



## System Optimization Improvements, Phase I

2015 WaterSmart Water and Energy Efficiency Grant  
U.S. Bureau of Reclamation

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## List of Acronyms

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AF	Acre-feet
AFY	Acre-feet per year
BA	Biological Assessment
BMP	Best Management Practices
CEQA	California Environmental Quality Act
CIP	Capital Improvement Plan
CMWD	Casitas Municipal Water District
CUWCC	California Urban Water Conservation Council
EPA	U.S. Environmental Protection Agency
IRWMP	Integrated Regional Water Management Plan
mg	million gallons
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NOAA Fisheries	National Oceanic Administration, National Marine Fisheries
SCE	Southern California Edison
sf	square feet
UWMP	Urban Water Management Plan
VFD	Variable Frequency Drive

# **Section 1: Technical Proposal and Evaluation Criteria**

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## **1.1 Executive Summary**

Date: January 23, 2015

Applicant: Ventura Water

Applicant City, County, State: Ventura, County of Ventura, California

Project Location: Ventura Water Service Area, Ventura, CA

Project Name: System Optimization Improvements, Phase I

Project Duration: 24 months

Estimated Project Completion Date: September 2017

Funding Group: 1

### **Project Summary:**

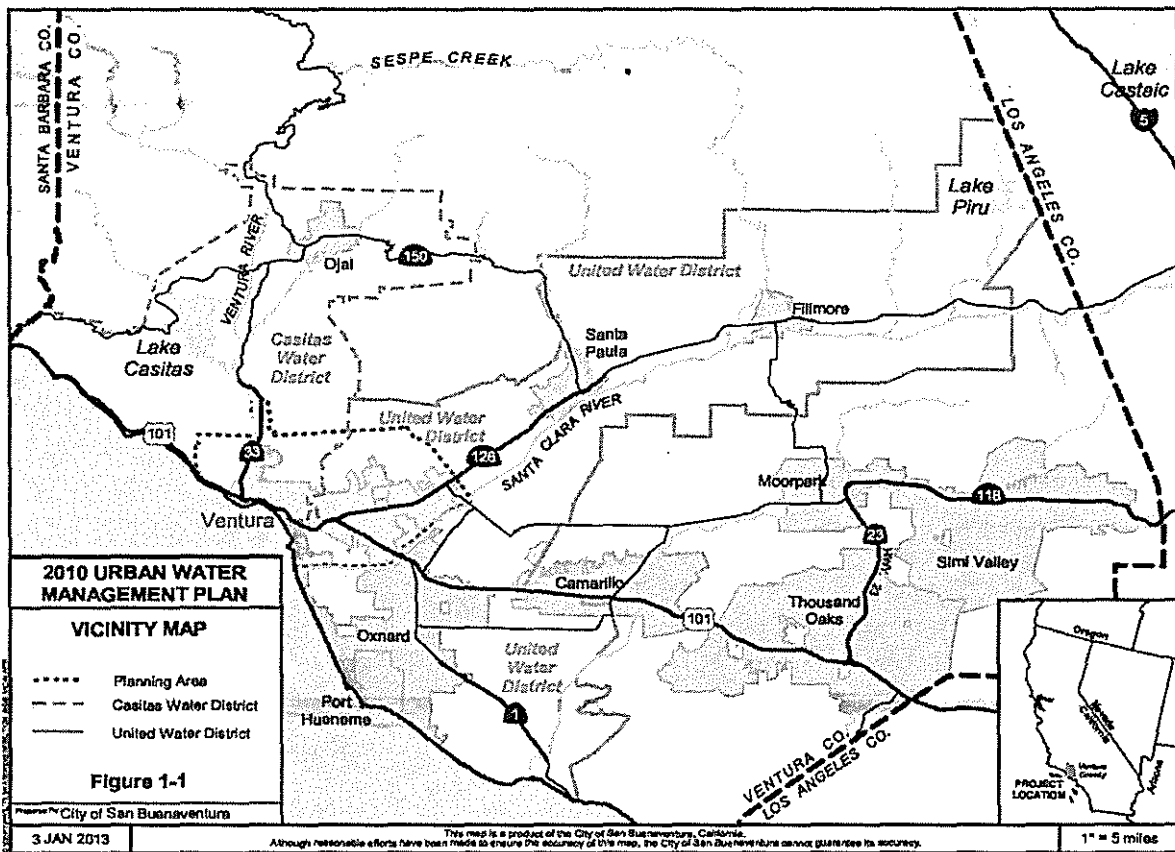
The City of Ventura is seeking grant funding assistance to complete the first phase of the following system-wide optimization improvements: 1) Remove and replace the existing pump and motor with a highly efficient pump and motor and rehabilitate Saticoy Well #2 and 2) Replace the production flow meters system-wide totaling 26 meters ranging from 6" to 24". The proposed project will allow Ventura Water to save an estimated 516.66 AF of water per year and approximately 373,253 kWh annually, and increase water efficiency by 32.1%.

