Proposal to:

U.S. Department of Interior, Bureau of Reclamation

WaterSMART Grants:

Water and Energy Efficiency Grants for Fiscal Year 2020

FOA No. BOR-DO-20-F001

COMPOUND METER UPGRADE PROJECT

Temecula, CA

October 3, 2019

Applicant: Rancho California Water District

Project Manager:
Justin Haessly
42135 Winchester Rd.
P.O. Box 9017
Temecula, CA 92589-9017
haesslyj@ranchowater.com
(951) 296-6942 Office
(951) 296-6860 Fax

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Date
October 3, 2019

Applicant Information
Rancho California Water District
42135 Winchester Road
P.O. Box 9017
Temecula, Riverside County, CA 92589-9017

Project Summary
Rancho California Water District (RCWD/District) intends to implement a Compound Meter Upgrade Project (Proposed Project), which will result in water savings through the upgrade of 134 existing standard compound water meters, ranging in size from 2" to 10", to more advanced, "floating ball" metering technology. The upgraded meters will not only reduce District water losses by providing RCWD with more accurate meter reads, but also they will reduce customer water consumption through enhanced customer leak detection and improved water management. Specifically, 271 acre feet of water savings per year will be achieved through:

1. More accurate water flow measurements at both high and extremely low flow rates,
2. Site-specific customization of flow ranges,
3. Elimination of "change-over loss," which is characteristic of standard compound meters, and
4. Communication of the upgraded meters with RCWD's existing, customer-facing MyWaterTracker tool, which allows customers to analyze their real-time water consumption data and to set customized leak alerts.

The Proposed Project helps to reduce overall water demand within RCWD's service area in accordance with drought declarations and requirements, to decrease imported water demand from both the California Bay Delta and the Colorado River, and to sustain the region's limited local water supply. In addition, it contributes to the goals of the U.S. Bureau of Reclamation's WaterSMART Grants: Water and Energy Efficiency Grants Program by: 1) conserving and using water more efficiently, 2) mitigating conflict risk in an area at high risk of future water conflict, and 3) contributing to water supply reliability in the western United States. A grant of $454,784 is requested for implementation of the Proposed Project. The entire grant amount will be used to purchase the 134 "floating ball" meters, and the District's funding match will consist of both its existing budget for capital improvement projects and the staff time required for both the installation of the meters and their integration with the existing Automated Metering Infrastructure and customer-facing MyWaterTracker tool.

Project Schedule *(length of time and estimated completion date)*

The Project can begin immediately upon award of funding and execution of the grant or cooperative agreement, and will be complete within the three-year requirement, no later than December 31, 2022. The overall Project schedule indicating key project milestones and applicable deliverables for each phase of the work is provided in the Technical Project Description.

Proximity of Project to Federal Facility

The Proposed Project is not on Reclamation project lands and does not involve Reclamation facilities. However, the Proposed Project does reside in the Colorado River Basin and a large portion of the water used in the Proposed Project Area is imported through the Colorado River Aqueduct (CRA) (Reclamation project water). Water conserved imported water through implementation of the Proposed Project would remain at the source, in large part the Colorado River, to create a more sustainable water supply in the River for environmental and beneficial uses and for other water users.

E. Background Data

Water Supply Sources

The District obtains water from the following primary water sources:

- Imported State Water Project (SWP) water from the California Bay-Delta
- Imported Colorado River water from the Metropolitan Water District of Southern California through the Colorado River Aqueduct (CRA).
- Local groundwater from the Temecula Valley Groundwater Basin
- Recycled water from both District and Eastern Municipal Water District

Water Rights

Imported Water

The District receives imported water from the Metropolitan Water District of Southern California through two wholesalers, Eastern Municipal Water District (EMWD) and Western Municipal Water District (WMWD).

EMWD is a public water agency formed in 1950 to deliver imported water to supplement local groundwater and evolved over time to include groundwater production, desalination, water filtration, wastewater collection and treatment, and regional water recycling to the list of products and services it offers to its approximate 100,000 customers. EMWD is a member agency of Metropolitan and receives imported water from the CRA and the SWP. EMWD provides wholesale water to the District as a sub-agency. Six other agencies also receive Metropolitan water through EMWD.

WMWD is a public water agency formed in 1954 to bring supplemental water to growing Riverside County. WMWD is a member agency of Metropolitan and provides wholesale water to nine retail agencies, which consists of water from the Colorado River and the SWP, as well as water from groundwater desalters. The retail agencies include RCWD and eight others. In addition, WMWD serves water directly to approximately 23,000 domestic and 130 irrigation connections in its retail service area to a population of about 85,000 in the unincorporated areas of Riverside County. In 2010, WMWD delivered approximately 25,000 AF of water in its retail area and sold more than 58,000 AF to its wholesale agencies. In addition, WMWD operates and maintains domestic and industrial wastewater collection and conveyance systems for retail and contract service customers. About 60 percent of the water WMWD sells is treated; the balance is untreated or raw water. About one-quarter of the water WMWD purchased from Metropolitan is from the CRA and about three-quarters from the SWP.

Temecula Valley Groundwater Basin

The Temecula Valley Groundwater Basin has been governed under court jurisdiction since 1928, as part of the Santa Margarita River Watershed system. In 1940, a Stipulated Judgment ("1940 Judgment") was issued directing the use and allocation of groundwater in the region. Although considered an adjudicated basin, specific water rights have not been assigned. In 1963, a Final Judgment and Decree was issued further defining the use of groundwater in the region, and in April 1966, a Modified Final Judgment and Decree ("Fallbrook Case") was entered incorporating interlocutory judgments and the 1940 Stipulated Judgment. This document produced an Application to Appropriate Unappropriated Water in the Temecula Creek, but was not fully executed until 2009 when the State Water Resources Control Board (SWRCB) issued Permit 7032 to RCWD providing water appropriations in Vail Lake.

These judgments were followed by years of court cases and power struggles by multiple parties, including the Federal government (U.S. Marine Corps Camp Pendleton) over water use in the watershed basins, citing that the judgments did not fully meet the needs of the parties for effective water management. Finally, after many years, a settlement agreement, *"Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District",* was reached and executed in March 2002. This agreement supersedes the previous judgments (1940 Judgment and Fallbrook Case) and remains in place today to govern water flow in the Santa Margarita River and use of the Murrieta-Temecula Basin.

The long-history of litigation of groundwater resources illustrates the scarcity of water in the region.

Other Groundwater Resources

Further, in December 2006, a 'Groundwater Management Agreement between Rancho California Water District and the Pechanga Band of Luiseno Mission Indians' was executed to govern the management of groundwater pumping from the Wolf Valley Groundwater Basin in a manner not to exceed the safe yield that protects groundwater resources in the Wolf Valley Groundwater Basin for present and future uses.

To further manage water in the region, a Watermaster was assigned by the court to oversee all uses within the Santa Margarita River Watershed, which includes three groundwater basins: the Santa Margarita Groundwater Basin, the Anza Groundwater Basin, and the Murrieta-Temecula Groundwater Basin. The Watermaster prepares the "Santa Margarita Watershed Annual Watermaster Report", providing annual reporting of water conditions in the watershed, but does not manage the groundwater basins. The Annual Watermaster Report, prepared pursuant to the U.S. District Court Order, March 13, 1989, includes information on surface and subsurface water, imports and exports, water rights, water production and use, threats to water supply, water quality, review of agreements, and Watermaster five-year projection of activities. The Court has retained jurisdiction over all surface flows of the Santa Margarita River Watershed and all underground waters determined by the Court to be subsurface flow of streams or creeks or which is determined by the Court to add to, support or contribute to the Santa Margarita River stream system. Local vagrant groundwaters that do not support the Santa Margarita River stream system are outside the Court jurisdiction.

Recycled Water

Recycled water in the RCWD service area is produced from two facilities: the Santa Rosa Water Reclamation Facility operated by RCWD, and the Temecula Valley Regional Water Reclamation Facility (TVRWRF) operated by EMWD. Both plants treat wastewater to Title 22 standards. In 2010, RCWD served approximately 4,400 AFY of recycled water.

At present, RCWD is maximizing recycled water from these two plants to meet landscape irrigation demands. Additional recycled water from TVRWRF could be used if advanced treatment beyond Title 22 standards was applied. As a result, not all of the recycled water from TVRWRF is beneficially used and must be pumped out of the basin for reuse in other basins or discharged to Temescal Creek.

Current Water Uses

RCWD provides water for both urban and agricultural end-uses for the following types of water consumers:

- Single-Family Residential
- Multi-family Residential
- Commercial
- Industrial
- Institutional and Governmental
- Dedicated Landscape
- Agricultural
- Agricultural/Residential

Number of Water Users Served

According to the District's 2015 Urban Water Management Plan, RCWD served a population of 148,105 through approximately 44,000 water service connections. Estimated current population (for 2019), is over 150,000.

Current and Projected Water Demand

During Fiscal Year 2014/15, total water demand was 65,279 acre-feet. This demand is described in the District's Urban Water Management Plan as follows:

Use Type	Fiscal Year 2014/15		
	Additional Description	**Level of Treatment When Delivered**	**Volume**
Single Family Residential		Drinking Water	25,308
Multi-Family Residential		Drinking Water	2,201
Commercial	Includes Industrial	Drinking Water	3,393
Institutional/Governmental		Drinking Water	463
Dedicated Landscape Irrigation		Drinking Water	5,601
Agricultural Irrigation		Drinking Water	21,940
Sales/Transfers/Exchanges to Other Agencies	Water Wheeled to Other Agencies	Drinking Water	304
Sales/Transfers/Exchanges to Other Agencies	Santa Margarita River Discharge Water Transfer	Raw Water	2,954
Losses		Drinking Water	3,040
Other	Construction Meters	Drinking Water	75
		TOTAL	**65,279**

Water demand is expected to increase each year. Projected future water demands are shown in the following table for every five years beginning in 2020 and until the year 2040.

Use Type	Additional Description	Projected Water Use				
		2020	2025	2030	2035	2040
Single Family Residential		28,870	30,062	31,253	32,443	33,774
Multi-Family Residential		2,511	2,615	2,718	2,822	2,937
Commercial	Includes Industrial	3,871	4,031	4,190	4,350	4,529
Institutional/Governmental		528	550	571	593	618
Dedicated Landscape Irrigation		6,389	6,653	6,916	7,180	7,474
Agricultural Irrigation		25,217	26,258	27,298	28,338	29,501
Sales/Transfers/Exchanges to Other Agencies	Water Wheeled to Other Agencies	2,781	5,278	5,278	5,278	5,278
Sales/Transfers/Exchanges to Other Agencies	Santa Margarita River Discharge Water Transfer	4,000	4,000	4,000	4,000	4,000
Losses		3,391	3,531	3,671	3,811	3,967
Other	Construction Meters	85	89	93	96	100
Wetlands or Wildlife Habitat		2	0	0	0	0
	TOTAL	**77,645**	**83,067**	**85,988**	**88,911**	**92,178**

Potential Shortfalls in Water Supply

The reliability of the District's water supply is largely dependent on the reliability of its imported water supplies, which are delivered by the Metropolitan Water District of Southern California through the SWP and the CRA. On April 14, 2015, Metropolitan announced a 15% reduction in deliveries due to a fifth consecutive year of drought in California and in response to new State of California Regulations. This was the fourth time Metropolitan has restricted imported supplies in response to drought conditions, the last being a 10% cutback from July 2009 to April 2011. While the 15% cutback of 2015 has been temporarily lifted because of recent precipitation in the northern California, the long-term reliability of RCWD's imported supplies is questionable due to the state's extreme variability in yearly precipitation, and due to ongoing drought within the Colorado River Watershed.

The District also depends on local water supplies from the Temecula Valley Groundwater Basin. While imported supplies brought from northern California seem to have recovered (at least temporarily), these local supplies have not recovered from the recent five-year drought. In fact, local drought conditions have continued beyond the five-year statewide drought, and water levels both within the local groundwater basin and within the District's Vail Lake have dropped to historic lows. At this point, the District compensates for reduced local supplies through expensive imported water purchases and through increased conservation efforts.

The proposed Compound Meter Upgrade Project represents an important conservation effort, which helps the District to reduce its reliance on imported supplies, and to increase the reliability of it local supplies.

Major Crops and Total Acres Served

Typical agricultural uses include major crops of avocados, citrus, and winegrapes, totaling approximately 9,127 irrigated-acres, or approximately 10 percent of the District's service area.

Description of Water Supply Facilities/Distribution System

RCWD receives its imported water (treated and untreated) directly through six Metropolitan water turnouts, three in EMWD's service area and three in WMWD's service area. The District pumps groundwater from 48 district wells and recycles water at its Santa Rosa Water Reclamation Facility (SRWRF). Additional recycled water is available from EMWD.

