

CALAVERAS PUBLIC UTILITY DISTRICT
506 W. Saint Charles Street, San Andreas, CA 95249

Special Meeting

9:00am

THURSDAY, September 12, 2019

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at 209-754-9442. Notification in advance of the meeting will enable CPUD to make reasonable arrangements to ensure accessibility to this meeting. Any documents that are made available to the Board before or at the meeting, not privileged or otherwise protected from disclosure, and related to agenda items, will be made available at CPUD for review by the public.

- 1. Roll Call and Pledge of Allegiance**
- 2. Public Comment (Limit: 3 min/person)**
At this time, members of the public may address the Board on any non-agendized item. The public is encouraged to work with staff to place items on the agenda for Board consideration. No action can be taken on matters not listed on the agenda. Comments are limited to 3 minutes per person.
- 3. Water Treatment Plant SCADA Project – Authorization to Approve Change Order 7827-01**
- 4. Closed Session**
- 5. Adjournment (Next Regular Meeting October 8, 2019)**

CALAVERAS PUBLIC UTILITY DISTRICT

MEMORANDUM

TO: Donna Leatherman, District Manager
FROM: Matt Ospital, District Engineer *MSO*
RE: Water Treatment Plant water audit investigations
DATE: September 6, 2019

Purpose:

To present further findings on water audit investigations at the Water Treatment Plant (WTP) and recommend an imperative solution to be able to accurately monitor flows out of the plant and incorporate the data into the new SCADA system.

Background:

In reference to the August 2019 Monthly Water Report presented by the District Manager, staff has been gathering and analyzing data regarding the meter readings from the original (1972) Combined Filter Effluent (CFE) Flow Meter at the WTP.

Discussion:

As part of water audit investigations, staff has been using a portable flow meter to verify flow data at the WTP. Upon collecting data at the existing CFE flow meter location, it has been identified that the (existing flow) meter is reading on average an excess of 475 gallons per minute or 370,000 gallons per day in comparison to the portable flow meter. It is believed the existing flow meter is the original Foxboro Differential Pressure Flow Meter installed as part of the original WTP built in 1972. The meter calibration points were reviewed in 2012 by Telstar and function was reported as normal. Due to the aging condition of the existing meter and the pipeline, it is recommended to install a less impactful ultrasonic meter at this location that will be mounted to the exterior of the pipeline as to not compromise the structural integrity of the pipeline. Currently, the existing CFE flow meter is housed in a vault outside the WTP. Both the CFE and

backwash pipelines travel through the existing vault. The District intends to address the pipeline conditions with a capital improvement project in the near future.

The backwash pipeline is another critical component of the WTP that if metered could provide resourceful data through the SCADA system. A new ultrasonic flow meter has the capability of monitoring multiple pipelines. If the District chooses to proceed with installation of this new meter, it is recommended to also connect to the backwash pipeline to be able to monitor its flow as well. The technology of this new meter would allow for a cost-efficient solution to provide data for both the CFE pipeline and the backwash pipeline and allow integration into the new SCADA system.

The question was raised at the last District meeting of how the existing CFE flow meter reading will affect chemical dosages at the WTP. It shall be noted that the discrepancy in the meter reading has had no effect on the water quality. It was confirmed with the CPUD Water Systems Superintendent that while the calculated chemical dosage numbers will change slightly because of the inaccurate flow meter reading, the actual chemical feed rates will remain very close to what they currently are. This is because staff uses various performance factors to determine chemical feed rates. The water treatment plant performance is continually optimized by laboratory testing, and other operational performance observations to keep water quality within specific parameters. The inaccurate flow meter reading did not cause any over or under usage of chemical or create a substandard drinking water product. Disinfection, filter performance and corrosion control have all been kept within in water quality standards.

Staff received a quote for the purchase and installation of the proposed meter from JPR. Additionally, staff requested a change order estimate from the current SCADA contractor (TSI) to purchase the same meter and have them install and integrate into the SCADA system. The quote from JPR to purchase and install the meter was \$14,414.67. The quote from the SCADA Contractor (TSI) to purchase, install and also program the meter into the new SCADA system was \$17,779.14. The cost breakdown showed that it would be less expensive to obtain the same meter through TSI. An additional benefit of obtaining the meter through TSI is the continuity of having TSI already onsite and extremely familiar with the CPUD system as they are working towards finalizing the SCADA project.

Further Discussion on Water Audit Exercises:

Identifying and resolving the discrepancies in the CFE meter is a crucial step to improve water auditing exercises moving forward. The data provided by the portable water meter at the WTP and total customer meter readings from June 20th to July 20th, 2019 portrays that there is approximately 372,792 gallons of non-revenue water¹.

¹ "Non-revenue water" is an industry standard term that accounts for the sum of specific types of water loss and any authorized, unbilled consumption that occurs within a distribution system.