These improvements support Reclamations objectives to leverage local funds and resources to conserve and use water more efficiently, improves energy efficiency, benefits the endangered southern California Steelhead, reduces greenhouse gases, and supports the region supporting the continued selling of a portion of the City's State Water Project allocations under the Monterey Amendment Settlement Agreement to the SWP contracts to be purchased by other SWP contractors.

This project is not located on a Federal facility.

## **1.2 Background Data**

The City of Ventura is located 62 miles north of Los Angeles and 30 miles south of Santa Barbara along the California coastline. The City's planning area is bounded by the Ventura River on the west, Foster Park and the Ojai Valley to the north, Franklin Barranca and the Santa Clara River to the east, with the Pacific Ocean as the southern boundary. The total planning area encompasses approximately 40 square miles.



In 1923, the City acquired the water system, along with its water rights from the Ventura River, from the Southern California Edison Company and assumed the responsibility of providing water to City residents.

In 1960, the City began to purchase surface water from Casitas Municipal Water District to supplement its water supplies. As development quickly expanded to the east, the existing water systems and groundwater rights of the Saticoy and Mound Water Companies were purchased to accommodate this growing water demand. Since then, the City has worked to join the systems to improve the reliability of the overall water infrastructure and operations. Groundwater supplies are from three groundwater basins—Mound, Oxnard Plain, and the Santa Paula. Water from these sources accounts for approximately 9,700 AFY, or approximately half of the City's total supply.

In 1964, Ventura County Flood Control District contracted with the State of California for future delivery of up to 20,000 AFY of California State Water Project (SWP) water to Ventura County. In 1971, administration of the contract for SWP water was assigned to the Casitas Municipal Water District. The City executed an agreement with the Casitas Municipal Water District (CMWD) and the Department of Water Resources (DWR) to allocate 10,000 AFY of the entitlement to the City of Ventura. This obligation extends to 2035.

In the contract with CMWD, Ventura retains full authority and responsibility for advance scheduling of its SWP water and for determining the point and method of delivery. To date, the City has not received

delivery of its annual SWP allocations. In 1999, the City became a signatory to the SWP Monterey Amendment Settlement Agreement, which allows the City and other SWP contractors to sell surplus allocated water back to the SWP pool of supplies.

The Monterey Amendment Settlement Agreement to the SWP contracts in 1999 provided the City a formal mechanism to allow it to place its annual SWP water allocation into a "turn back" pool to be purchased by other SWP contractors. The City has taken part in the "turn back" pool over the past several years, which has allowed the City to recoup a small part of its annual SWP payment obligation. The City has also worked with the United Water Conservation District (United), which requests (depending on local hydrologic conditions and percent of SWP water available each year) some portion of the City's annual allocation at the "turn back" pool rate. This provides water recharge benefits to the County area as a whole.

The City, CMWD, and United (referred to as the Joint Agencies) pay annual contractual fees to DWR, which cover construction costs for SWP facilities and administration to deliver allocations of water throughout the state.

There are presently three (3) distinct water sources providing water to the City water system:

- 1) Casitas Municipal Water District (Lake Casitas),
- 2) Ventura River Foster Park Area via surface water intake and the Upper Ventura River Groundwater Basin/Subsurface intake and wells,
- 3) Groundwater
  - a. Mound Groundwater Basin (United)
  - b. Oxnard Plain Groundwater Basin (Fox Canyon Aquifer), and
  - c. The Santa Paula Groundwater Basin.

The City currently purchases water from Casitas through an agreement that requires a minimum purchase of 6,000 AFY and permits the purchase of up to 8,000 AFY. In a typical year, the City purchases 6,000 AF of water annually.

The United Water Conservation District is primarily a groundwater recharger in central Ventura County. The City owns 13 groundwater wells located within the UWCD boundaries, and are therefore subject to semi-annual extraction fees.

The balance of City's water is from the Ventura River. Water from this source accounts for approximately 20 percent the City's water supply. However, this amount fluctuates from as low as 2,300 AFY to 7,000 AFY depending on local hydrology and operational constraints.

The City water system is a complex system of 16 pressure zones, 13 wells, 21 booster stations, approximately 380 miles of pipelines ranging from 4-inches to 36-inches in diameter, and a total storage capacity of approximately 52 million gallons (mg) in 32 tanks and reservoirs serving an estimated population of 113,500 and 31,650 water service connections, inclusive of the population of Ventura plus several unincorporated County areas. The system delivers water from sea level to a maximum elevation of over 1,000 feet. The City operates three purification facilities, including one membrane filtration treatment plant for surface water sources on the west side of the City, and two iron/manganese removal treatment plants for groundwater sources on the east side. The City also maintains and operates the Ventura Water Reclamation Facility, which discharges tertiary treated for

recycled water distribution for large landscape irrigation and direct discharge to wetlands and to the Santa Clara River Estuary.