RCWD's domestic distribution system includes about 900 miles of water pipelines to convey water to customers; no canals are used for agricultural users. It is composed of two divisions: the Santa Rosa Division in the westerly half, and the Rancho Division in the easterly half. Each division provides water through a number of pressure zones ranging from 1,305 feet (above sea level) to 2,850 feet. The 1,305 zone provides service to the I-15 corridor area and serves as the "forebay zone" for several pump stations which supply higher zones. Treated water from Metropolitan and the majority of groundwater enters the RCWD system in this zone. Some additional groundwater enters the system in the 1380, 1610, and the 1790 Zones of the Rancho Division, in the 1500 Zone of the Santa Rosa Division.

RCWD owns and operates 37 storage reservoirs and one surface reservoir, Vail Lake. Current reservoir tank storage is 54.7 million gallons (MG) in the Santa Rosa Division and 83.4 MG in the Rancho Division. The storage capacity of Vail Lake is 49,000 AF.

RCWD has implemented a comprehensive reclaimed storage pond system including the ability to convey water back to the treatment facility for supplemental treatment or pumping direct to the distribution system. Current storage capacity is in excess of 737 AF. Ultimate capacity requirements are approximately 2,700 AF.

Past Working Relationships with Reclamation

Upper Valle De Los Caballos Phase IV Project: In 2019, Reclamation awarded RCWD $750,000 for implementation of an Upper Valle De Los Caballos Phase IV Project through the WaterSMART: Drought Resiliency Program. The Project involves the construction of a new recovery/extraction well (Proposed Project) down-gradient from recently improved groundwater recharge facilities. The Proposed Project improves drought resiliency by providing RCWD with the ability to extract 3,000 acre feet per year of additional water during all water supply conditions, including dry years, and improves operational flexibility by giving the District the ability to extract either local water conveyed to the recharge facilities from nearby Vail Lake or untreated import water, whichever is available.

Production Meter Upgrade Project: In 2019, Reclamation awarded RCWD $75,000 for implementation of a Production Meter Upgrade Project through the WaterSMART; Small Scale Efficiency Projects Program. The Project improves water loss management by upgrading sixteen existing propeller-driven meters at the District's water production facilities to state-of-the-art electromagnetic meters. Once upgraded, the production meters will provide more accurate water production data, will provide real-time production data through an interface with the District's existing SCADA system, and will reduce maintenance costs.

Accelerated Recycled Water Retrofit Program: In 2019, Reclamation awarded RCWD $1.4 million for implementation of an Accelerated Recycled Water Retrofit Program through WaterSMART: Title XVI. The Proposed Activity will consist of retrofitting 58 irrigation sites within the RCWD service area to accept recycled water, which will offset approximately 422 AFY of treated import water demand. Specifically, the Proposed Project involves the installation of 54 new laterals and 54 meters, approximately 14,000 linear feet of new distribution pipeline, properly abandoning potable water laterals, and installing necessary on-site improvements (e.g., back flow preventers).

Small Scale IPR Planning and Analysis Project: In 2019, Reclamation awarded RCWD $300,000 for implementation of a Small Scale IPR Planning and Analysis Project through WaterSMART: Title XVI. The Proposed Project consists of activities required prior to construction of a small scale groundwater recharge facility near the existing Santa Rosa Water Reclamation Facility (SRWRF). Ultimately, activities of the Proposed Project will result in purified recycled water injection for groundwater enhancement. Facilities will consist of a new Advanced Water Treatment Facility (AWTF), one new injection well, three new monitoring wells, a new pump station, and approximately one mile of new pipeline for conveyance of advanced treated water to the injection well. Reject water from the treatment process will be

disposed of via 20 acres of new evaporative ponds located adjacent to the SRWRF. The Small Scale Indirect Potable Reuse Project will allow 550 acre feet per year (AFY) of advanced treated water injection, will offset 550 AFY potable water use, and remove 390 tons of salt from the watershed each year.

Advanced Water Consumption Data Pilot Program*:* In late 2018, Reclamation awarded RCWD $44,046.80 for implementation of an Advanced Water Consumption Data Pilot Program (Pilot Program). The Pilot Program deploys two technologies within strategically selected segments of the District's customer population. First, ultrasonic water meters are being installed at forty sites to replace existing, less-accurate meters. Second, RCWD's existing MyWaterTracker tool is being upgraded to provide 700 of the District's customers with easier access to higher-resolution, real-time water consumption data. The Pilot Program promotes water conservation, attempts to improve water supply reliability through investments in existing infrastructure, and represents a significant effort by the District to test two promising technologies prior to a full service area application. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, is the Grant Officer's Technical Representative for this Program.

District Metered Area Project: In late 2018, Reclamation awarded $70,500 to RCWD for creation of a District Metered Area (DMA) within a portion of the District's service area. The DMA will function as a permanent water loss control system, which will be established by isolating a discrete section of RCWD's distribution system for monitoring the quantities of water entering and leaving the section. In general, work performed for the Proposed Project includes: installing two new production meters for measuring water quantity entering the DMA, quantifying water loss by comparing that quantity of water to the total amount of water leaving the DMA through customer meters, using customized software to help identify and locate sources of water loss, mitigating sources of water loss through replacement of traditional customer water meters with technologically advanced, ultrasonic meters, and demonstrating benefits of the DMA to other water agencies during public meetings. The DMA Project contributes to Reclamation's goal of implementing water management efforts that lead to more efficient use of water supplies in the western United States. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, is the Grant Officer's Technical Representative for this Project.

Enhancing Conservation and Water Use Efficiency through Incentive Pricing Structures: In 2017, the District entered into a $47,400 funding agreement with Reclamation for the Lower Colorado Region Water Conservation Field Services Grant Program — FY 2017. The funding agreement was for implementation of a project called Enhancing Conservation and Water Use Efficiency through Incentive Pricing Structures, which included the development of a written water management plan for improving the water pricing structure for its agricultural and commercial customers. In general, development of the water management plan included: 1) refining RCWD's existing water allocations for agricultural customers to more accurately reflect specific crop water requirements and irrigated areas, 2) developing industry-specific water budgets for commercial customers that will be based on North American Industry Classification System (NAICS) codes instead of meter size, and 3) updating RCWD's existing Water Budget Rate Model under various scenarios including drought, loss of water supply, etc. to determine the rates required for collecting total required revenues. Reclamation's Lower Colorado Region, Southern California

Area Office, Water Conservation Specialist, Debra Whitney, is the Grant Officer's Technical Representative for this Project.

Integrating Innovative Technologies for Enhanced Outdoor Water Use Efficiency: In 2016, the District entered into a $79,204.70 funding agreement with Reclamation for the Water Conservation Field Services Project – Lower Colorado Region– FY 2016. The funding agreement was for implementation of a project called Integrating Innovative Technologies for Enhanced Outdoor Water Use Efficiency, which models the integration of three separate water conservation devices at five strategically selected residential landscape irrigation sites within the District's service area. The integration of these devices, which include Wi-Fi enabled weather based irrigation controllers, pressure regulating sprinkler stems, and high-efficiency sprinkler nozzles are intended to increase both irrigation system and irrigation scheduling efficiency at the five sites, which would lead to better water management and measurable water savings. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, is the Grant Officer's Technical Representative for this Project.

Agricultural Crop Conversion Program: In 2016, the District entered into a $1,000,000 funding agreement with Reclamation for the Agricultural Water Conservation and Efficiency Grants Fostering District/Farmer Partnerships grant program. The funding agreement was for implementation of an Agricultural Crop Conversion Program through which financial incentives are provided to farmers for the replacement of high water use crops with those that require less irrigation water. Implementation of the Program helps to mitigate imported water demand from both the Bay-Delta and the Colorado River, to reduce overall water demand in accordance with drought declarations and requirements, and to sustain the limited local water supply. The Program also helps to sustain the region's agricultural economy—the rising cost of imported water is causing the production of higher water use crops to become less economical and sustainable, and the Program can assist in improving the economic viability of local agriculture through conversion to lower water use crops. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, is the Grant Officer's Technical Representative for this Project.

Advanced Metering Infrastructure to Enhance Water Use Efficiency and Energy Efficiency Project (AMI Project): In 2014, the District entered into a $298,677 funding agreement with Reclamation for the Bay-Delta Restoration Program: CALFED Water Use Efficiency Grant for Fiscal Year 2014. The AMI Project includes the upgrade of 20,165 Encoder Radio Transmitter (ERT) devices, which provide for "drive-by" collection of current consumption data, with the AMI Itron 100W Choice Connect network System that automatically collects and stores hourly consumption data, aiding in water conservation and water use efficiency, improved water management, energy savings, and reduced carbon emissions. The Project benefits all District customers. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, administers the grant for the AMI Project.

Blueprint for Water Use Efficiency (Blueprint): In 2013, the District entered into a $54,681 funding agreement with Reclamation for a Conservation Field Services Program – Southern California Area Office Grant for Fiscal Year 2013. The Blueprint provides a thorough analysis of urban water use efficiency, conservation measures and agricultural strategies, resulting in a clear direction of programs and activities to meet the District's water efficiency goals and objectives

through a balance of proposed programs. The Blueprint project also meets the objectives of Reclamation's Water Conservation Field Services Program and helps meet the Secretary's High Priority Water Conservation Goal. The purpose of the Blueprint project is to quantitatively benchmark the District's water use efficiency programs and activities; develop a written plan defining how the District will comply with Metropolitan Water District of Southern California's Long-Term Conservation Plan; meet the new State of California's 20x2020 goal; create compliance with the California Urban Water Conservation Council's (CUWCC) Best Management Practices (BMPs); and align development with the District's Urban Water Management Plan; all referred to as Compliance Consistency. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, administered the grant for the Blueprint.

Residential Irrigation Efficiency Program (REIP): In 2012, the District entered into a $55,000 funding agreement with Reclamation for a Conservation Field Services Program – Southern California Area Office Grant for Fiscal Year 2012. The purpose of the RIEIP is to make more efficient use of existing local water supplies through implementation of cost-effective outdoor water use efficiency measures with the intent of enhancing local water supply availability and reducing per capita water consumption for residential customers within RCWD's service area. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, administered the grant for the REIP.

Enhanced Agricultural Irrigation Efficiency Program (Enhanced AIEP): In 2012, the District entered into a $174,192 funding agreement with Reclamation for a Bay Delta Restoration Program: Agricultural Water Conservation and Efficiency Grant. The Enhanced AIEP is to promote and improve on-farm water use efficiency, building upon and broadening the Existing AIEP, by adding a component that provides farmers the tools necessary for scheduling irrigation events more accurately and effectively. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, administered the grant for the Enhanced AIEP.

Vail Lake Indirect Potable Reuse (IPR) Conceptual Design Study: In 2012, the District entered into a $150,000 funding agreement with Reclamation for a WaterSMART: Title XVI Water Reclamation and Reuse Program grant for Fiscal Year 2013. The District has an authorized Title XVI project, which has received Reclamation funding, including the Vail Lake Stabilization and Conjunctive Use Project under American Recovery and Reinvestment Act funding listed below and the current Vail Lake IPR Conceptual Design Study under the WaterSMART funding. Completion of the IPR Study is anticipated in March 2013. Reclamation's Lower Colorado Region, Southern California Area Office, Area Engineer, Dennis Wolfe, administered the grant for the IPR Conceptual Design Study.

Vail Lake Stabilization and Conjunctive Use Project*:* In 2009, the District entered into a $6,100,000 American Recovery and Reinvestment Act (ARRA) agreement with Reclamation. The Project has been designed and constructed, and a Notice of Completion for the major construction was filed in November 2010. Subsequently, the Native Vegetation Restoration effort was completed by August 2011, and the Quagga Mussel Control Facility was completed in June 2013. Reclamation's Lower Colorado Region, Southern California Area Office, Area Engineer, Dennis Wolfe, administered the grant for the Vail Lake Project.

Residential One Stop Installation Program (ROSIP): In 2009, the District entered into a $260,440 agreement with Reclamation for a CALFED Water Efficiency Grant. The ROSIP was funded to target 500 high water use residential customers for on-site evaluations to identify indoor and outdoor sources of water waste. RCWD educated customers on water conservation and installed water-saving devices. ROSIP's final report was submitted following completion of the program on August 1, 2011. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, administered the grant for the ROSIP.

Avocado Study: In 2008, the District entered into a $100,000 agreement with Reclamation for a Soil and Moisture Conservation Program Grant. Reclamation recognizes the RCWD as a large agricultural area in the southern California region and is supportive of the opportunity to help the efforts in conservation programs. The grant funded a study that demonstrated to avocado growers that smart irrigation controllers can provide water savings while maintaining crop integrity and fruit production. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, administered the grant for the Avocado Study.

