

Upper Feather River Integrated Regional Water Management Plan Proposition 50 Grant Agreement No. 4600007650

Project Performance & Monitoring Report

Project No./Name: Quincy Wetlands Treatment Project

Project Proponent: Quincy Community Services District

Progress Report No.: 1

Reporting Period: 2016-2018

Date of Post-Performance Report: 4/25/2019

Project Specific Output Signatures			
	Yes	No	
Has the project been operated and maintained in accordance with all state and federal permits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Permits are on file in the AVCS D office.
Does the wetlands retention system function as planned?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See narrative below.
	<input type="checkbox"/>	<input type="checkbox"/>	
Project Specific Outcome Indicators			
	Yes	No	
Has an annual laboratory analysis for water quality been set up for the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	?? or N/A??
Have new water quality parameters been compared with original water quality tests from the technical report?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	?? or N/A??
	<input type="checkbox"/>	<input type="checkbox"/>	
Has implementation of the project reduced operating costs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Did you meet the goal of your project? If yes, please provide a brief description stating how you achieved this goal. If no, please comment as to why the goal was not achieved.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes, See narrative answers below.
	<input type="checkbox"/>	<input type="checkbox"/>	
Other Standard Reporting Requirements: Please indicate other monitoring/reporting requirements you may already be required to do independent from DWR contractual obligations. For example: CDPH Title 22 Ch. 15 "Domestic Water Quality AND Monitoring Regulations," NPDES, GAMA, CASGEM, or other internal reporting requirements that may yield valuable data.			
	Yes	No	
NPDES	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All monitoring records are on file with AVCS D and are available on request
CIWQS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All monitoring records are on file with AVCS D and are available on request

DMR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All monitoring records are on file with AVCSD and are available on request
What Upper Feather River IRWM Plan Objectives did your project address to support implementation of the Plan?			
	Yes	No	Comments
Restore natural hydrologic functions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Reduce potential for catastrophic wildland fires in the Region	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Balance the needs of forest health, habitat preservation, fuels reduction, forest fire prevention, and economic activity in the Upper Feather River Region	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Build communications and collaboration among water resources stakeholders in the Region	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Work with Department of Water Resources to develop strategies and actions for the management, operation, and control of the State Water Project facilities in the Upper Feather River Watershed in order to increase water supply, recreational and environmental benefits to the Region	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Continue to actively engage in FERC relicensing of hydroelectric facilities in the Region	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Address economic challenges of municipal service providers to serve customers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the Central Valley Regional Water Control Board Basin Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Address water resources and wastewater needs of Disadvantaged Communities (DACs) and Native Americans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Coordinate management of recharge areas and protect groundwater resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Improve coordination of land use and water resources planning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Maximize agricultural, environmental and municipal water use efficiency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Quincy Wetlands Treatment Project

Effectively address climate change adaptation and/or mitigation in water resource management	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Improve efficiency and reliability of water supply and other water-related infrastructure	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Enhance public awareness and understanding of water management issues and needs	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Address economic challenges of agricultural producers	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Work with counties, communities, and groups to make sure staff capacity exists for actual administration and implementation of grant funding	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Summary of the operations of the project. The Quincy Community Services District (QCSD) now called the American Valley Community Services District (AVCSD) operates a wastewater treatment plant in American Valley that is located next to Spanish Creek near the Quincy airport. The plant processes wastewater for both Quincy and East Quincy, with service to approximately 1750 connections. Plant effluent (treated wastewater) averages 0.81 million gallons per day. Daily peak wet weather flow averages 3.1 million gallons per day. Discharge of treated wastewater is allowed into Spanish Creek year round and is restricted during that period of time based on the measured flow of Spanish Creek.

The goal of the Quincy Wetlands Treatment Project was to construct a wetland retention system as an alternative method of preventing discharge of treated wastewater into Spanish Creek in accordance with the restrictions of the NPDES discharge permit. In the past, during the non-discharge period, between May 15 and November 1, the treated wastewater has been utilized for irrigation water on adjacent lands.