Water service is provided to all residential, commercial, industrial and irrigation customers; including fire protection users. The City's water use is summarized below.

### Water Demand by Customer Type

Customer Type	Connections	Average Water Consumption (AFY)*
Residential	23,158 – Single-Family 2,372 – Multi-Family	10,627.05
Commercial	2536	3,406.41
Industrial	4	68.58
Institutional/Government	185	478.37
Large Landscape	258	521.52
Petroleum Recover Operations	2	312.11
Other/Miscellaneous <sup>1</sup>	—	121.38
<b>Subtotal</b>		<b>15,535.42</b>
Recycled Water		600
<b>Total</b>		<b>16,135.42</b>

\*Average based on the past 3 years of actual consumption quantities.

#### 1.2.1 Past Working Relationship with Reclamation

The City of Ventura recently completed Title XVI grant funded Recycled Water Delivery Project Expansion Feasibility Study; agreement number R12AC35349. This was a facilities planning study for expanding recycled water deliveries to the Santa Clara River estuary. This study was successfully completed in May 2014 and accepted by Reclamation.

<sup>1</sup> Temporary construction, street sweeping, fire line meters, and water rights to Alta Mutual Water Company customers.





The proposed project contains both water conservation and water management benefits. The City of Ventura proposes to remove and replace the pump and motor components and rehabilitate Saticoy Well #2, and replace 26 water production meters, which will result in a complete upgrade of the water system's production meters; no additional work will be required to achieve the benefits noted herein.

**Saticoy Well #2**

The Saticoy Country Club Well #2 was put into service in 1987. In 2007 the well was temporarily removed from service to remove rocks lodged in the intake screen and the pump was replaced due to damage. The motor was replaced in 2004. Neither the pump nor the motor are high efficiency components, and they are oversized.

A recent pump test has revealed that the drawdown has increased and specific capacity decreased as compared to testing performed approximately ten years ago. The previous test indicated the well had a producing capacity between 13.6 – 15.7 gallons per minute (gpm) and the September 2012 SCE efficiency report indicates the capacity is now operating at approximately 4 gpm and the motor load is working at 104%. The current specific capacity is low compared to other similar pumps in the area and as compared to previous pump tests.

Unfortunately a camera inspection of the well and casing cannot be completed to identify the specific cause due to an improperly angled camera tube.

On September 24, 2012, SCE completed an energy efficiency analysis. The results of this analysis indicate the energy efficiency can be improved by 17.5% and reduce electricity costs an estimated \$6,970.20 annually if the City were to replace the existing standard pump and motor with a high efficiency pump and variable frequency drive motor.

During a flow meter analysis it was also determined that this well is currently drawing an additional 25.23% more water than it is registering. Water savings will be achieved through the replacement of the production flow meter and is discussed under the production flow meter improvement description.

**Proposed Improvements:** Replace the well pump and motor and complete an engineering and hydraulics assessment to evaluate the inflow of water and create the proper pump and motor curve to determine the correct size of pump and motor. Once properly engineered, the new high efficiency pump and motor are anticipated to have an operational lifespan of approximately 15-20 year.

**Saticoy Well #2 Improvement Benefits**

Annual Energy Efficiency Savings	
Increase In Efficiency	17.5%
kWh saved	76,671 kWh
Total Annual Energy Cost Savings*	\$6,970.20

\*Pumping energy costs only.

The National Electrical Manufacturers Association (NEMA) and Consortium for Energy Efficiency (CEE) jointly developed the NEMA Premium specifications, an industry-wide definition of premium efficiency.

In addition to using less energy and saving money, NEMA Premium efficiency motors have,

- Cooler Running Temperatures
- Longer insulation life
- Longer bearing life
- Less vibration
- More tolerance of phase imbalances and overload condition

Selected pump and motor equipment to be installed at the Saticoy Well #2 will be required to meet the NEMA Premium standard.

### Production Flow Meters

The City of Ventura will replace 26 facility water production meters ranging in size from 6" to 24".

The City's current meters vary in type, model, and in age, ranging from 24 – 7 years old. The detailed information regarding the existing meters and the anticipated water savings associated with their replacement is including in the table on the next page.

The City's water quality is high mineralized, which causes excessive wear on the propellers and plugging of bearings of the propeller type meters. Additionally, as this type of meter ages, the rotational speed is known to slow and underreport water volumes pumped.