Weather-Based Irrigation Controller Direct Install Program (WBIC Program): In 2007, the District entered into an $87,500 agreement with Reclamation for a Water 2025: Preventing Crisis and Conflict in the West, Challenge Grant. The funding extended an ongoing smart irrigation controller direct install program for commercial and residential water users. The Program's final report, submitted April 2008, showed the Program resulted in the installation of WBIC's on 667 acres with water savings of more than 5,700 acre-feet. Reclamation's Lower Colorado Region, Southern California Area Office, Water Conservation Specialist, Debra Whitney, administered the grant for the WBIC Program.

F. Project Location

Rancho California Water District (RCWD/District) provides water for urban and agricultural uses to the City of Temecula, portions of the City of Murrieta, and unincorporated southwestern Riverside County lands in the surrounding area. RCWD comprises nearly 100,000 acres in the southwestern portion of Riverside County, California. The District is about 85 miles southeast of the City of Los Angeles, 40 miles south of City of Riverside and 65 miles north of the City of San Diego.

The District's service area is bounded on the southwest by the Santa Ana Mountains and on the northeast by Gavilan Hills. Figure 1 shows the location and boundary of RCWD in the State of California, within the County of Riverside, adjacent to the counties of San Diego and Orange, and the cities of Temecula and Murrieta identified within the District service area.

The Compound Meter Upgrade Project is located within both the District's Santa Rosa Division (west side of I-15) and Rancho Division (east side of I-15) as shown in Figure 1.

Figure

G. Technical Project Description

Description of Compound Meter Upgrade Project (Proposed Project)

Project Summary

Rancho California Water District (RCWD/District) intends to implement a Compound Meter Upgrade Project (Proposed Project), which will result in water savings through the upgrade of 134 existing standard compound water meters, ranging in size from 2" to 10", to more advanced, "floating ball" metering technology. The upgraded meters will not only reduce District water losses by providing RCWD with more accurate meter reads, but also they will reduce customer water consumption through enhanced customer leak detection and improved water management. Specifically, 271 acre feet of water savings per year will be achieved through:

1. More accurate water flow measurements at both high and extremely low flow rates,
2. Site-specific customization of flow ranges,
3. Elimination of "change-over loss," which is characteristic of standard compound meters, and
4. Communication of the upgraded meters with RCWD's existing, customer-facing MyWaterTracker tool, which allows customers to analyze their real-time water consumption data and to set customized leak alerts.

Following are more detailed descriptions of how these benefits will be achieved.

More Accurate Flow Measurements
Floating Ball metering technology is a new, proven alternative to standard compound meters that helps water utilities avoid apparent water loss and associated revenue losses. The measuring device within this new type of meter is an extremely lightweight ball impeller that spins frictionless as it floats within the measuring chamber. The ability of the ball impeller to spin without friction allows the meter to measure both very low and extremely high flows that would go unmeasured by standard compound meters and would result in apparent water loss.

Customizable Flow Ranges
Some manufacturers have developed floating ball meters with measuring chambers that can be removed and replaced in the field without removing the meter body from its service connection. Because the different types of measuring chambers that can be installed within the meter body read accurately within different flow ranges, a measuring chamber can be chosen for a site based on its specific flow characteristics/requirements. In other words, if the flow requirements at a site change drastically outside the range of the measuring chamber's specifications, the internal components can be replaced with those that can read within the necessary flow range—all without removing the meter from the site. This protects against apparent water loss and reduces labor costs when it comes to replacing meters.

Elimination of Changeover Loss
Floating ball meter technology eliminates changeover loss associated with standard compound meters. Standard compound meters consist of two meters, a mainline meter and a bypass meter, separated by a compounding valve. When the compounding valve is closed, water flows through the main-line meter. When the pressure differential in the bypass meter increases to a changeover point, the compounding valve opens, and water flows through both meters simultaneously. Because the meter that is producing the most flow is the only one that drives the register, all standard compound meters allow for unmeasured flow and lose accuracy when operating within the changeover flow range. Floating ball technology avoids this issue because it operates using a single meter and no changeover is required.

Communication with RCWD's existing MyWaterTracker Tool
RCWD implemented an Automated Metering Infrastructure (AMI) in 2010 through which real-time meter flow data are reported for 100% of the District's 44,000 water meters to a fixed network. This fixed network can be accessed by RCWD staff and is used for multiple conservation and water use efficiency efforts. To supplement implementation of the AMI, the District designed and implemented a customer-facing tool called MyWaterTracker, which allows customers to review and analyze their hourly water consumption and to compare it to a customized water budget that is based on their site-specific indoor and outdoor water needs. In addition, users of MyWaterTracker can set customized leak alerts through which email and/or text alerts are sent to them when certain flow thresholds are exceeded. To date, the only customers who do not have access to the MyWaterTracker tool are the 134 who have a standard compound meter—the unique format in which data reported by these meters to the fixed network prevents MyWaterTracker from being able to translate and display accurate data. By upgrading the 134 meters to the floating ball meters, this issue can be resolved, and 134 additional customers can access their hourly consumption data and set leak alerts, which will lead to reduced consumption and overall improved water management. In addition, as part of the MyWaterTracker

tool, customers will gain access to a scorecard, which shows how their water usage compares to that of similar properties in their area. Water consumption reductions will result from improving customers' abilities to quickly detect and repair system leaks, and to improve overall water use efficiency.

Description of Proposed Project Implementation

Following is a description of the Proposed Project's implementation plan.

1. **Planning for Compound Meter Upgrades**
   RCWD staff will plan the upgrade process with an emphasis on minimal water delivery interruption to customers.
2. **Implementing Production Meter Upgrades**
   RCWD staff will remove existing standard compound water meters and install mopre technologically advanced floating ball meters in their place.
3. **Integrating Upgraded Production Meters with AMI/MyWaterTracker Systems**
   District staff will connect the upgraded metering technology to its existing AMI system for remote monitoring of water volumes and flows. Additionally, data produced by the meter and collected by the AMI system will be reported to the MyWaterTracker tool for providing customers with access to real-time, hourly consumption data and the ability to set customized leak alerts.
4. **Customer Outreach**
   District staff will distribute written materials to 134 customers whose sites are outfitted with the upgraded meters, which will highlight the benefits of the data provided to them by the existing AMI fixed network and the MyWaterTracker tool.
5. **Assessing Performance Measures**
   Using the upgraded compound meters in conjunction with the District's existing AMI and MyWaterTracker systems, District staff will monitor water consumption and quantify water savings using its customized SmartWorks software.

The non-Federal cost share for the Proposed Project is already secured within the District's existing budget for Capital Improvement Projects. Implementation of the Proposed Project is essential for increasing RCWD's capability to measure water consumption accurately, for reducing water loss, and for improving its customers' ability to quickly detect and repair system leaks and to improve water use efficiency.

Proposed Project Implementation Schedule

Below is the Proposed Project Schedule by task and a description of deliverables. The Proposed Project start date is July 1, 2020, and assumes a Financial Assistance Agreement will be executed by that date. RCWD has vast experience with implementing projects similar to the one proposed, and is highly confident that it can be completed by December 31, 2022 (two and a half years after the Project start date).

Task	Planned Start Date	Planned Completion Date
Task 1: Project Administration Execute a Financial Assistance Agreement with Reclamation, and prepare and submit invoices. Deliverables: invoices and other documentation as required per the Financial Assistance Agreement.	**7/1/20**	**12/31/22**
Task 2: Reporting Report to Reclamation on project accomplishments. Deliverables: project performance reports to be submitted twice per year or more frequently as required per the Financial Assistance Agreement.	**12/31/20**	**12/31/22**
Task 3: Plan for Compound Meter Upgrades Plan the upgrade process with an emphasis on minimal water delivery interruption to customers. Deliverables: Meter Upgrade Plan	**7/1/20**	**7/31/20**
Task 4: Implement Compound Meter Upgrades Upgrade existing District compound meters with new technology. Once the meters are upgraded. Deliverables: Map indicating locations of new compound meters	**8/1/20**	**11/30/21**
Task 5: Integrate Production Meters with AMI/MWT System Perform work required for connecting upgraded meters to AMI fixed network and MyWaterTracker systems to ensure remote monitoring capabilities. Deliverables: Reports showing AMI/MWT data transmitted by upgraded meters.	**8/1/20**	**12/30/21**
Task 6: Customer Outreach Distribute written materials to 134 customers whose sites are outfitted with the upgraded meters, which will highlight the benefits of data provided to them by the AMI fixed network and the MyWaterTracker tool. Deliverables: copies of written materials	**8/1/20**	**6/31/22**
Task 7: Assess Performance Measures Using the upgraded compound meters in conjunction with the District's existing AMI system, District staff will monitor consumption at the sites. Water savings with the upgraded meters will be measured using the District's SmartWorks software. Deliverables: Report describing water savings.	**1/1/21**	**12/31/22**

H. Evaluation Criteria

1. Quantifiable Water Savings

Municipal Metering Project

The Proposed Project is a Municipal Metering Project as defined within the WaterSMART: Water & Energy Efficiency Grants FOA, and includes significant water savings benefits. Water savings created by the Proposed Project will result from upgrading 134 standard compound meters to floating ball metering technology, which provide more accurate consumption data and are capable of communicating hourly water consumption data to the District's customer-facing MyWaterTracker tool through its existing Automated Metering Infrastructure. The Floating Ball meters that will be installed are manufactured by Sensus, and will be Omni Compound C^2 meters. The following table shows the sizes and quantities of each meter that will be installed:

Meter Type	Meter Size	Quantity
Omni Compound C^2	2"	7
	3"	35
	4"	37
	6"	33
	8"	20
	10"	2
	TOTAL	**134**

Once the meters are upgraded, water loss will be reduced through: 1) improved water measurement accuracy, and 2) through access by customers to the MyWaterTracker tool. The tool allows customers to monitor their consumption in real time—they will be able to view hourly data that is updated every two to three hours throughout the day. In addition, the tool allows customers to set customized leak alerts—whenever water flowing through the meter exceeds a volume threshold set by the customer, or whenever water flows through the meter for a period of time exceeding a threshold set by the customer, an email or text will be sent to them indicating such. In addition, as part of the MyWaterTracker tool, customers will gain access to a scorecard, which shows how their water usage compares to that of similar properties in their area. With access to the tool customers will gain more knowledge of their consumption patterns, which not only encourage them to adopt efficient water use practices, but also will allow to fix leaks more quickly than they would have been able to otherwise.

Water Savings Estimate

Through the upgrade of 134 standard compound meters to those capable of providing more accurate consumption data and communicating hourly water consumption data to RCWD's existing, customer-facing MyWaterTracker tool, the District expects to achieve water savings through both water loss reduction and reduced customer consumption. Proposed Project water savings is summarized in the following table.

Water Savings Type	Actual Water Savings (AF/year)
Water Loss Reduction	129
Reduced Customer Consumption	142
TOTAL	**271**

Description of Current Losses

The water that will be conserved is currently being lost to:

1) Non-revenue/unaccounted for losses due to metering inaccuracies
2) Inefficient water use among the customers (i.e. inattention to system leaks, over-irrigation , non-efficient water use behaviors,)

Documentation of Estimated Water Savings

For documentation of estimated water savings, two separate analyses performed by RCWD were used. The first analysis, the District's 2018 Water Loss Audit, was used to quantify 129 acre feet per year of water loss reductions identified in the above Water Savings Estimate. The second analysis involved the use of customized SmartWorks software for quantifying an additional 142 acre feet per year of reductions in customer consumption that would result from implementation of the Proposed Project.

Water Loss Reduction

RCWD's 2018 Water Loss Audit (Appendix C), which was performed according to American Water Works Association methodologies, determined that 5.7% of the total volume of water supplied by the District was lost as "non-revenue" water. The average annual water demand for the 134 service connections receiving an upgraded meter through implementation of the Proposed Project is 3,387 acre feet per year. By applying the non-revenue water loss percentage to this annual demand, it is estimated that water loss for the 134 service connections is 193 acre feet per year (3,387 X 5.7% = 193). By upgrading the standard compound meters at the 134 sites, it is estimated that water loss can be reduced by approximately 67%. Therefore, the water savings resulting from water loss reduction is estimated at 129 acre feet per year (193 X 67% = 129). The District believes this is a conservative estimate that is supported by two reports including one written by the City of Santa Maria and covered in WaterWorld Magazine (Godwin 2011), and one published by the U.S. Environmental Protection Agency that found public water systems can reduce water loss by 75% (EPA 2013).

Reduced Customer Consumption

In partnership with Harris Computer Systems, RCWD has made significant investments in the development of a software tool, called SmartWorks, which is designed to measure water savings that results from the District's implementation of conservation programs. SmartWorks analyzes historical water usage and weather data for each customer site that participates in a particular conservation project, and uses this data to create for each participating customer a baseline consumption model. The software uses that baseline model, along with actual weather data for the time-period following the customer's participation in the project, to predict how much water the customers would have used if they had not participated in the project. The prediction is then compared to the actual

consumption that occurs following project participation to determine a gross water reduction.