Based upon the data collected by the portable meter, this “non-revenue water” accounts for roughly 1% of the total water treated by CPUD. In general, a 10 to 20% allowance for unaccounted water is normal (Zacharia M. Lahlou, 2001)².

Recommendation:

It is essential that the District install an accurate flow meter device on the CFE pipeline to efficiently track treated water entering the distribution system. It is recommended to install one new ultra-sonic flow meter that has the capability of monitoring both the CFE and backwash pipelines and integrating the data into the new SCADA system.

#2528

MEMO CFE & BW Meter - 2019-09-06.doc

² Zacharia M. Lahlou, P. (2001). *Leak Detection and Water Loss Control*. National Drinking Water Clearinghouse.

CALAVERAS PUBLIC UTILITY DISTRICT CONTRACT CHANGE ORDER		ORDER NO. 1
		DATE August 6, 2019
		STATE: CALIFORNIA
Contract for: Jeff Davis Water Treatment Plant SCADA Project		COUNTY: CALAVERAS
Owner: CALAVERAS PUBLIC UTILITY DISTRICT		
To: Technical Systems Inc. (TSI) (Contractor) <i>You are hereby requested to comply with the following changes from the contract plans and specifications:</i>		
Description of Changes <i>(Supplemental Plans and Specifications Attached)</i>	DECREASE in Contract Price	INCREASE in Contract Price
Revisions to Plans and Specifications		\$18,000.00
Subtotal	\$0.00	\$18,000.00
NET CHANGE IN CONTRACT PRICE		\$18,000.00
JUSTIFICATION: As requested, we are pleased to provide a quote for a new Flexim Meter. To be provided: <ul style="list-style-type: none"> •Project Management •Engineering Services: Submittal and procurement •Field Services and Programming: <ul style="list-style-type: none"> oMeter setup, integration into the PLC and final testing services. •Materials: <ul style="list-style-type: none"> oDual Channel Permanent Meter Flexus US-F721.MC dual channel with 2 pair of clamp-on flow transducers 		

The amount of the original Contract : **\$185,978.00**

The amount of the Contract will be **Increased** by the Sum of : **\$18,000.00**

The Contract Price Including this and previous Change Orders will be: **\$203,978.00**

This document will become a supplement to the contract and all provisions will apply hereto.

Recommended _____
Matt Ospital, District Engineer (Date)

Accepted _____
Technical Systems Inc. (Contractor) (Date)

Approved _____
Donna Leatherman, District Manager (Date)

September 5, 2019

Calaveras Public Utility District
73506 W. St Charles Street
San Andreas, CA 95249
Attention: Tyla Daries
Project: Jeff Davis WTP SCADA Project
TSI Project Number: 7827



Technical
Systems
Inc.

No. CA Office
410 Gateway Dr., Suite G
Dixon, CA 95620
Tel 707.678.1111

Subject: Change Order 7827-01,

As requested, we are pleased to provide a quote for a new Flexim Meter.

To be provided:

- Project Management
- Engineering Services: Submittal and procurement
- Field Services and Programming:
 - Meter setup, integration into the PLC and final testing services.
- Materials:
 - Dual Channel Permanent Meter Flexus US-F721.MC dual channel with 2 pair of clamp-on flow transducers and mounting hardware.

Lump Sum Price: \$17,779.14 including Applicable CA Sales Tax on Taxable Items

Sincerely,

Jon Rodgers
Project Manager
Technical Systems, Inc.
530-710-3325

Jeff Davis WTP SCADA Project TSI Project No. 7827							
TSI Change Order No.:	01	Category	Description:	Amount	Units	Rate	Notes
		Project Management - design/fabrication		2	Hours	\$160.00/Hr	
		Project Management - programming/commissioning		0	Hours		
		Engineering		4	Hours	\$150.00/Hr	
		Programming		8	Hours		
		Field Engineering		24	Hours	\$135.00/Hr	Calibrate, test, travel time
		Travel Time (Field Engineering)			Hours		
		Fabrication		4	Hours	\$110.00/Hr	
		Engineering Support (O&Ms, submittals)		1	Hours		
		CAD			Hours	\$75.00/Hr	
		Labor Total		\$5,865.00			
		Travel Expenses		\$0.00			
		Freight Expenses		\$300.00			
		Subcontractors Cost		\$0.00			
		Materials		\$10,607.60			
		SUBTOTAL:		\$16,772.60			
		Bonding @ % of Subtotal:		\$134.18	0.80%		Bond Rate (if applicable)
		Tax:		\$872.36	7.25%		Tax Rate (if taxable)
		TOTAL COST:		\$17,779.14			
Notes: Rates include OH and Markup. California requires tax to be applied to labor that directly involves design work leading to the fabrication of a manufactured product.							