The variability in the types, ages, and condition of the meters is also a water management concern as there are not consistent methods of data collection, parts for repair, maintenance, or diagnostic practices across the meters. The City's ability to effectively manage the meters and maintain water distribution is further compromised by the lack of bypass meters.

The City intends to replace the meters with electromagnetic meters that have both readouts and data logger capabilities. These meters will have a major advantage over the existing propeller type meters, as they are better suited for Ventura's type of water and they have no moving parts to wear. Furthermore, technological advances in the current electromagnetic meters are far superior to the City's existing mag meters in that they are able to self-calibrate. These "smart" meters will automatically adjust to flows and workers will be able to hook up to the meters using their field laptops to obtain data directly from the meter or information can be retrieved from the office through the City's SCADA system. The meters will also have multiple alarm conditions that will alert staff at the office of low-flow or no-flow conditions. Ventura Water has replaced a few of its meters with this type of meter to evaluate their function, and has found them to be far superior to the other meters in operation. These meters are the latest technology and will serve to better manage the City's water supply, provide more accurate readings to better account for production and water losses, and reduce operations and maintenance costs.

Phase II of the City's optimization plan is to upgrade customer meters to AMI meters. The replacement and upgrade of the production meters is required prior to the installation of the AMI meters to ensure proper integration; however, significant benefits will be realized upon completion of the replacement of the flow meter regardless of the AMI upgrade.

**Proposed Improvements:** The project will consist of replacing 26 production flow meters with the Sparling TigerMagEP FM656 Obstructionless Electromagnetic Flowmeter to create standardization, and to install a meter by-pass/ jumper for future maintenance and service of the meter and the meter tube. This flow meter is microprocessor-based and designed to measure the flow of conductive liquids in full pipes. The sensor and the transmitter are integral and enclosed in a NEMA-7 explosion proof housing.

Each TigerMagEP Flowmeter is wet-flow calibrated to the National Institute of Standards and Technology and is made in America. The accuracy shall be at least 0.5% of flow rate over a 33:1 turndown at all flow rates above 1 fps. A copy of the product data sheet and Made in America certification is included in Appendix C.

It is estimated that by replacing all of the water system production flow meters the City will be able to conserve three (3) percent of its total water supply through improved efficiency and better water management.

## Existing Production Flowmeter Specifications and Flow Test Data

Facility	Existing Manufacture	Size	Type	2012 SCE Testing				Date Installed	Date Calibrated
				SCE Test GPM	VW GPM	Diff	% Diff		
Intake	Sparling	8"	Mag	1283	1139	144	-11.22%	1997	1997
Nye Well #7	Sparling	12"	Prop	1408	1408	0	0.00%	2003	2011
Nye Well #8	Sparling	8"	Prop	920	957	-37	4.02%	2007	2007
Nye Well #11	Sparling	6"	Prop	N/A	150		N/A	2006	2006
Victoria #2	Sparling	16"	Mag	2240	2190	50	-2.23%	2005	2005
Mound #1	Sparling	14"	Mag	1358	1461	-103	7.58%	2003	2003
Saticoy #2	Sparling	12"	Mag	769	575	194	-25.23%	1990	1990
SCC #1	Sparling	8"	Prop	282	296	-14	4.96%	2004	2009
Kingston Inf	Drexolbrook	18"	Ultrasonic	N/A			N/A	1990s used	Not accessible
Kingston Eff	Sparling	18"	Prop	N/A			N/A	1990 used	Not accessible
Valley Vista	Sparling	12"	Mag	537	534	3	0.56%	2002	2002
Modella	Sparling	10"	Prop	752	752	0	0.00%	2001	2001
Kalorama	Sparling	6"	Prop	435	435	0	0.00%		
Mariano	Sparling	8"	Prop	745	816	-71	-8.70%	2001	2010
McElrea	Sparling	6"	Mag	342	363	-21	-5.79%	2001	
Hall Cyn	Sparling	6"	Mag	706	687	19	2.77%	1998	2010
Foothill	Sparling	8"	Mag	433	435	-2	-0.46%	1998	1998
330	Sparling	12"	Mag	1921	2059	-138	-6.70%	1998	1998
Seaward&Poli	Sparling	16"	Mag	1321	1321	0	0.00%	2002	2002
5 Points	McRometer	24"	Insert Mag	2753	2600	153	5.88%	2000	
View Park	Sparling	8"	Prop	724	794	-70	-8.82%	2001	2001
Willis	Sparling	12"	Prop	493	526	-33	-6.27%	2003	2003
Elizabeth	Sparling	16"	Mag	1497	1601	-104	-6.50%	2001	2004
Ondulando	Sparling	10"	Mag	711	713	-2	-0.28%	2001	2001
Nob Hill	Sparling	6"	Mag	460	475	-15	-3.16%	2001	2001
Golf Course	McRometer	24"	Insert Mag	1129	1364	-235	-17.23%	2000	2000

### 1.4 Evaluation Criteria

The replacement of the existing inefficient motors, pumps, and production meters will conserve water and improve overall water management.

