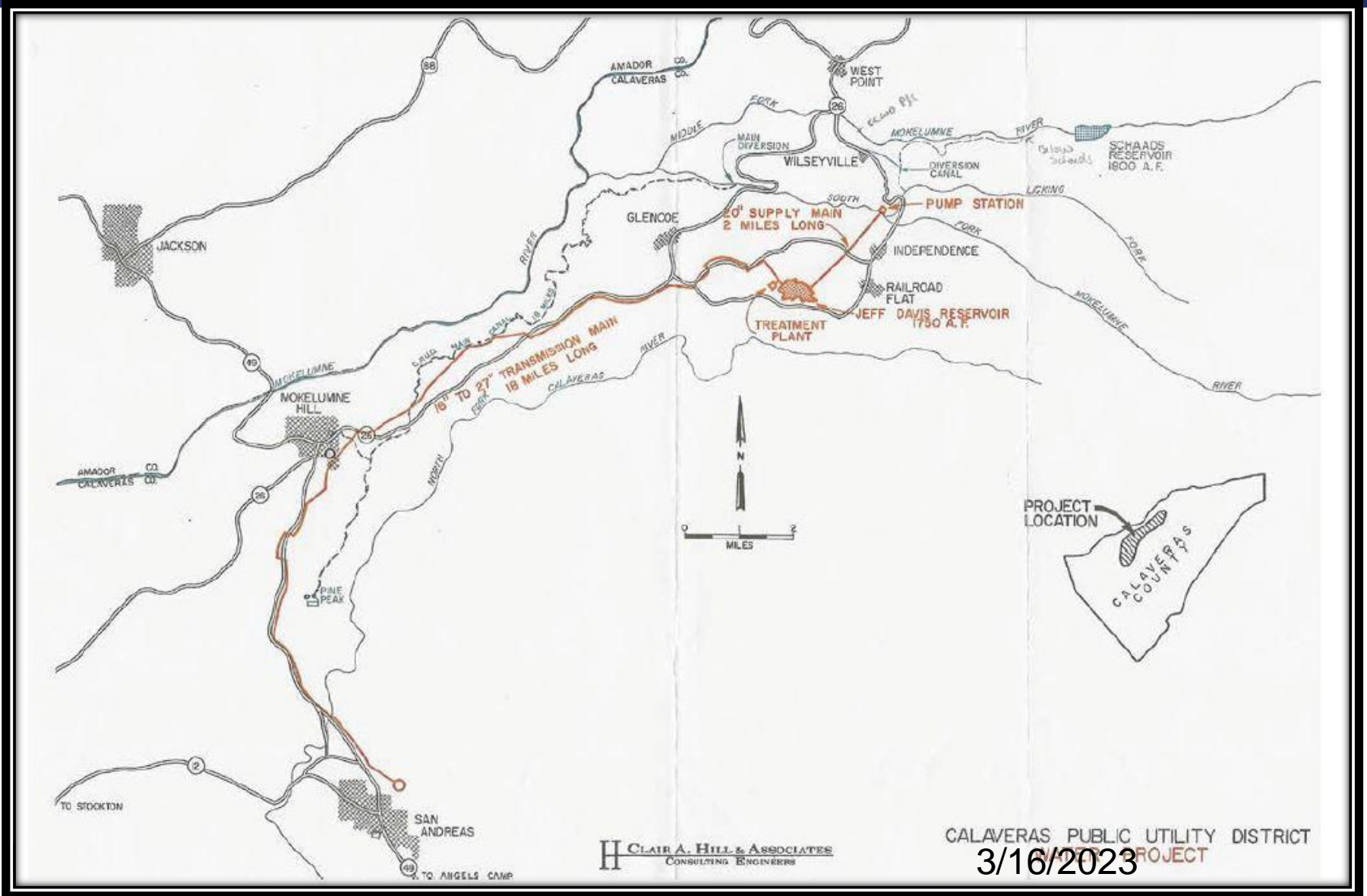
Water System Overview

- Nearly 2000 Water Meters
 - Service area population estimate of 6500 people
- 18 Miles of Transmission Pipeline
- 66 Miles of Water Distribution Mains
- 20+ Miles of Water Service Lines
- 2+ Miles of Raw Water Pipeline
- 1 Water Treatment Plant located at Jeff Davis Reservoir
- 6 water storage tanks (total storage available 5.16 MG)
- 3 hydro generating pressure reducing stations

Raw Water Storage Overview

- Jeff Davis Reservoir (2300 acre-feet)
 - South Fork Mokelumne River
 - South Fork water is pumped uphill from the bottom of the canyon up to Jeff Davis Reservoir with an elevation gain of nearly 700 feet.
- Schaads Reservoir (1800 acre-feet)
 - Middle Fork Mokelumne River
 - Middle Fork Powerhouse (very small turbine generators)
 - Regulated by the Federal Energy Regulatory Commission
- McCarty Reservoir (1800 acre-feet)
 - Tributary of the Calaveras River
 - Used occasionally for irrigation with little to no yearly revenue