To determine *actual reduced consumption*, the software takes into consideration variables such as drought restrictions, economic factors, and increased water rates, which could cause gross water reductions for all customers, regardless of conservation project participation. To do this, the gross water reductions for customers who participate in a particular conservation project are compared to that of a carefully selected control group. The control group consists of similar customers who did not participate in the same project. The difference between the gross water reductions for the participant group and the control group is considered the *actual reduced consumption*.

The software has been used to analyze actual water savings that have resulted from the District's efforts to make real-time hourly consumption data available to its customers via its AMI and MyWaterTracker systems. The software's analysis shows that actual water savings for the MyWaterTracker tool is 4.2%, which for the 134 meters proposed for upgrade as part of the Proposed Project, translates to 142 acre feet per year of water savings (3,387 X 4.2% = 142).

A recent study performed for East Bay Municipal Utilities District (EBMUD) supports RCWD's analysis (EBMUD 2013). The EBMUD study showed that customers who accessed its customer-facing WaterSmart Analytics tool decreased their annual water consumption by approximately 5%. While this tool is very similar to RCWD's MyWaterTracker tool, it is different in that it does not provide hourly consumption data to customers as frequently, and it does not provide customers with the ability to set customized leak thresholds. The EBMUD study suggests that water savings created by the WaterSmart Analytics tool result from social norming that occurs when customers are able to view their hourly consumption data and from the higher likelihood that customers who view this data will fix leaks in a timely manner and will adopt efficient water use practices.

Verification of Water Savings

The District will use customized SmartWorks water conservation software to verify actual water savings resulting from the Proposed Project's meter upgrade efforts. The software calculates water savings through analysis of both pre- and post-meter upgrade consumption data, and historical weather patterns. Details regarding the software, and how it makes water savings calculations are provided above in *Documentation of Estimated Water Savings.*

2. Water Supply Reliability

The Proposed Project increases water supply reliability and resiliency to drought through water conservation. The project will reduce imported water demand from both the California Bay-Delta and the Colorado River, and help mitigate the impacts of over-allocation and heightened competition for imported water, finite water supplies during times of drought, and increased demand resulting from population growth. Water conserved through the Proposed Project can be used for high-priority demands in California's Bay-Delta and the Colorado River watershed areas. Moreover, reducing

imported water purchases translates to heightened reliance for RCWD on its local water supplies, which are less expensive—making better use of local supplies means lower water rates for RCWD customers of all sectors, including both urban and agricultural uses.

Specific Water Reliability Concerns

Issues directly influencing water supply reliability within RCWD's service area include increasing water demands, drought, and reduced water deliveries. The District's population has steadily risen over the past decades, and it is anticipated that water demand will rise by 41% between the years 2015 and 2040. In the context of ongoing drought, (California recently endured a multi-year, historic drought beginning in 2014) and reductions in water deliveries from the California Bay-Delta, which have been legislated by the state of California, rising demands represent a serious issue that needs to be dealt with through demand-side solutions such as the Proposed Project's aggressive conservation efforts.

By reducing overall District water demand by 271 acre feet per year through the upgrade of 134 standard compound meters, the Proposed Project will save water, and therefore helps improve water supply reliability to help meet growing water demands with available supplies. The reduction in demands will help extend water supplies and make demands available for other uses. Imported water conserved through implementation of the Proposed Project will remain at its source, in California's Bay Delta and in the Colorado River, to help meet other demands. Any of the District's local water supplies saved by the Proposed Project will remain in the groundwater aquifer and will be available for beneficial use within the District's service area.

Benefits to Multiple Water Users

The Proposed Project benefits all water users (including agricultural, municipal and industrial, environmental, and recreational) receiving water through both California's State Water Project and Reclamation's Colorado River Aqueduct. The main benefits received are improved water supply availability and reliability.

Benefits to Indian Tribes

In December 2006, a 'Groundwater Management Agreement between Rancho California Water District and the Pechanga Band of Luiseno Mission Indians' was executed to govern the management of groundwater pumping from the Wolf Valley Groundwater Basin in a manner not to exceed the safe yield that protects groundwater resources in the Wolf Valley Groundwater Basin for present and future uses. The water savings resulting from the Proposed Project has the potential to reduce the District's need to pump groundwater, and therefore could assist in maintaining safe yield requirements for the benefit of the Pechanga Band of Luiseno Mission Indians. In addition, the Proposed Project will help Reclamation meet, although indirectly, trust responsibilities to tribes by leaving more source water in the Colorado River.

Benefits to Rural or Economically Disadvantaged Communities

Rural and economically disadvantaged communities within RCWD's service area benefit from the Proposed Project. Benefits include lower water rates for all of the Districts customers through decreased purchases of expensive imported water and more reliance on less expensive local water supplies.

Benefits to Species
A total of 271 acre-feet per year of imported potable water is estimated to be saved with implementation of the Proposed Project. The saved water would essentially remain at the source, the Delta and the Colorado River, contributing to in-stream flows and environmental uses. The Proposed Project benefits the sensitive Delta and Colorado River Watershed ecosystems, including sensitive and/or endangered species, by reducing water demands on those water systems. In addition, higher instream flows also contribute to improved water quality conditions by diluting pollutant concentrations and helping to maintain more optimal water temperatures.

Promoting and Encouraging Collaboration

The Proposed Project will promote collaboration among the District and its customers. Specifically, the District will work with customers with larger water meters and large amounts of annual water use, including agricultural property owners, commercial property owners, Homeowners' Associations, Institutions, and Public Agencies to implement the Proposed Project with the goal of not only of monitoring for and repairing leaks, but also of improving water use efficiency in general.

The Proposed Project represents an extension of water conservation efforts that the District has conducted in the past with great success and with widespread support from the community. The Proposed Project is a significant element of the Upper Santa Margarita Watershed's (USMW) integrated approach to water conservation, water use efficiency, and sustainability to prevent a water-related crisis due to drought and over-allocation of supplies. The USMW Integrated Regional Water Management Plan was developed with stakeholder input and its goals and objectives include 1) a more reliable and diverse portfolio of water supplies; 2) promoting economic, social and environmental sustainability; and 3) maximizing implementation of water resource projects. More specifically, the IRWM Plan promotes the continuing implementation of water conservation efforts to reduce water consumption for the region, promoting sustainable practices, reducing energy usage in operations of water supply, and reducing runoff through projects that implement best management practices. Implementation of these efforts remains a high priority for the region, and the Proposed Project meets each of the Region's goals and objectives.

3. Implementing Hydropower
The Proposed Project does not implement hydropower

4. Complementing On-Farm Irrigation Improvements
The District implements a comprehensive Water Use Efficiency Program, which provides technical assistance, education, research and development, and financial incentives to both urban and agricultural water users. To complement its Water Use Efficiency Program, the District has worked with NRCS in the past to facilitate on-farm irrigation system improvements that could be partially funded through its Environmental Quality Incentives Program (EQIP). In fact, RCWD has worked collaboratively with farmers in the District's service area and NRCS since 2011 to facilitate more than $1,210,000 in NRCS funding for local farmers to improve their irrigation systems:

- In September 2011, NRCS allocated $100,000 in Environmental Quality Incentive Program (EQIP) funding to RCWD agricultural efficiency program participants to boost incentives and participation. Nearly 100 percent of that funding was used.
- In May 2012, RCWD was awarded a Reclamation Bay-Delta Restoration Program: Agricultural Water Conservation and Efficiency Grant for its Enhanced Agricultural Irrigation Efficiency Program. NRCS supplemented the Bay-Delta Restoration Program funding with an additional $186,978 in NRCS funding, and further expanded its funding partnership with RCWD by $200,000 per year for two years (2013 and 2014).
- In 2013, NRCS increased its commitment to farmers in RCWD's service area for the current funding year from $200,000 to $325,000 for 50 projects.
- In 2014, NRCS committed $200,000 per year for 2014 and 2015.

Other ongoing efforts on which the District collaborates with local farmers include:

CropSWAP

Similar to a turf replacement project, The District provides financial incentives to its agricultural customers for replacing high water use crops with lower water use varieties. So far, 250 acres of cropland are slated for conversion. Most conversions include irrigation system improvements, which are eligible for NRCS EQIP funding. Through crop conversion and irrigation system efficiency improvement efforts, the Conversion Program will save an estimated 396 AFY of water, representing 2.0% of the District's agricultural water supply or 0.57% of the District's total water supply. Additionally, 186 AF (post-project demand) or 0.9 percent of agricultural water use will be better managed. Improving irrigation efficiency at the Conversion Program sites will enable on-farm water use efficiency resulting long-term benefits.

Agricultural Irrigation Efficiency Program

The District's Agricultural Irrigation Efficiency Program (AIEP) began in 2012. The AIEP involves developing accurate water budgets for 1,724 agricultural operations and comparing them to historical water consumption to identify 100 agricultural operations or 1,000 irrigated acres that show the greatest need for water use efficiency improvements. The AIEP audits the sites and identifies ways to increase water use efficiency. Financial incentives are provided for 50 percent of equipment cost for approved irrigation system retrofits, including increased hydraulic efficiency of irrigation systems through replacement of irrigation system components such as pipelines, sprinklers, and pressure regulation devices. To AIEP also promotes financial assistance for participating sites through additional federal funding from NRCS for the irrigation system retrofits. This funding is provided directly to the site owners, while RCWD works collaboratively with the NRCS and the site owners to assist in applying for the funding.

Enhanced Agricultural Irrigation Efficiency Program
The Enhanced Agricultural Irrigation Efficiency Program (Enhanced AIEP) expanded the scope of assistance made available to local farmers through RCWD's existing AIEP. Through installation of weather stations and soil moisture sensors at select avocado farms within the District's service area, the Enhanced AIEP provided farmers with easily accessible and valuable data that allows them to make more informed irrigation scheduling decisions, resulting in further irrigation efficiency improvements and increased participation in NRCS funding assistance.

Virtual Technical Assistance Center
The District enhanced its agricultural water use efficiency projects by implementing an education and technical assistance component called the Virtual Technical Assistance Center Project (VTACP). The VTACP is intended to bolster public outreach efforts by making available to the entire growing community water management assistance tools and information on the District's website, which would: 1) introduce proven but under-utilized irrigation scheduling technologies to the entire local growing community; 2) gather real-time weather data generated by existing weather stations; and 3) provide technical assistance videos for teaching the local growing community how to implement Best Management Practices strategies including irrigation system distribution uniformity (DU); soil, plant, and water relationships; irrigation scheduling methods and technologies.

The Proposed Project upgrades meters at 2 agricultural properties, which will lead to an estimated 19 acre feet of water year of water savings of the 271 acre feet per year that will be achieved through project implementation. The upgrading of these meters provides these property owners with the ability to track their real time water use, to identify and repair leaks that would likely have done unrepaired in the absence of the Proposed Project, and to improve water use efficiency in general. In addition the Proposed Project indirectly benefits farmers in both California's Central Valley and in the Colorado River watershed by reducing imported water by 271 are feet per year, making this amount available for farming practices.

5. Department of the Interior Priorities

The Proposed Project shares the following Department of the Interior priorities:

- ***Creating a conservation stewardship legacy second only to Teddy Roosevelt***
  - *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment*

    The use of tools like MyWaterTracker to supplement AMI is an example of using best practices involving scientifically-driven technologies to manage water resources and adapt to changes in the environment. Reclamation's Colorado River Basin Water Supply and Demand Study (Study) recognizes that the Colorado River Basin will face issues with increasing demands and uncertain supplies into the future. In addition, the reliability of water supplies available from sources in California have proven to be questionable over the course of the past few decades. These two supply sources are critical to RCWD as they represent more than half of the water used to meet the District's annual demand. Of the many solutions proposed by both Reclamation's Study and the state of California's recent *Making Conservation a California Way of Life* legislation for

adapting to issues with water supply reliability, implementation of conservation and water use efficiency strategies are one of the most important.

The Proposed Project will conserve 271 acre feet of water per year and increase water use efficiency through the upgrade of 134 standard compound meters to the latest floating ball metering technology. This water savings will be possible through improved accuracy of meter reads and the connection of these upgraded meters to an existing Automated Metering Infrastructure, which will report real-time water usage data to 134 customers via RCWD's MyWaterTracker tool. This online tool will allow these customers to analyze data that will help them to increase their water use efficiency and to set customized alerts that will notify them when leaks occur and allow them to repair leaks more quickly than they would have in the absence of the tool.