#### *a. Water Conservation*

It is estimated that the replacement of the production meters will conserve approximately 516.66 AFY. This calculation is based on the SCE Flow Test Data on the previous page, which indicates many of the City's production flow meters are inaccurately reporting water flows, plus the water savings associated with reducing the amount of water extracted by Saticoy Well #2.

According to the 2012 Flow Test, 13 of the flow meters are underreporting water production by 845 gpm (444,132,000 gallons per year—1,363 AFY); 6 are reporting an excess of 563 gpm (295,912,800 gallons per year—908.12 AFY), and 11 are not reporting accurately. It is therefore estimated that approximately 454.88 AFY of water will be saved; however greater savings may be possible since data is unavailable for some meters and others are not responding accurately (reporting a perfect “0” for these propeller meters is considered impossible under variable flow meter test conditions in the water industry, considering the standard is  $\pm 2\%$  according to the manufacturer, Sparling Instruments).

The City has not had the financial resources to address these issues to date; therefore it is likely they are unchanged and may continue to worsen.

#### *1.4.1 (a) Quantifiable Water Savings*

- Average annual acre-feet of water supply (potable): 15,535.42
- Where our water currently ends up?

Water losses are estimated to be between 10 and 20 percent annually. The cause(s) of the water losses is currently unclear as the functionality of the City's production meters is unreliable and therefore it is currently impossible to clearly quantify water losses and begin to accurately detect leaks within the system. The City's pipelines are old, like many water systems, and subject to leaking; however, the production meter data is unreliable, so baseline data cannot be established.

The proposed replacement of all of the City's production meters is a priority in order to manage water resources. It is known that as meters age they underreport volumes, therefore it is reasonable to posit the City is using more water than is needed to meet demands. According to manufacturer data and industry experience, it is estimated that the City will be able to improve water efficiency by an estimated 10-20 percent. For example, the Saticoy Well #2 is drawing 25% more water from the aquifer than it is reporting.

#### **Where will proposed water end up?**

The conserved water will be used to decrease water demand from the rivers, lakes and groundwater resources and will enhance the City's ability to meet demands during extended times of drought.

Amount Conserved: 454.88 AFY (Production Meter replacement)

Additional water savings may result from replacing the pump and motor at Saticoy Well #2; however, it is difficult to calculate given the fact that the meters are not operating correctly. Preliminary estimates indicate savings associated with the Saticoy Well improvements indicate a potential savings of 61.78 AFY, assuming a conservative 7 percent savings, for a total estimated water savings of 516.61 AFY.

Percent of Total Water Supply: 3.3 %

Reasonableness of Costs:

Water Source	2012-13 Estimated Demand	Percent of Supply	Est. Cost per Acre-Foot
Casitas Municipal Water District (CMWD)	6,106	36%	\$340
Ventura River watershed	3,347	20%	\$689
Groundwater Basins	7,316	44%	\$256

These costs include treatment and production costs.

Assuming 36 percent of the City's water is from CMWD, 44% percent from groundwater, and the remaining 20 percent from the Ventura River, the following formula is used to calculate the costs to savings related to conserving 516.66 AF of water. Note: water savings associated with the pump/motor replacement for Saticoy Well #2 is only applied to the groundwater costs.

$$\$340 \text{ (CMWD water)} \times 454.88 \times .36 = \$55,677.31$$

$$\$256 \text{ (groundwater)} \times 516.66 \times .44 = \$58,196.58$$

$$\$689 \text{ (Ventura River)} \times 454.88 \times .20 = \$62,682.46$$

Resulting in an **annual** cost savings of \$176,556.35

$$\text{Production flow meters useful life savings (15 years)} = \$2,648,345$$

The cost of the improvements to the Saticoy Well #2 are estimated at \$259,182 (equipment, materials, labor), with a useful life of 20 years, and the production flow meters and bypass meters have a useful life of 15 years and an estimated project cost of \$325,000.

Total Project Costs including project management and well rehab design: \$574,078.70

Flow Meter Energy Annual Savings: 652 kWh/AF= 296,582 x .09/kWh=\$26,692.38

Saticoy Well #2 Energy Annual Savings: \$6,970.22

**Total Annual Cash Value of Project Savings: \$210,219**

The return on investment based on the cost savings of water and energy conserved is less than three years.

*1.4.1. (b) Improved Water Management: 15,535.42 AFY*

The City's entire potable water supply will be better managed as a result of replacing the existing flow meters system wide, and Saticoy Well #2 will result in better management of the water drawn from the Santa Paula Groundwater Basin.