1971 CPUD Water Project



1971 CPUD Water Project

- Built Jeff Davis Reservoir
 - Earthen Dam with a capacity of 2300 af
- Built South Fork Pump Station
 - Installed 2 – 400 horsepower pumps
 - Installed 2 miles of raw water transmission main
- Built Jeff Davis Water Treatment Plant
 - Plant capacity of 6.0 million gallons per day
 - 6 pressure vessel filters
 - 500,000 Steel Tank (Clearwell)
- Water Transmission Mains
 - Built T-Mains from Railroad flat to Mokelumne Hill then to San Andreas
 - Added water service to areas that did not have clean potable water
- Project is 50+ years old

Operations – Water Treatment

- Qualified staff must operate the Water Treatment Plant
 - Water Treatment Grade 3 Certification for Chief Operator
 - *Chief Operator Signs Monthly Compliance Reports*
 - Water Treatment Grade 2 for Operators covering a shift
- Typical Operator Duties
 - Control plant flow and adjust chemical dosages
 - Water quality analysis (chlorine residual, turbidity, pH, etc.)
 - Calibration of equipment used in water treatment
 - Routine Sampling such as Bacteriological Tests, Disinfection byproducts testing, other tests that have to be sent to EPA certified labs to stay in compliance with California Codes of Regulations.
 - Filter backwashing
 - Responds to adverse conditions at the plant such as high/low chlorine residuals, valves failing to open, or turbidity alarms that prevent the district from violating the water supply permit.

Operations – Water Treatment (1)



Operations – Water Treatment (2)



Operations – Water Treatment (3)



Operations – Water Treatment (4)



Operations – Water Storage and Transmission

- 4 large treated water storage tanks
 - District Clearwell
 - Railroad Flat Tank
 - Mokelumne Hill Tank
 - San Andreas Tank
- 2 small storage tanks
 - Golden Hills Tank
 - Paloma Tank
- Transmission Main
 - 3 inline hydro-generators
 - Typical yearly revenue of \$50,000
 - Large number of air release valves because of the terrain
 - Maximum pressure along the T-Main is 250+ psi
- Operators spend a considerable amount of time inspecting, troubleshooting and repairing items on the transmission main
 - Repairs of leaks, diaphragm valves on pressure reducing stations, replacing components at the hydro-generators, and replacing or rebuilding air relief valves.
 - Most of the infrastructure in the transmission mains or the water storage tanks is 50+ years old.