- *Examine land use planning processes and land use designations that govern public use and access*
  The Proposed Project is located throughout RCWD's service area which includes the City of Temecula, portions of the City of Murrieta, and unincorporated areas of Riverside County. Each of the agencies has a land use plan, which includes a conservation element focusing on protecting and enhancing community environmental resources. In addition agencies downstream of RCWD, including the community of Fallbrook and Marine Corps Base Camp Pendleton have similar plans. The Proposed Project not only protects the water supplies of each of these communities, but also it protects surface and groundwater quality as well as sensitive habitats through prevention of runoff (resulting from improved water use practices) and the associated transportation of pollutants.
- *Revise and streamline the environmental and regulatory review process while maintaining environmental standards*
  The Proposed Project is a streamlined environmental and regulatory review process because it will be categorically exempt under the California Environmental Quality Act. In addition, it is anticipated that the project will be granted a Finding of No Significant Impact or a Categorical Exclusion under the National Environmental Protection Act since there will be no significant impacts to the environment as a result of the project.
- *Review Department water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity*
  The Proposed Project will save water, thereby reducing demand for water imported through California's State Water Project and Reclamation's Colorado River Aqueduct. Reducing demand from these supply sources adds more water to them, thereby resolving conflict over limited Reclamation supplies.
- *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands*
  The Proposed Project fosters relationships with organizations involved in the preservation and protection of the Upper and Lower Santa Margarita Watershed. The organizations include, but are not limited to, the Santa Margarita Ecological Reserve, San Diego State University, Riverside County Flood Control and Water Conservation District, Mission Resource Conservation District, Temecula-Elsinore-Anza-Murrieta Resource Conservation District, The City of Temecula,

The City of Murrieta, the Sierra Club, the community of Fallbrook, and Marine Corps Base Campo Pendleton. All of these organizations, along with RCWD, share the common goal of water conservation, which ultimately leads to reduced runoff and other environmental benefits including those related to water quality and protection of sensitive habitats.

- *Shift the balance towards providing greater public access to public lands over restrictions to access*

  The Proposed Project area includes a variety of lands available for public use. Because the project saves water, and thereby prevents runoff, which leads to protection of water quality and sensitive habitats within these areas, public access to them is protected.

- ***Utilizing Our Natural Resources***
  - *Ensure American Energy is available to meet our security and economic needs*

    The Proposed Project results in water savings of 271 acre feet per year, and therefore reduces pumping requirements for the conveyance of imported water to southern California. This amount of water savings translates to approximately 406,500 kWh/year in energy savings and ensures American Energy is available to meet our security and economic needs.
- ***Restoring Trust with Local Communities***
  - *Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands*

    The proposed project restores trust with local communities by making available the MyWaterTracker tool to 134 additional customers. The tool will communicate to these customers real-time hourly consumption data that will encourage them to implement water use efficiency best management practices. Additionally, the tool will give them the ability to set customizable leak alerts that will allow them to repair leaks more quickly. The Proposed Project includes customer outreach and notification of when their new meter is installed and when they have access to the MyWaterTracker tool.
  - *Expand the lines of communication with Governors, state natural resources offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities*

    RCWD partners with multiple agencies including, Riverside County Flood Control and Water Conservation District, the County of Riverside, Eastern Municipal Water District, Western Municipal Water District, the San Diego County Water Authority, and Municipal Water District of Southern California to ensure regional water supply needs are met through implementation of water use efficiency programs. By saving 271 acre feet of water per year, the Proposed Project increases water supply reliability in the region. Moreover, the Proposed Project represents one of many water use efficiency projects that aligns with the goals of the region's Upper Santa Margarita Watershed Integrated Regional Water Management Plan.
- ***Striking a Regulatory Balance***
  - *Reduce the administrative and regulatory burden imposed on U.S. industry and the public*

By decreasing water demands, the Proposed Project helps to reduce the potential for implementation of drought declarations and related regulatory requirements imposed upon industry and private citizens.

- *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis*

  The Proposed Project benefits federally recognized endangered species by saving water equal to 271 acre feet per year and making that water available for environmental uses in habitats affected by the California's State Water Project and Reclamation's Colorado River Aqueduct.

- ***Modernizing our Infrastructure***
  - *Support the White House Public/Private Partnership Initiative to modernize U.S. Infrastructure*

    The Proposed Project supports a partnership between RCWD and Xylem, Inc., which is the manufacturer of the floating ball meters that will be installed through implementation of the project. Through installation of this state-of-the-art metering technology, real-time water use data will be provided to 134 customers who will use the data to increase the efficiency of their water use. In addition, customers will be able to set customized alerts, which will provide them with quick notification of when leaks and/or other water use related problems occur—allowing them to remedy the issue more quickly than they would have been able to in the absence of the new meters.
  - *Prioritize DOI infrastructure needs to highlight:*
    1. *Construction of infrastructure*
    2. *Cyclical maintenance*
    3. *Deferred maintenance*

    The Proposed Project defers maintenance of meters because it upgrades existing standard compound meters to floating ball meters. Many of these standard compound meters have been in the ground for a long period of time and are nearing the time when they will need to be replaced. In fact, many of them are likely registering lower than actual water use, thereby causing both water waste and revenue losses for the District. Because the new floating ball meters will provide more accurate reads, maintenance of the meters at each upgrade site is deferred.

6. Implementation and Results

Project Planning

The Proposed Project shares Reclamation's goals for saving water and supporting broader water reliability benefits. Specific efforts for achieving these goals are outlined in RCWD's Strategic Business Plan, RCWD's Blueprint for Water Use Efficiency (Blueprint), RCWD's Urban Water Management Plan (UWMP), RCWD's Integrated Resources Plan (IRP), and the Upper Santa Margarita Watershed's (USMW) Integrated Regional Water Management (IRWM) Plan. These local and regional Plans are both consistent with the California Water Plan (CWP) and its roadmap for good water management.

The District's Strategic Business Plan was updated in 2017 and is due for another update in late 2019. This Plan identifies five principles which guide the District in its pursuit of its central vision, which is to be "…an innovative, responsive, and prudent steward of the

water and water recycling services entrusted to it." These five principles include water reliability, water quality, financial stewardship, sustainability, and customer and community. The Proposed Project saves water, and therefore aligns with the principles of reliability, sustainability, and customer and community, which focus on: 1) responding to water shortages though conservation assistance, 2) implementing effective water use efficiency programs, 3) communicating and engaging with our community on important water matters.

RCWD's Blueprint was completed in September 2014 and contains both an analysis of the District's existing water conservation efforts and recommendations for additional and/or enhanced projects and programs that will help the District to achieve long-term water use efficiency specific to its service area. Included in the Blueprint is a recommendation to implement conservation and water use efficiency projects and programs that reduce water demand, which is precisely what will be accomplished through implementation of the Proposed Project.

The District's UWMP was updated in 2016, and includes recommended actions to reduce water demand. Relevant chapters of the UWMP with which the Proposed Project is consistent include: Chapter 7 - Water Supply Reliability, Chapter 8 - Water Shortage Contingency Planning, and Chapter 9 - Demand Management Measures.

RCWD's IRP identifies water supply priorities and options for addressing potential water supply shortfalls within RCWD's service area. Among these priorities, the IRP identifies water conservation as most important, and provides a list of BMPs as methods for managing demand. Water demand reduction, which will be achieved through implementation of the Proposed Project, is included in the IRP as a priority.

The USMW IRWM Plan, a regional effort involving multiple local agencies, includes five main objectives, with the first being to improve regional water supply reliability by reducing regional water consumption through conservation and local supply development. The Proposed Project is consistent with the IRWM Plan in that it saves 271 acre feet per year thereby reducing regional water consumption.

Each aforementioned plan is consistent with the CWP, which encourages integrated regional water management for ensuring water supply reliability. The CWP also outlines California Senate Bill x7-7 legislation, which requires the State to achieve a 20% reduction in per capita water use by 2020. To achieve this reduction, the State recommends implementation of multiple conservation and water use efficiency measures. The Proposed Project will help RCWD comply with this State legislation.

Performance Measures

For the Proposed Project, benefits will be quantified according to Section A.2.a of the Funding Opportunity Announcement's Appendix A: Benefit Quantification and Performance Measure Guidance. Specifically, water savings benefits will be measured using data including: the total volume of water delivered through the 134 standard compound meters prior to the meter upgrades and the volume of water delivered through the 134 upgraded, floating ball meters following the meter upgrades. The District's SmartWorks software (described in *Documentation of Water Savings*) will be used to look at both of these data sets and to determine water savings.

- *Pre-project estimations of baseline data:*
  The total volume of water delivered through the 134 standard compound meters prior to the meter upgrades will function as the pre-project baseline data. This data has already been collected and is available on a per month basis, dating back to 2009. For this project, the combined average annual use for the 134 meters over the past five years is 3,387 acre feet, and will represent the baseline.

- *Post-project methods for quantifying water savings:*
  After upgrading the 134 standard compound meters to the floating ball technology and making the MyWaterTracker tool available to those customers, water deliveries to those customers will continue to be monitored. These post-project deliveries will then be compared to the baseline, and the difference will represent water savings. The statistical method used to perform this comparison will also consider variables such as weather during the pre- and post-project periods. A more detailed description of how the District's SmartWorks software performs this comparison is included in the *Documentation of Estimated Water Savings* section of this proposal.

Readiness to Proceed

Below is the Proposed Project Schedule by task/milestone. The Proposed Project start date is July 1, 2020, and assumes a Financial Assistance Agreement will be executed by that date. RCWD has vast experience with implementing projects similar to the one proposed, and is highly confident that it can be completed by December 31, 2022 (two and a half years after the Project start date).

Task	Planned Start Date	Planned Completion Date
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capabilities. Deliverables: Reports showing AMI/MWT data transmitted by upgraded meters.		
Task 6: Customer Outreach Distribute written materials to 134 customers whose sites are outfitted with the upgraded meters, which will highlight the benefits of data provided to them by the AMI fixed network and the MyWaterTracker tool. Deliverables: copies of written materials	**8/1/20**	**6/31/22**
Task 7: Assess Performance Measures Using the upgraded compound meters in conjunction with the District's existing AMI system, District staff will monitor consumption at the sites. Water savings with the upgraded meters will be measured using the District's SmartWorks software. Deliverables: Report describing water savings.	**1/1/21**	**12/31/22**

There will be no permits, new policies, or administrative actions required for implementation of the Proposed Project, and if any engineering work is required, it will be limited to informal input from RCWD's Engineering staff as to how the meters upgraded as part of Task 4 should be installed on existing water distribution pipes. Environmental compliance costs are anticipated to be minimal since no earth-disturbing work is anticipated. The costs for environmental work required for a meter upgrade project have been discussed with the local Reclamation office, and have been estimated to be about $1,000.

7. Nexus to Reclamation Project Activities

Imported water is delivered to the District by the Metropolitan Water District of Southern California from the Bay-Delta through the State Water Project and is blended with Colorado River water (Reclamation project water). Historically, imported water has satisfied between 60 and 70 percent of RCWD demand, and the percentage from the Bay-Delta is highly variable due to frequent reductions water deliveries to Metropolitan. All water demand reduction in the District directly offsets imported water demand. Conserved imported water resulting from the Proposed Project would remain at the source, in large part the Colorado River, to create a more sustainable water supply in the River for environmental and beneficial uses and for other water users.

The Proposed Project is not on Reclamation project lands and does not involve Reclamation facilities. The Proposed Project does reside in the Colorado River Basin and will contribute to the beneficial use within the Basin. The Proposed Project will help Reclamation meet, although indirectly, trust responsibilities to tribes by leaving more source water in the Colorado River.

8. Additional Non-Federal Funding

The percentage of non-Federal funding provided for implementation of the Proposed Project is equal to 51% as per the following calculation

$517,118.20 (Non-Federal Funding)

---------- = 51%

$1,006,902.20 (Total Project Cost)

PROJECT BUDGET

A. Funding Plan and Letters of Commitment

Non-Reclamation Share of Project Costs

The current estimated non-Federal contribution is $517,118.20.

A portion of the non-Federal share of the Proposed Project costs will be funded through use of District staff-time. The value of the staff-time dedicated to implementation of the Proposed Project is estimated at $272,118.20. This amount includes base pay, fringe benefits, and indirect costs.

In addition, RCWD's existing capital budget for infrastructure improvements will also help pay for the Proposed Project. An additional $245,000 will be contributed to the Proposed Project through use of this budget. No third-party contributions will be used to pay for the project, and at this point, no pre-award costs have been incurred.

The following Table 1 summarizes the Project funding sources:

Table 1. Summary of Non-Federal and Federal Funding Sources

Funding Sources	**Funding Amount**
Non-Federal Entities	
1. RCWD Staff Time	$272,118.20
2. RCWD's Existing Capital Budget	$281,340.00
Non-Federal Subtotal	**$553,458.20**
Other Federal Entities	
1. None	$ 0.00
Other Federal Subtotal	*$ 0.00*
Requested Reclamation Funding ***(maximum amount of request)***	**$454,784.00**
Total Project Funding	**$1,008,242.20**

If Reclamation were unable to provide the total funding request of $454,784.00, the District would consider accepting an alternative amount of Federal funding offered. A decrease in Federal funding would not delay implementation of the Proposed Project; however, it could decrease the number of meters upgraded through the project.