1.4.1.1 (b) Percentage of Total Supply Better Managed: 100%

Averaged Increase in Water Management Efficiency expected: 14.6%

The expected increase in water management efficiency is based on adding the total amount of water production that is reported inaccurately (see section 1.4.1) and dividing by the total water supply—2271.12 AFY/15,535.42 AFY.

## 1.5 Energy Water Nexus

*b. Subcriterion No. B.1.—Implementing Renewable Energy Projects Relate to Water Management and Delivery*

Renewable energy is not included within the scope of this project.

*c. Subcriterion No. B.2.—Increasing Energy Efficiency in Water Management*

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water management project (e.g., reduced pumping).

In September 2012, Southern California Edison (SCE) conducted an energy efficiency analysis on the City's water system infrastructure and identified the Saticoy Well #2 and nearly all of the City's flow meters as inefficient. SCE provided a detailed evaluation of each of these facilities and the potential energy savings that could be achieved if the City were to replace the pumps, motors, and meters as identified. Based on the SCE analyses, the following energy savings would be expected as a result of the proposed pump and motor replacements.

Facility	Annual kWh Savings	Rate of Efficiency Improvement	Annual Energy Cost Savings
Saticoy Well #2	76,671	17.5%	\$ 6,970.20
Production Flow Meters	296,582	14.6%	\$26,692.38
Total	373,253	32.1%	\$33,662.58

- Please provide sufficient detail supporting the calculation of any energy savings expected to result from water conservation improvements. If quantifiable energy savings are expected to result from water conservation improvements, please provide sufficient details and supporting calculations.

Southern California Edison (SCE) conducts free energy efficiency analyses. The City requested an energy efficiency analysis of the entire water system in the fall of 2012. The results of this evaluation as it relates to the proposed improvements are included in Appendix C.

In order to calculate energy efficiency, SCE identifies the equipment, current annual total kWh registered by their electric meter, independently tests the gallons per minute rate and compares this data to the City's records, current utility rate class, and uses a complex formula to determine the overall operating efficiency of each facility site and provides projected energy and cost savings. The formula they used is not included in their documentation.

- Please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements?

The Saticoy Country Club Well #2 was put into service in 1987. The motor was replaced in 2004 with a 300HP motor to increase production.

In 2007 the well was temporarily removed from service to remove rocks lodged in the intake screen and the pump was replaced due to damage caused by the oversized motor increasing velocities.

Neither the pump nor the motor are high efficiency components. The proposed improvements to this well will include an engineering and hydraulics assessment to evaluate the inflow of water and create the proper pump and motor curve to determine the correct size of pump and motor. The new high efficiency pump and motor are anticipated to have an operational lifespan of approximately 20 year and improve efficiency 17.5%. Using a high efficiency pump and motor will also result in a reduction in the size of the pump and motor, which will reduce the amount of water extracted by this well, reducing the City's impact on the Santa Paula Groundwater Basin, and extending the life of the well itself by reducing velocities.

- Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.

Energy savings for the Saticoy Well #2 scope are based on improvements made at the specific locations proposed for retrofit. This information is detailed in the SCE analyses included in Appendix C.

Energy Savings for the flow meters is based on avoided treatment costs.

- Does the calculation include the energy required to treat the water?

It is not clear if SCE's calculation includes the energy required to treat the water. However, according to the U.S. Department of Energy, the average energy use for water treatment drawn from southern California is 652 kWh per acre-foot. Therefore, if the City were to



conserve 454.88 AF/Y as a result of the replacement of the production flow meters, the City would save 296,581.76 kWh of energy.<sup>2</sup>

- Will the project result in reduced vehicle miles driven, in turn reducing carbon emissions? Please provide supporting details and calculations.

Yes, the project will reduce vehicle miles driven by allowing for remote readings of the flow meters; however this value has not been calculated.

The SCE analysis does calculate a reduction in greenhouse gases (GHG) a result of completing the proposed improvements and reducing energy costs (see below).

Project Activity	CO2 Emissions Reduced (tons)
Saticoy Well #2, Pump and motor replacement	33
Production Flow Meter Replacement	231 <sup>3</sup>

SCE uses its own program to calculate these savings and they are included in the report in Appendix C.