Water Storage Tank - Maintenance



Transmission Main – Maintenance Diaphragm Valve and Air Release Valve



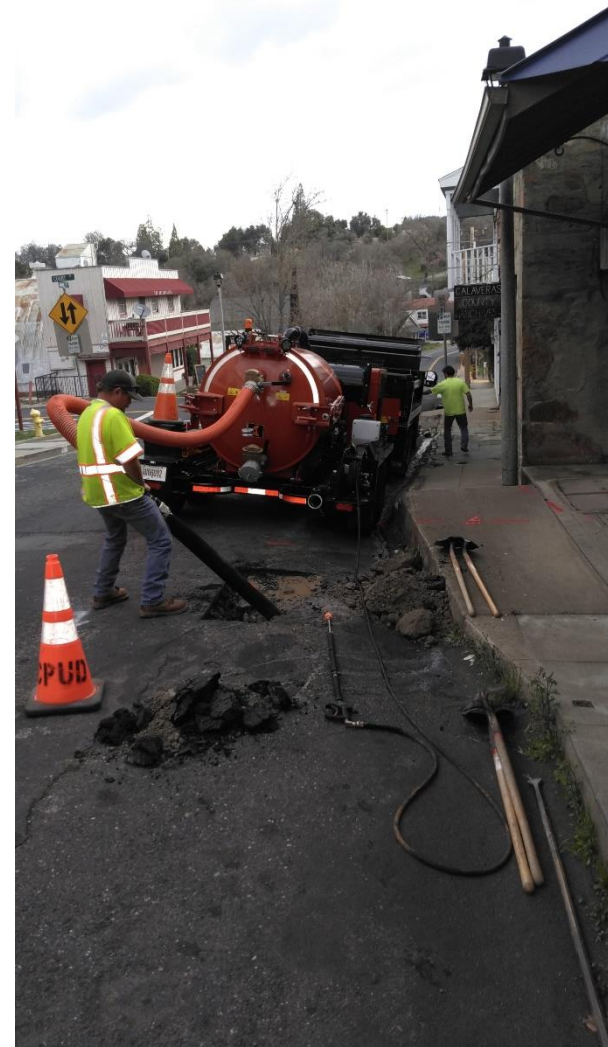
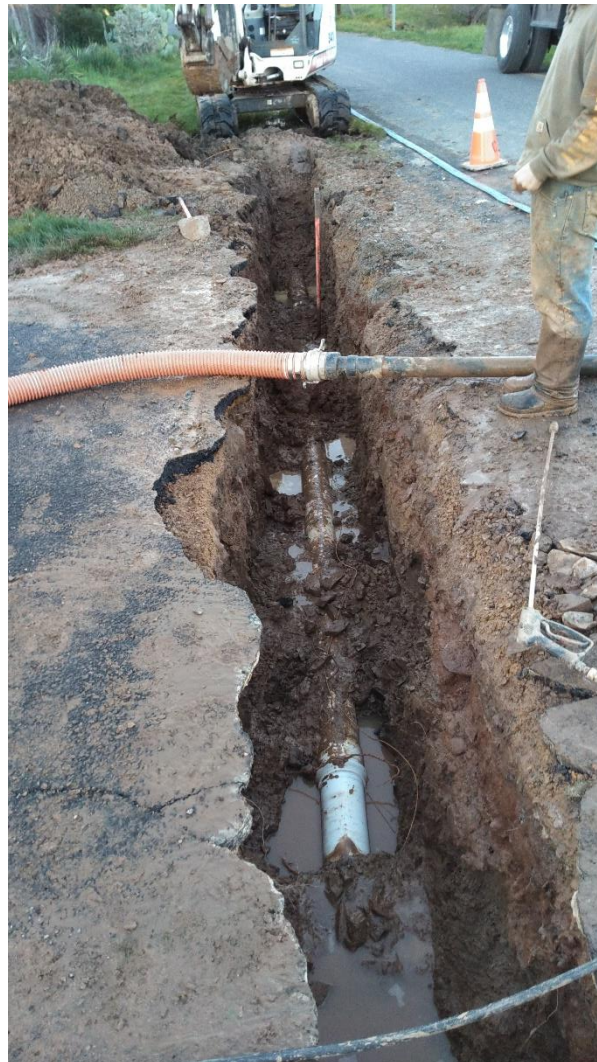
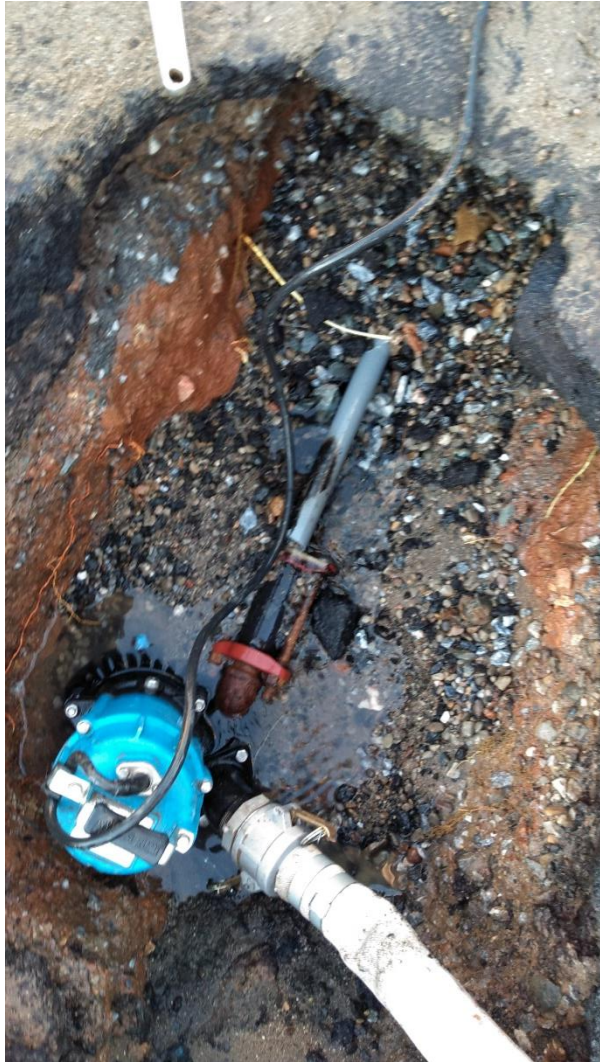
Operations – Water Distribution

- District must have qualified and certified operators on staff.
 - Water Distribution Grade 3 at minimum for Operator in charge.
 - Water Distribution Grade 2 for staff controlling a shift
- 66 miles of water distribution mains
- Nearly 2000 water meters
- Average age of infrastructure is 50+ years old
- Operator duties include but not limited to the following:
 - Leak repairs, Meter reading, meter replacement, service line repair, service line installs, maintaining pressure reducing valves, hydrant repair/installs.
- Operators also handle customer service in the field, such as water quality/pressure complaints, and locating of district facilities for underground service alerts.

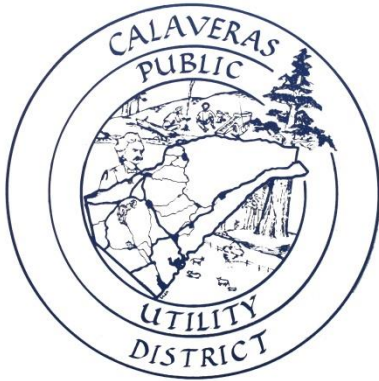
Operations – Water Leaks



Operations – Water Leaks (Continued)



Thank you, comments or questions?



Presentation by:

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w/photo credits to CPUD staff and WGA