Letter of Commitment

The District is committed to providing at least $553,458.20 for implementation of the Proposed Project. No third-part funding will be used to pay for the project, and therefore, no Letters of Commitment are provided with this proposal.

B. Budget Proposal

The District's budget proposal is shown in Tables 1 and 2; the District requests Reclamation funding in the amount of $454,784.00, 45% of the Project cost.

C. Budget Narrative

Salaries and Wages

The District's Water Use Efficiency & Grants Manager, Justin Haessly, will function as the Project Manager. The Conservation/Water Budget Analyst, three Meter Technicians, a Meter Foreman, one Customer Service Representative, and an Accounting Analyst will assist in implementation of the project tasks performed, which are listed in the table on the following page.

In Table 3, costs for Tasks 1 through 7 involve District labor and include staff hours, hourly rates and total costs. Hours are based on estimated level of staff involvement and duration of the Task based on the Schedule shown in the Technical Project Description. Rates reflect current rates and do not include fringe benefits or indirect costs. While rates generally increase each Fiscal Year, the amount is not known until the budget is approved each year.

Fringe Benefits

A Fringe Benefits rate is applied to Total Salaries and Wages for employees of RCWD. A base hourly rate plus additional rates for fringe benefits is included in the budget. As per a provisional 19/20 Indirect Cost Negotiation Agreement, Fringe Benefits are charged at 93.13%. This rate is Federally-approved and is a provisional rate for billing purposes (see Appendix A). Total Fringe Benefits is $72,058.83. Indirect Costs allowed in the Indirect Cost Negotiation Agreement are computed separately as discussed below.

Travel

There are no travel costs included for the Project.

Equipment

Floating Ball Meters are included as a line item under "Equipment" in the budget table. Based upon quotes by manufacturers, each meter, on average, is valued in excess of $5,000. The equipment is fundamental to the goals of the Proposed Project. Without installation of the meters, the District will not gain Proposed Project benefits including increased water measurement accuracy, water savings.

TABLE 2. BUDGET PROPOSAL

Budget Item Description	Computation			Non-Federal Share	Reclamation Share	Total Cost
	Cost	Unit	Quantity			
SALARIES AND WAGES						
Water Use Efficiency & Grants Manager	$ 66.16	per hour	25	$ 1,654.00	$ -	$ 1,654.00
Conservation/Water Budget Analyst	$ 44.28	per hour	60	$ 2,656.80	$ -	$ 2,656.80
Meter Tech 1	$ 33.79	per hour	670	$ 22,639.30	$ -	$ 22,639.30
Meter Tech 2	$ 33.39	per hour	670	$ 22,371.30	$ -	$ 22,371.30
Meter Tech 3	$ 33.72	per hour	670	$ 22,592.40	$ -	$ 22,592.40
Meter Foreman	$ 38.59	per hour	67	$ 2,585.53	$ -	$ 2,585.53
Customer Service Rep	$ 33.52	per hour	67	$ 2,245.84	$ -	$ 2,245.84
Senior Accounting Analyst	$ 39.33	per hour	16	$ 629.28	$ -	$ 629.28
SUBTOTAL			2245	$ 77,374.45	$ -	$ 77,374.45
FRINGE BENEFITS	***Basis***	***% of Basis***				
As per Federally approved Indirect Cost Rate Agreement, 93.13% of Salaries & Wages	$ 77,374.45	93.13%	1	$ 72,058.83	$ -	$ 72,058.83
SUBTOTAL				$ 72,058.83	$ -	$ 72,058.83
TRAVEL						
None						
EQUIPMENT						
Floating Ball Meters	$ 5,476.00	per meter	134	$ 280,000.00	$ 453,784.00	$ 733,784.00
SUBTOTAL				$ 280,000.00	$ 453,784.00	$ 733,784.00
SUPPLIES/MATERIALS						
Customer Outreach Materials	$ 10.00	per outreach	134	$ 1,340.00	$ -	$ 1,340.00
CONTRACTUAL/CONSTRUCTION						
SUBTOTAL						
OTHER						
Environmental & Regulatory Compliance Costs	$ 1,000.00	per review	1	$ -	$ 1,000.00	$ 1,000.00
SUBTOTAL				$ -	$ 1,000.00	$ 1,000.00
TOTAL DIRECT COSTS				$ 430,773.28	$ 454,784.00	$ 885,557.28
APPROVED INDIRECT COSTS*	***Basis***	***% of Basis***				
As per Federally approved Indirect Cost Rate Agreement, overhead for G&A and Vehicle/Equipment, 158.56% of Salaries & Wages	$ 77,374.45	158.56%	-	$ 122,684.93	$ -	$ 122,684.93
SUBTOTAL				$ 122,684.93	$ -	$ 122,684.93
TOTAL INDIRECT COSTS				$ 122,684.93	$ -	$ 122,684.93
TOTAL PROJECT COSTS				**$ 553,458.20**	**$ 454,784.00**	**$ 1,008,242.20**

Table 3. Salaries and Wages					
Employee	**Task**	**Activity**	**Hours**	**Rate**	**Total Direct Costs**
Water Use Efficiency & Grants Manager – Justin Haessly	1	Perform work for execution of Financial Assistance Agreement with Reclamation; provide information to Sr. Accounting Analyst for developing invoices submitted to Reclamation.	10		
	2	Review and approve Progress Reports for submission to Reclamation.	10		
	6	Develop methods for quantifying water savings.	5		
		SUBTOTAL	**25**	**$66.16**	**$1,654.00**
Conservation / Water Budget Analyst	2	Prepare Progress Reports for submission to Reclamation.	15		
	3	Assist with planning of upgrade implementation and communicate grant agreement requirements to Meter Team.	10		
	6	Distribute Materials.	20		
	7	Quantify water savings.	15		
		SUBTOTAL	**60**	**$44.28**	**$2,656.80**
Meter Tech 1	4	Install Floating Ball Meters and AMI antennas.	670		
		SUBTOTAL	**670**	**$33.79**	**$22,639.30**
Meter Tech 2	4	Install Floating Ball Meters and AMI antennas.	670		
		SUBTOTAL	**670**	**$33.39**	**$22,371.30**
Meter Tech 3	4	Install Floating Ball Meters and AMI antennas.	670		
		SUBTOTAL	**670**	**$33.72**	**$22,592.40**
Meter Foreman	3	Lead the planning of the upgrade implementation process.	7		
	4	Ensure communication between Upgraded Meters and fixed network.	60		
		SUBTOTAL	**67**	**$38.59**	**$2,585.53**
Customer Service Representative	5	Enter necessary data into RCWD billing system for communication with MyWaterTracker	67		
		SUBTOTAL	**67**	**$33.52**	**$2,245.84**
Accounting Analyst	2	Generate Invoices for Submittal to Reclamation	16		
		SUBTOTAL	**16**	**$39.33**	**$629.28**
		TOTAL	**2,245**		**$77,374.45**

Materials and Supplies
Materials and supplies costs included for the Proposed Project budget include those for customer outreach. It is estimated that $10 for each of the 134 customers targeted through implementation of the project will be spent on outreach materials and postage. The outreach materials will include information regarding their new meter and their new ability to access the District's MyWaterTracker tool.

Contractual/Construction
There are no contractual/construction costs included for the Proposed Project.

Environmental and Regulatory Compliance
The District understands that the introduction of federal funding may prompt a review under applicable Federal environmental laws. Included in the budget is an estimated line item cost of $1,000 for the potential environmental compliance effort. This amount is based on conversations the District has had with the local area Reclamation office. The Proposed Project will be upgrading 134 existing meters and will have no significant impact on the environment.

Other Expense
There are no "other" costs included for the Proposed Project.

Indirect Costs
The Indirect Cost rate of 158.56% includes General/Administration Overhead and Vehicle/Equipment overhead as a percentage of total RCWD labor cost. Fringe Benefits are included separately under "Fringe Benefits" using the rate of 93.13%. These rates are Federally-approved and are provisional rates for billing purposes. Total estimated indirect costs for the Proposed Project are $122,684.93. A copy of the Federally-approved Indirect Cost Negotiation Agreement is shown in Appendix A.

Total Costs
The total Proposed Project cost is equal to $1,008,242.20. The applicant's cost share is $553,458.20 and Reclamation's share is $454,784.00.

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

The Proposed Project is a water management effort that upgrades water meters at existing facilities. No environmental and regulatory issues are posed through its implementation. Following are answers to questions provided in the Funding Opportunity Announcement.

- **Will the Proposed Project impact the surrounding environment (e.g. soil (dust), air, water [quality and quantity], animal habitat)?** *(Describe all earth-disturbing work and any work that will affect air, water, or animal habitat in the project area. Explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts)* Proposed Project activities do not include any surface disturbance, nor do they impact the surrounding environment.
- **Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area?** No species listed or proposed to be listed as a Federal endangered or threatened species, or designated critical habitats are known to reside within the Proposed Project area.
- **Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States"?** No, the Proposed Project will not affect riparian habitat, including federally protected wetlands, as there are none in the project area. No associated impacts will occur and no mitigation is required.
- **When was the water delivery system constructed?** The majority of the water delivery system was constructed by the late 1980s; however, some infrastructure continues to be constructed today as the service area is being built out.
- **Will the project result in any modification of or effects to individual features of an irrigation system (e.g., head gates, canals, or flumes)?** No, the Proposed Project will not result in any modification of or effect to individual features, such as head gates, canals, or flumes, of an irrigation system.
- **Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?** There are no buildings, structures, or features listed or eligible for listing on the National Register of Historic Places within the Proposed Project sites. There are, however, at least 10 buildings in the Old Town Historic District of the City of Temecula, which is within the RCWD service area. These buildings are in the well-developed Old Town area and the Proposed Project would not affect them.
- **Are there any known archeological sites in the Proposed Project area?** No, there are no known archeological sites in the Proposed Project area.
- **Will the project have a disproportionately high and adverse effect on low income or minority populations?** No, the Proposed Project will not have any adverse effects on low income or minority populations.
- **Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?** No, the Proposed Project will not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands.
- **Will the project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?** No, the Proposed Project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

REQUIRED PERMITS / APPROVALS

No permits or approvals are required for the Proposed Project.

LETTERS OF PROJECT SUPPORT

emwd EASTERN MUNICIPAL WATER DISTRICT

September 24, 2019

Rancho California Water District
Jeff Armstrong, General Manager
42135 Winchester Road
Temecula, CA 92589

Subject: Compound Meter Upgrade Project

Dear Jeff Armstrong:

Eastern Municipal Water District (EMWD) commends Rancho California Water District (RCWD/District) on its plans to conduct a Compound Meter Upgrade Project (Project). The Project improves water loss management by upgrading 134 existing standard compound meters to state-of-the-art meters using "floating ball" technology. Specific benefits resulting from the upgrade of these meters include:

- More accurate water flow measurements at both high and extremely low flow rates;
- Elimination of "change-over loss" inherent with standard compound meters;
- Ability to customize the range of flows under which the meter reads most accurately through simple replacement of internal parts; and
- Compatibility with RCWD's existing Automated Metering Infrastructure and customer-facing MyWaterTracker tool, which allows customers to analyze real-time water consumption data.

These improvements will not only reduce revenue losses by providing the District with more accurate meter reads, but also they will lead to quantifiable water savings. EMWD supports RCWD's Compound Meter Upgrade Project.

Sincerely,

Lanaya Voelz-Alexander
Senior Director of Water Resources Planning

c: Justin Haessly, Rancho California Water District (via email)

OFFICIAL RESOLUTION

Because of the timing of RCWD's Board Meetings, an official Resolution is not available at this time. However, an official resolution, meeting Reclamation's requirements, will be adopted by the RCWD Board of Directors on October 10, 2019, and submitted before the November 2, 2019 deadline.

REFERENCES

East Bay Municipal Utility District, 2013. Evaluation of East Bay Municipal Utility District's Pilot of WaterSmart Home Water Reports.

Godwin A., 2011. Advanced Metering Infrastructure. Drivers and Benefits in the Water Industry. https://www.waterworld.com/articles/print/volume-27/issue-8/editorial-features/special-section-advanced-metering-infrastructure/advanced-metering-infrastructure-drivers-and-benefits-in-the-water-industry.html

United States Environmental protection Agency (EPA). 2013. Water Audits and Water Loss Control for Public Water Systems. https://www.epa.gov/sites/production/files/2015-04/documents/epa816f13002.pdf

APPENDIX A
FEDERALLY-APPROVED INDIRECT COST NEGOTIATION AGREEMENT

State and Local Governments
Indirect Cost Negotiation Agreement

EIN: 95-2415751

Organization:

Rancho California Water District
P.O. Box 9017
Temecula, CA 92589-9017

Date:

Report No(s).:

Filing Ref.:
Last Negotiation Agreement
dated April 18, 2018

The indirect cost rates contained herein are for use on grants, contracts, and other agreements with the Federal Government to which 2 CFR Part 200 applies for fiscal years beginning on or after December 26, 2014 subject to the limitations in Section II.A. of this agreement. Applicable OMB Circulars and the regulations at 2 CFR 225 will continue to apply to federal funds awarded prior to December 26, 2014. The rates were negotiated by the U.S. Department of the Interior, Interior Business Center, and the subject organization in accordance with the authority contained in applicable regulations.