## 1.6 Criterion C: Benefits to Endangered Species

For projects that will directly benefit *federally-recognized candidate species*:

### 1. What is the relationship of the species to the water supply?

As a river that supports federally endangered Southern California Steelhead, the Santa Clara River is a critical waterway for migrating steelhead. In addition, large numbers of the federally endangered tidewater goby inhabit the Estuary. Other fish found in the Estuary are arroyo chub, mosquitofish, green sunfish, California killifish, striped mullet, topsmelt, prickly scuplin, and fathead minnows (ENTRIX 1999; USFWS 1999). Downstream of Lake Casitas, the Ventura River and ecological resources are stressed due to low flows. The portion of the river downstream of the Highway 150 Bridge to Foster Park (reaches 3 and 4) has been listed by the US Environmental Protection Agency (EPA) as impaired due to water diversions and pumping.<sup>4</sup>

Historically, steelhead were abundant in coastal mountains of Southern California, but now Southern California Steelhead are on the verge of extinction and have been federally-listed as an endangered species since 1987. The US EPA report on the Ventura River states:

<sup>2</sup> Dr. Allan R. Hoffman, The Connection: Water Supply and Energy Reserves. U.S. Department of Energy. <http://waterindustry.org/Water-Facts/world-water-6.htm>. Accessed 1/18/2014.

<sup>3</sup> U.S. EPA Greenhouse Gas Equivalencies Calculator. <http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>. Accessed 1/20/15.

<sup>4</sup> US Environmental Protection Agency. 2012. Ventura River Reaches 3 and 4 Total Maximum Daily Loads for Pumping and Water Diversion-Related Water Quality Impairments. December.

“water quality problems related to eutrophication are compounded by low flow...Decreased summer flows and elevated nutrient concentrations in the Ventura River contribute to the excessive algal biomass growth, which in turn contributes to low DO conditions. Reducing nutrient loading, concurrent with maintaining or increasing existing river flow, are the most effective way to address eutrophication, which is the underlying cause of the impaired aquatic life beneficial uses in the Ventura River system...”

The extremely low precipitation over the last two years has further stressed steelhead populations. As noted by the National Marine Fisheries Service as part of their recent surveys, “It is unlikely that any anadromous adults were able to travel beyond the Ventura River estuary due to low flow conditions and subsequent barriers to migration.<sup>5</sup> In the absence of substantial high flow events, vegetation has become well established in the floodplain.

Primrose and watercress were most abundant, and formed dense cross-channel thickets that may have acted as further barriers to steelhead migration.

**2. What is the extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species?**

Low flows in the rivers clearly have a negative impact on the steelhead populations. By improving the efficiency and management of groundwater and of water distribution (flow meter replacements), the City can avoid increasing its demands for water from the rivers and lakes and, during better hydrologic conditions, reduce the amount of water drawn from these resources; which would in turn play role in improving the riparian habitat. Given the fact that multiple communities rely on these water sources for some percentage of their supply, this project serves as one of the pieces or steps towards improving the status of the southern California Steelhead.

For projects that will directly accelerate the recovery of threatened or endangered species or address designated critical habitats, please include the following elements:

**1. How is the species adversely affected by a Reclamation project?**

One of the major facilities of Reclamation’s Ventura River Project is the Robles Diversion. In 2003 Reclamation authorized CMWD to construct a fish passage facility. The facility is in operation, but the CMWD biological opinion rules limit when diversion can take place. No diversions are allowed unless fish flows exceed 30 cubic feet per second. In 2005 the Ventura River and Ventura River Estuary were designated critical habitat for southern California Steelhead.

**2. Is the species subject to a recovery plan or conservation plan under the Endangered Species Act?**

In 2005 CMWD sued the federal government, claiming that restrictions to protect the steelhead limited their water rights. In early 2012, National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) released a Recovery Plan for the southern California steelhead (*Oncorhynchus mykiss*). The Recovery Plan cites the need to:

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<sup>5</sup> Sam Bankston, Heidi Block and Chris Lima of the Pacific States Marine Fisheries Commission and California Department of Fish and Wildlife. 2014. Ventura River Watershed Spawner Surveys 2013.

- Improve stream flows
- Reduce diversions
- Remove physical impairments to fish passage
- Limit alterations to floodplains
- Limit sedimentation
- Limit urban and rural waste discharge to streams
- Repair and enhance estuarine habitat

3. What is the extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species?

Approximately 50 percent of water supplies available to the City are sourced from the Ventura River Watershed (including water purchased from Casitas Municipal Water District (CMWD) from Reclamation's Ventura River Project.

The Ventura River is habitat for the southern California Steelhead, a federally-listed endangered species. According to the NOAA Fisheries, the steelhead populations within the Southern California Steelhead Distinct Population Segment have experienced declines of 90% or more in the Ventura watershed. The principle threat to the viability of this species is water facilities and diversions.<sup>6</sup>

The proposed project will reduce the impact on the steelhead by improving water management and allow the City to utilize the Ventura River in a more environmentally sensitive manner.

It is estimated that the proposed project will conserve approximately 454.88 AFY (excluding Saticoy Well savings); 50 percent of the City's water supply comes from Ventura River Watershed sources, therefore the proposed project will improve water management of our River.