In anticipation of changes in management strategies on the adjacent lands, it was necessary to implement an alternative plan for the distribution of treated wastewater that meets the financial and regulatory requirements of the wastewater treatment facility operated by QCSD in American Valley. Construction of two seasonal wetland basins (covering a total of 30 acres) and spillways was completed during the summer and fall of 2009. The wetlands/discharge system drains directly from the seasonal wetlands into Spanish Creek through a pipe diffuser. A real-time flow monitoring station that is coordinated with the automated discharge of the wetland was installed in Spanish Creek in October 2009. The installation of the discharge pipe, automated control valves, and diffuser was completed in November/December of 2010. The power source for the wetland/discharge system and approval of the final mixing zone study were submitted to the RWQCB in 2011, and all of the wetland/discharge system work was completed in 2011. During 2012 the installation of the grade control structures and boulder vanes at the Clear Stream and Spanish Creek confluence were finalized with the downstream landowner.

During the last quarter of 2013 QCSD requested to expand the scope of work for this project with the remaining implementation funds, and also requested that some of the project funds be reallocated from

the Last Chance Creek Project under this grant program. The additional scope of work (added March 13, 2015) was added to improve the efficiency of the diffuser and enhance the stream/riparian conditions in Spanish Creek on QCSD property and the adjacent, downstream land (Bengard Ranch). The additional scope of work included: re-establishment of the diffuser pipe with the construction of an additional cross vane to stabilize the diffuser pipe and increase the at-site gradient, concentrating flows towards the center of the channel and maintaining a scour hole where increased velocity and turbulence maximize mixing with the treated effluent; as well as, removal of excess gravel to floodplain elevation and abandonment of dam sheet pilings to improve channel gradient downstream of the diffuser pipe. In late 2011 and 2012 the project team had discussions with an adjacent landowner, establishing a plan to stabilize the lower 300 feet of Clear Stream at the confluence with Spanish Creek with grade control structures and boulder vanes. The landowner agreed to support the District's work, including treating headcuts and eroding banks immediately downstream of QCSD property to reduce turbidity, improve water quality, and augment the service district's efforts to meet compliance standards imposed under discharge requirements. The erosion control component of the project was implemented in October 2013. Approximately 450 feet of bank on Spanish Creek was reshaped and re-vegetated with transplanted onsite vegetation, including sod and willows. Three boulder vanes were constructed to direct flows away from the bank to the center of the channel. Immediately downstream of the last boulder vane the Clear Stream channel drops into Spanish Creek. Several headcuts had formed in the Clear Stream channel. Four riffles were constructed in Clear Stream to stop headcutting and to drop the flow into Spanish Creek. During the last quarter of 2012 a "Bio-Dome" pilot test was completed for the QCSD's NPDES permit requirements for ammonia and other constituents.

For the additional stream enhancement components, a Mitigated Negative Declaration was approved by the QCSD in May 2015, and the Notice of Determination was filed on July 16, 2015 with the Plumas County Clerk. In June 2016 all applications for permits were submitted for the additional stream enhancement work: an application to the RWQCB for a 401 Water Quality Certification, an application to CDFG for a Streambed Alteration Agreement, and an application to the ACOE for a 404 Nationwide Permit. As part of the QCSD NPDES permit requirements, surface water monitoring of influent and effluent both upstream and downstream of the discharge point are collected regularly and reported to the RWQCB through the California Integrated Water Quality System (CIWQS) and Environmental Protection Agency (EPA) through the Discharge Monitoring Report system (DMR). QCSD has an approved QAPP for this monitoring. The NPDES reporting requirements addressed the monitoring requirements of this grant program as well. Post-construction emergency pond water levels have been monitored since October 2009. Effectiveness of metal extraction (copper) through the tertiary wetlands was measured in February and March of 2010, with an 89% removal rate. Three groundwater monitoring wells were also installed in late October of 2009, which are monitored monthly. During 2011 through 2016 post-construction monitoring at the inlet and outlet of the constructed wetland ponds included monthly measurements of emergency pond water levels, groundwater well levels, turbidity, water temperatures, electroconductivity, and dissolved oxygen. Also during 2015, an on-site evaporation monitoring station and a wildlife camera to monitor western pond turtle populations were installed at the constructed wetland ponds. The Project Assessment and Evaluation Plan (PAEP) was completed and submitted with the original grant proposal. Therefore, the mechanisms for continued project performance monitoring are outlined in the PAEP. Quincy Community Services District continues to ensure the proper operation and maintenance of the Quincy Wetlands Treatment Project in accordance with all applicable Federal and State regulations including the National Pollutant Discharge Elimination System (NPDES) program.