Section I: Rates

Type	Effective Period From	To	Rate		Locations	Applicable To
Final	07/01/17	06/30/18	93.13%	1/	All	Fringe Benefits
Final	07/01/17	06/30/18	11.45%	2/	All	V&E Overhead
Final	07/01/17	06/30/18	147.11%	2/	All	G&A Overhead
Final	07/01/17	06/30/18	92.13%	3/	All	Engineering Overhead
Final	07/01/17	06/30/18	22.58%	4/	All	O&M Overhead
Provisional	07/01/19	06/30/20	93.13%	1/	All	Fringe Benefits
Provisional	07/01/19	06/30/20	11.45%	2/	All	V&E Overhead
Provisional	07/01/19	06/30/20	147.11%	2/	All	G&A Overhead
Provisional	07/01/19	06/30/20	92.13%	3/	All	Engineering Overhead
Provisional	07/01/19	06/30/20	22.58%	4/	All	O&M Overhead

1/ Base: Total salaries and wages, excluding fringe benefits and standby labor.

2/ Base: Total direct salaries and wages, excluding fringe benefits and labor associated with (a) vehicle and equipment (V&E), (b) direct allocation, (c) operations, (d) standby, and (e) support services.

3/ Base: Total direct salaries and wages of (a) capital and (b) engineering fee-for-service functions, excluding fringe benefits.

4/ Base: Total direct salaries and wages of the operations and maintenance function, excluding fringe benefits and labor associated with (a) standby, (b) support, (c) mechanics, (d) capital, and other labor (civic).

Treatment of fringe benefits: Fringe benefits applicable to direct salaries and wages are treated as direct costs; fringe benefits applicable to indirect salaries and wages are treated as indirect costs.

A. **Limitations**: Use of the rate(s) contained in this agreement is subject to any applicable statutory limitations. Acceptance of the rate(s) agreed to herein is predicated upon these conditions: (1) no costs other than those incurred by the subject organization were included in its indirect cost rate proposal, (2) all such costs are the legal obligations of the grantee/contractor, (3) similar types of costs have been accorded consistent treatment, and (4) the same costs that have been treated as indirect costs have not been claimed as direct costs (for example, supplies can be charged directly to a program or activity as long as these costs are not part of the supply costs included in the indirect cost pool for central administration).

B. **Audit**: All costs (direct and indirect, federal and non-federal) are subject to audit. Adjustments to amounts resulting from audit of the cost allocation plan or indirect cost rate proposal upon which the negotiation of this agreement was based will be compensated for in a subsequent negotiation.

C. **Changes**: The rate(s) contained in this agreement are based on the organizational structure and the accounting system in effect at the time the proposal was submitted. Changes in organizational structure, or changes in the method of accounting for costs which affect the amount of reimbursement resulting from use of the rate(s) in this agreement, require the prior approval of the responsible negotiation agency. Failure to obtain such approval may result in subsequent audit disallowance.

D. **Rate Type**:

1. Fixed Carryforward Rate: A fixed carryforward rate is based on an estimate of the costs that will be incurred during the period for which the rate applies. When the actual costs for such periods have been determined, an adjustment will be made to the rate for future periods, if necessary, to compensate for the difference between the costs used to establish the fixed rate and the actual costs.

2. Provisional/Final Rates: Within six (6) months after year end, a final indirect cost rate proposal must be submitted based on actual costs. Billings and charges to contracts and grants must be adjusted if the final rate varies from the provisional rate. If the final rate is greater than the provisional rate and there are no funds available to cover the additional indirect costs, the organization may not recover all indirect costs. Conversely, if the final rate is less than the provisional rate, the organization will be required to pay back the difference to the funding agency.

3. Predetermined Rate: A predetermined rate is an indirect cost rate applicable to a specified current or future period, usually the organization's fiscal year. The rate is based on an estimate of the costs to be incurred during the period. A predetermined rate is not subject to adjustment. (Because of legal constraints, predetermined rates are not permitted for Federal contracts; they may, however, be used for grants or cooperative agreements.)

E. **Rate Extension**: Only final and predetermined rates may be eligible for consideration of rate extensions. Requests for rate extensions of a current rate will be reviewed on a case-by-case basis. If an extension is granted, the non-Federal entity may not request a rate review until the extension period ends. In the last year of a rate extension period, the non-Federal entity must submit a new rate proposal for the next fiscal period.

F. Agency Notification: Copies of this document may be provided to other federal offices as a means of notifying them of the agreement contained herein.

G. Record Keeping: Organizations must maintain accounting records that demonstrate that each type of cost has been treated consistently either as a direct cost or an indirect cost. Records pertaining to the costs of program administration, such as salaries, travel, and related costs, should be kept on an annual basis.

H. Reimbursement Ceilings: Grantee/contractor program agreements providing for ceilings on indirect cost rates or reimbursement amounts are subject to the ceilings stipulated in the contract or grant agreements. If the ceiling rate is higher than the negotiated rates in Section I of this agreement, the negotiated rates will be used to determine the maximum allowable indirect cost.

I. Use of Other Rates: If any federal programs are reimbursing indirect costs to this grantee/contractor by a measure other than the approved rate(s) in this agreement, the grantee/contractor should credit such costs to the affected programs, and the approved rate(s) should be used to identify the maximum amount of indirect cost allocable to these programs.

J. Central Service Costs: If the proposed central service cost allocation plan for the same period has not been approved by that time, the indirect cost proposal may be prepared including an amount for central services that is based on the latest federally-approved central service cost allocation plan. The difference between these central service amounts and the amounts ultimately approved will be compensated for by an adjustment in a subsequent period.

K. Other:

1. The purpose of an indirect cost rate is to facilitate the allocation and billing of indirect costs. Approval of the indirect cost rate does not mean that an organization can recover more than the actual costs of a particular program or activity.

2. Programs received or initiated by the organization subsequent to the negotiation of this agreement are subject to the approved indirect cost rate(s) if the programs receive administrative support from the indirect cost pool. It should be noted that this could result in an adjustment to a future rate.

3. Indirect cost proposals must be developed (and, when required, submitted) within six (6) months after the close of the governmental unit's fiscal year, unless an exception is approved by the cognizant agency for indirect costs.

Section III: Acceptance

Listed below are the signatures of acceptance for this agreement:

By the State & Local Government:

Rancho California Water District
State/Local Government

/s/
Signature

Richard R. Aragon
Name (Type or Print)

Assistant General Manager-CFO/Treasurer
Title

7-9-19
Date

By the Cognizant Federal Government Agency:

U.S. Department of the Interior
Agency

/s/
Signature

Craig A. Wills
Name

Division Chief
Indirect Cost Services Division
Title

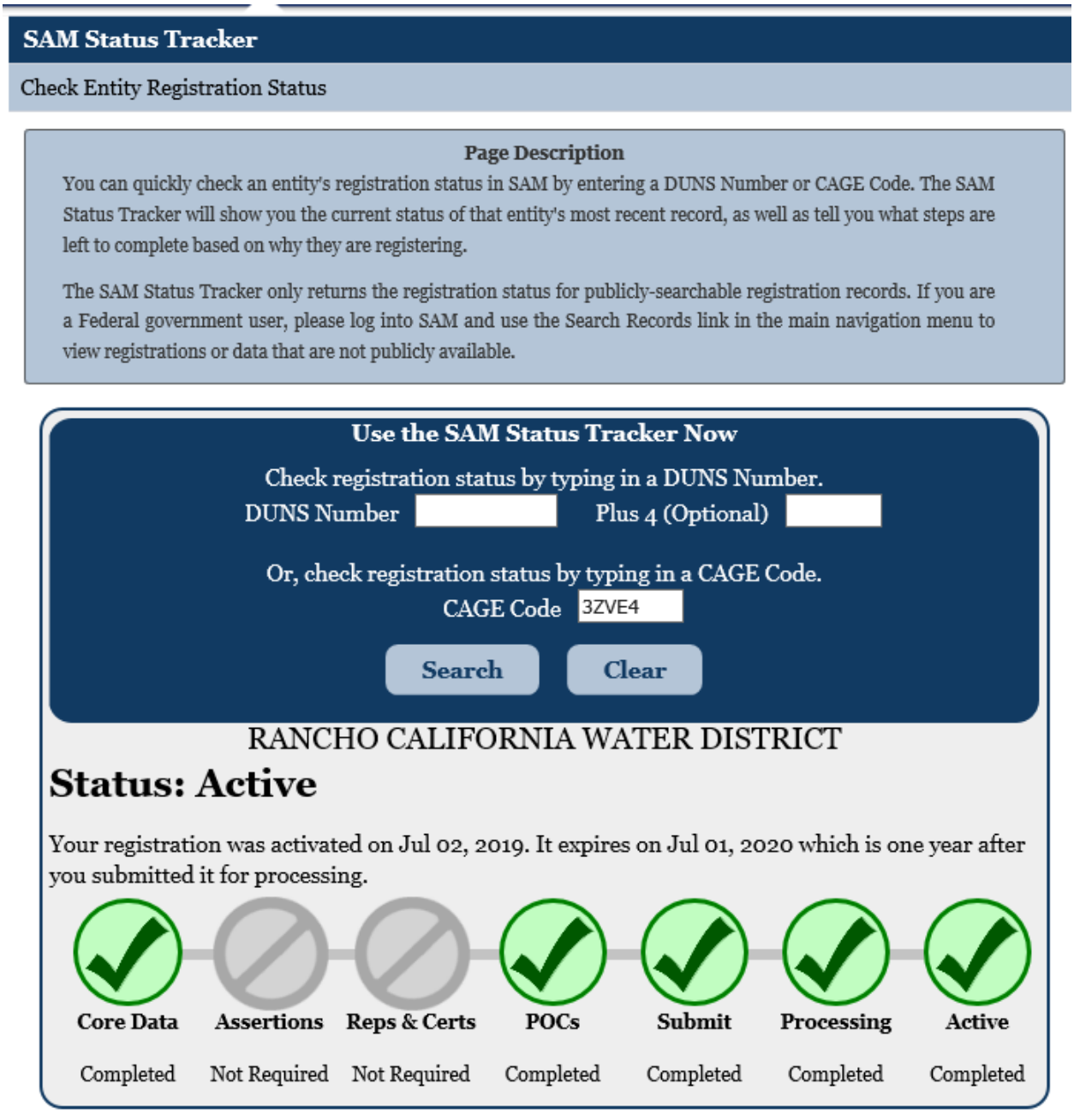
U.S. Department of the Interior
Interior Business Center
Agency