2. Discuss project benefits to water quality, water supply, and the environment.

The project continues to function as designed and implemented through the high water events in 2016-2017 and now in 2018-2019. All water quality requirements in effect in 2016 when the project was completed have been met or exceeded since project completion. New water quality requirements since the project was implemented are being addressed in the new wastewater treatment plant design, including anticipated new water quality standards for ammonia and other constituents. Those requirements will be identified in the new NPDES Report update that will be due in 2021. Although the AVCSD is hoping to construct the new treatment plant in coordination with the new NPDES permit update at 3500 feet elevation in the Sierra Nevada, the anticipated construction schedule may be delayed due to the short construction season.

The project has provided the American Valley Community Services District (AVCSD) with both interim and long-term benefits. The AVCSD is pursuing final funding and design completion for the \$26 million-dollar wastewater treatment plant that is anticipated to become operational in 2021, 2022, or 2023. Due to the ongoing effectiveness of the project, the project will continue to be operated according to current design and implementation specifications. Further, by 2023 the project will be also be fully integrated with the new wastewater treatment plant operations when they commence. Diffusing and mixing treated effluent with the current requirement of 20 times the ratio of instream flow volumes of Spanish Creek to effluent ratios in the winter and spring months has been accomplished with only minor movement of some vane boulders in response to two winters of high flows. Spanish Creek will continue to naturally contour the deep channel hydraulics in high flow events and the project design is intended to accommodate these minor movements. No repairs are necessary since initial installation in 2016. Water quality and environmental benefits are expected to continue after the wastewater treatment plant upgrade becomes operational because the diffuser mixing system installed through this project will continue to be operated in coordination with the new treatment plant operations.

Specifically, stream corridor aesthetics have improved as riparian vegetation has flourished on the now stabilized streambanks of Clear Stream and Spanish Creek. Revegetated banks are also providing more instream fish habitat as riparian vegetation expands and matures to overhang waters along streambanks and cool shoreline water. The boulder vanes direct AVCSD wastewater discharges to the center of the creek rather than the along the stream bank which has facilitated natural pool habitat development for native rainbow trout on the margins of Spanish Creek along the AVCSD property. Odor and discoloration from discharged wastewater has declined with the higher convergence of flows into the center of the creek channel and with the increased turbulence created by the boulder vanes.

3. Comparison and explanation of any differences between expected versus actual project success in meeting IRWM priorities as stated in the original IRWM Implementation Grant application.

There are no differences between the actual and expected project success except that the project has become both a foundational aspect and interim step for the new AVCSD goal of financing, designing, and constructing a new wastewater treatment plant by 2021-2023. The AVCSD, although it serves the severely disadvantaged communities of Quincy and East Quincy, has incrementally increased rates to ensure that USDA obligates loans towards the new treatment plant and that pending grant applications to state funding programs are more competitive. USDA funding has allowed the treatment plant design to be initiated, and new treatment plant designs are 10% complete.

4. Summary of any additional costs and/or benefits deriving from the project.

Because the project has functioned as designed, required no repairs or maintenance, and met all permitting and water quality requirements in the interim period between 2016 and when the new wastewater treatment plant becomes operational, the existing monitoring requirements will remain in place until 2021, when the existing NPDES permit is renewed. Since the new treatment plant will use the existing project in its operations, the wastewater mixing and dilution functions do not have to be redesigned or reconstructed with the new wastewater treatment plant.

5. Additional information relevant to or generated by the continued operation of the project.

As stated previously, the new wastewater treatment plant will be designed and constructed based on the continued operation of the project.