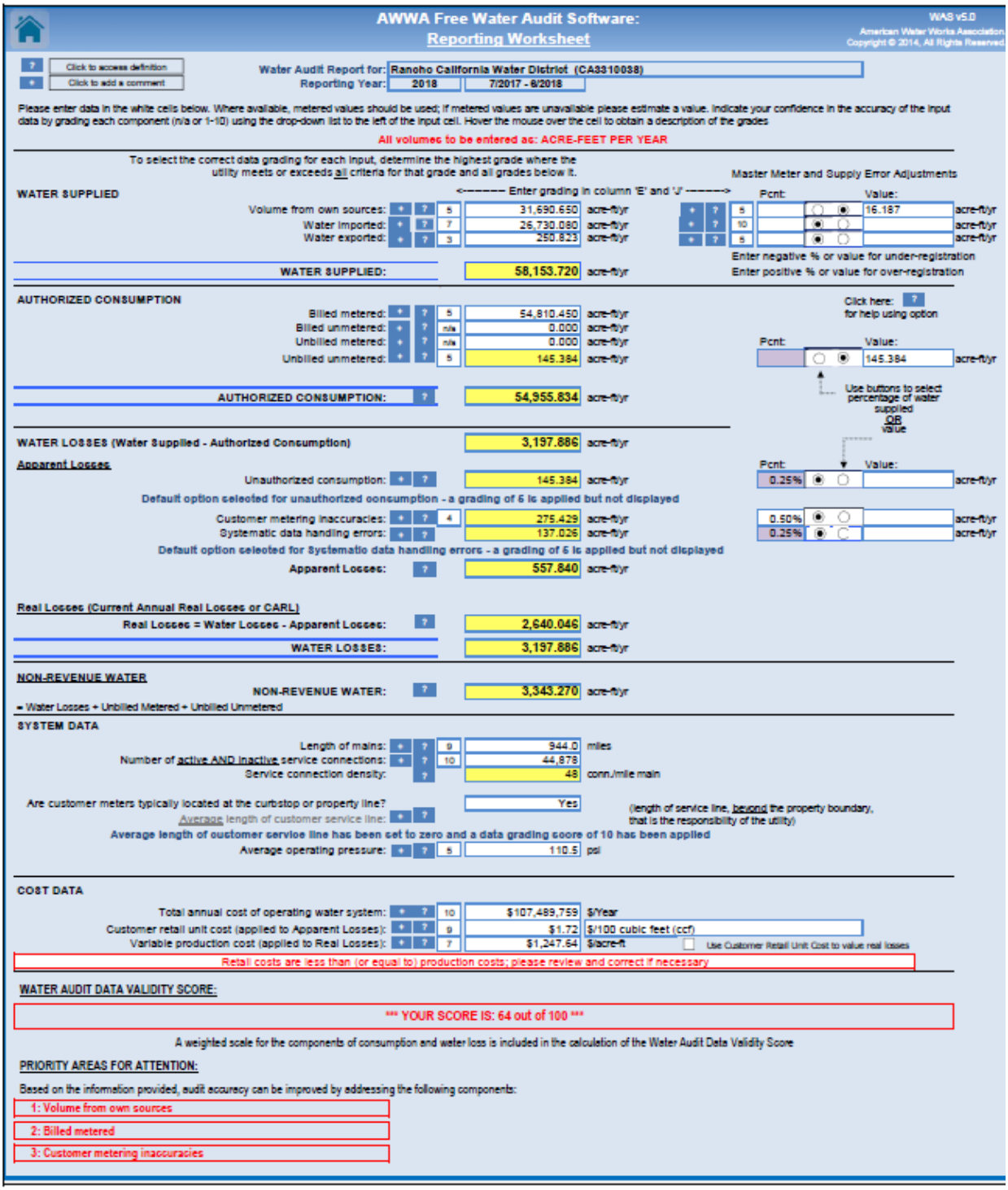
Negotiated by Stacy Frost
Telephone (916) 930-3815

APPENDIX B
VERIFICATION OF SAM ACCOUNT

SYSTEM FOR AWARD MANAGEMENT (SAM) REGISTRATION

The District maintains an open and active SAM registration with current information. A screen shot of the District's SAM account information is provided below as verification of SAM registration.





AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
Copyright © 2014, All Rights Reserved

Click to access definition
Click to add a comment

Water Audit Report for: Rancho California Water District (CA3310038)
Reporting Year: 2018 7/2017 - 6/2018

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

<-------- Enter grading in column 'E' and 'J' -------->

WATER SUPPLIED

				Pcnt:	Value:	
Volume from own sources:	5	31,690.650	acre-ft/yr		16.187	acre-ft/yr
Water Imported:	7	26,730.080	acre-ft/yr			acre-ft/yr
Water exported:	3	250.823	acre-ft/yr			acre-ft/yr
WATER SUPPLIED:		58,153.720	acre-ft/yr			

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: for help using option

				Pcnt:	Value:	
Billed metered:	5	54,810.450	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	n/a	0.000	acre-ft/yr			
Unbilled unmetered:	5	145.384	acre-ft/yr		145.384	acre-ft/yr
AUTHORIZED CONSUMPTION:		54,955.834	acre-ft/yr			

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

3,197.886 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		145.384	acre-ft/yr	0.25%		acre-ft/yr
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed						
Customer metering inaccuracies:	4	275.429	acre-ft/yr	0.50%		acre-ft/yr
Systematic data handling errors:		137.026	acre-ft/yr	0.25%		acre-ft/yr
Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed						
Apparent Losses:		557.840	acre-ft/yr			

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:		2,640.046	acre-ft/yr
WATER LOSSES:		3,197.886	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:		3,343.270	acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	9	944.0	miles
Number of active AND inactive service connections:	10	44,878	
Service connection density:		48	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	(length of service line, beyond the property boundary, that is the responsibility of the utility)
Average length of customer service line:			

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	5	110.5	psi

COST DATA

Total annual cost of operating water system:	10	$107,489,759	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$1.72	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	7	$1,247.64	$/acre-ft	Use Customer Retail Unit Cost to value real losses

Retail costs are less than (or equal to) production costs; please review and correct if necessary

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 64 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed metered
3: Customer metering inaccuracies

AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.

Water Audit Report for: Rancho California Water District (CA3310038)
Reporting Year: 2018 (7/2017 - 6/2018)

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 64 out of 100 ***

System Attributes:

Apparent Losses:	557.840	acre-ft/yr
+ Real Losses:	2,640.046	acre-ft/yr
= Water Losses:	3,197.886	acre-ft/yr
? Unavoidable Annual Real Losses (UARL):	1,465.35	acre-ft/yr
Annual cost of Apparent Losses:	$417,951	
Annual cost of Real Losses:	$3,293,827	Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumpiton

Performance Indicators:

Financial:	Non-revenue water as percent by volume of Water Supplied:	5.7%	
	Non-revenue water as percent by cost of operating system:	3.6%	Real Losses valued at Variable Production Cost
Operational Efficiency:	Apparent Losses per service connection per day:	11.10	gallons/connection/day
	Real Losses per service connection per day:	52.52	gallons/connection/day
	Real Losses per length of main per day*:	N/A	
	Real Losses per service connection per day per psi pressure:	0.48	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 2,640.05 acre-feet/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.80

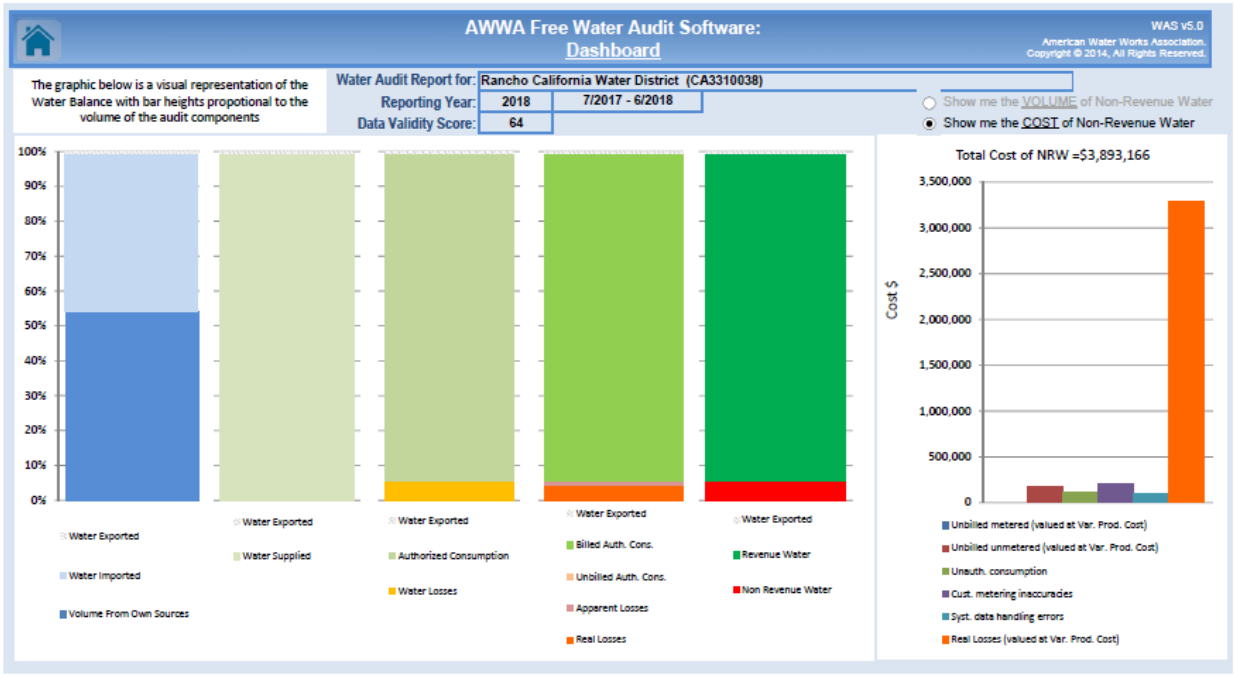
* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

AWWA Free Water Audit Software: Water Balance

WAS v5.0
American Water Works Association.

Water Audit Report for: Rancho California Water District (CA3310038)
Reporting Year: 2018 (7/2017 - 6/2018)
Data Validity Score: 64

		Water Exported 250.823			Billed Water Exported	Revenue Water 250.823
Own Sources (Adjusted for known errors) 31,674.463	System Input 58,404.543	Water Supplied 58,153.720	Authorized Consumption 54,955.834	Billed Authorized Consumption 54,810.450	Billed Metered Consumption (water exported is removed) 54,810.450	Revenue Water 54,810.450
					Billed Unmetered Consumption 0.000	
				Unbilled Authorized Consumption 145.384	Unbilled Metered Consumption 0.000	Non-Revenue Water (NRW) 3,343.270
					Unbilled Unmetered Consumption 145.384	
			Water Losses 3,197.886	Apparent Losses 557.840	Unauthorized Consumption 145.384	
					Customer Metering Inaccuracies 275.429	
					Systematic Data Handling Errors 137.026	
Water Imported 26,730.080				Real Losses 2,640.046	Leakage on Transmission and/or Distribution Mains Not broken down	
					Leakage and Overflows at Utility's Storage Tanks Not broken down	
					Leakage on Service Connections Not broken down	


AWWA Free Water Audit Software:
Dashboard
WAS v5.0
American Water Works Association.
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The graphic below is a visual representation of the Water Balance with bar heights propotional to the volume of the audit components
Water Audit Report for: Rancho California Water District (CA3310038)
Reporting Year: 2018 7/2017 - 6/2018
Data Validity Score: 64
Show me the VOLUME of Non-Revenue Water
Show me the COST of Non-Revenue Water
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Water Exported
Water Imported
Volume From Own Sources
Water Exported
Water Supplied
Water Exported
Authorized Consumption
Water Losses
Water Exported
Billed Auth. Cons.
Unbilled Auth. Cons.
Apparent Losses
Real Losses
Water Exported
Revenue Water
Non Revenue Water
Total Cost of NRW =$3,893,166
Cost $
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Unbilled metered (valued at Var. Prod. Cost)
Unbilled unmetered (valued at Var. Prod. Cost)
Unauth. consumption
Cust. metering inaccuracies
Syst. data handling errors
Real Losses (valued at Var. Prod. Cost)

Appendix C: Certified Validation Report Template

Part A: Provided by Validator

Validator Provided

Audit Information:

Water Supplier Name: Ranch Calif. Water Dist. PWS ID: CA3310038

System Type: Potable Audit Period: FY 2017-18

Utility Representation: Jeff Kirshberg, Justin Haessly

Validation Date: 9/27/2018 Call Time: On-site meetings 9/24, 9/27 11AM Sufficient Supporting Documents Provided: Yes

Validation Findings & Confirmation Statement:

Key Audit Metrics:

Data Validity Score: 64 Data Validity Band (Level): Level III (51-70)

ILI: 1.80 Real Loss 52.52 (gal/conn /day) Apparent Loss: 11.10 (gal/conn/day)

Non-revenue water as percent of cost of operating system: 3.6 %

Certification Statement by Validator:

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit. [x]

Validator Information:

Water Audit Validator : Thomas A. Greene Qualifications: Water Audit Validator Certificate issued by the CA-NV Section of the AWWA

Certified Validation Report Template, Part B: Provided by Utility

Utility Provided

Water Supplier Name: Rancho California Water District **Water Supplier ID Number:** CA3310038 **Water Audit Period:** Fiscal Year 2017/18

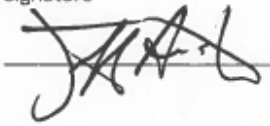
Water Audit & Water Loss Improvement Steps:

Utility to provide steps taken in preceding year to increase data validity, reduce real loss and apparent loss as informed by the annual validated water audit:

The Rancho California Water District (RCWD) began using existing data from our demand meters to develop SmartWorks, a software program containing algorithms which help RCWD to identify malfunctioning meters. This assists RCWD to better identify apparent water loss and avoid lost revenue. RCWD has already identified malfunctioning/stuck meters that require replacement, which has allowed the District to back-bill customers for over $500,000 to date. The District has also begun revising both production and demand meter calibration and testing policy, specifically implementing more field testing and calibration of these meters. This work effort will culminate with the development of a production meter calibration and testing program, as well as a program to test, calibrate and/or replace demand meters, including the development of a replacement program for meters that have reached the end of their useful life.

Certification Statement by Utility Executive:

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audit and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

Executive Name (Print)	Executive Position	Signature	Date
Jeff Armstrong	General Manager		9/27/18