Furthermore, the City has the right to extract more water than it is currently using. Improving water management reduces the potential need to increase water draws.

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<sup>6</sup> Southern California Steelhead Recovery Plan. National Marine Fisheries Services, Southwest Regional Office  
Long Beach, CA, January 2012

## **1.7 Water Marketing**

Criterion D. Briefly describe any water marketing elements included in the proposed project.

In 1999, the City became a signatory to the SWP Monterey Amendment Settlement Agreement, which allows the City and other SWP contractors to sell surplus allocated water back to the SWP pool of supplies. The Monterey Amendment Settlement Agreement to the SWP contracts in 1999 provided the City a formal mechanism to allow it to place its annual SWP water allocation into a "turn back" pool to the California Department of Water Resources (DWR) for purchase by other SWP contractors.

The City of Ventura, United Water Conservation District (United) and Casitas Municipal Water District (Casitas) together hold a 20,000 acre-foot Ventura County water entitlement to the State Water Project, while the City has the greatest share at 10,000 acre-feet of the total County entitlement. The City pays approximately \$1,000,000 annually to the SWP for bond, operating and capital costs in order to maintain its entitlement, per the terms of the 75-year SWP contract. The City has taken part in the "turn back" pool over the past several years as well as entering into direct sale agreements of the City's entitlement to United, Casitas, and/or other parties, which has allowed the City to recoup a small part of its annual SWP payment obligation. These are limited to one or two-year terms, with the City re-evaluating water demands and supply annually to determine if and how much of the City's water entitlement will be sold or turned back to DWR.

For example, in 2013, the City entered into an agreement with United to purchase 1,890 AF of Ventura's 2013 water allocation by having the water released from Pyramid Lake into Piru Creek to flow into Lake Piru. This allowed United to extend its fall conservation release, thus bringing water to the Oxnard Plan groundwater basin for recharge purposes. This agreement expired in December of 2014.

The City will continue to make these agreements, as due to a lack of infrastructure to access the City's full SWP entitlement, while continuing to reduce water waste through better water management and conservation.

## **1.8 Other Contributions to Water Supply Sustainability (Criterion E)**

### *a. Subcriterion E.1: Addressing Adaptation Strategies in a WaterSMART Basin Study*

The Bureau of Reclamation has not recently initiated or completed for the Ventura area watersheds; however, the Ventura Watershed has been studied by the U.S. Bureau of Reclamation and the state of California with respect to water supplies, water quality, and environmental impacts including impacts to endangered and sensitive species. The information below provides an overview of the last study conducted by Reclamation.

In 1952, the formation of the Ventura River Municipal Water District (VRMWD, which later was renamed Casitas Municipal Water District CMWD in 1971) requested the U.S. Bureau of Reclamation make a water requirement and water supply study for western Ventura

County. By March 1953, VRMWD and the Bureau of Reclamation entered into a cooperative investigation contract. By the fall of 1953, Bureau investigators completed reconnaissance-level studies to determine the approximate long-range water requirements, comparison of the merits of available dam sites, and determination of the river diversion and storage capacity required to meet the long-term water needs of the area (Bennett, 1967). The feasibility study also considered the recreational benefits that the project would have for the area.

The Reclamation's feasibility report recognized the need for water supply development, as stated in the following:

- 1) Page 6, "Development of an additional firm water supply is urgently needed in the Ventura River Project Area. Although the overall safe yields of the ground-water basins are approximately in balance with the amounts used, maldistribution of the use in relation to the supply now exists. Consequently, additional quantities are needed to serve some areas of insufficient ground-water storage capacity. This situation applies particularly to the developed lands lying around the edge of the Ojai Valley where wells went dry during the recent drought."
- 2) Page 7, "The City of Ventura is in critical need of additional water supplies under conditions of present development."
- 3) Page 8, "Ventura County is receiving more than its proportionate share of the present population growth of the State. This is due to its favorable location, agriculture, industrial, and commercial activities, and climatic and scenic attractions. This growth is expected to continue."

As an appendix to the feasibility report, the Reclamation developed operational studies for the Ventura River Project. In the Water Resources Appendix, the Reclamation describes the runoff characteristics of the Ventura River Basin as follows on Page 16: "Runoff from stream in the Ventura River Basin is derived almost entirely from rainfall, consequently exhibits the same monthly and seasonal variations as the rainfall. Since there is no accumulation of snow in the watershed, all streams diminish fairly rapidly in flow at the conclusion of the rainfall season. Small summer flows are maintained in the upper reaches of the larger watersheds by springs. Following severe storms, discharge in the Ventura River has been known to increase in a few hours from practically no flow to a rate of thousands of cubic feet per second. Seasonal runoff has varied from a maximum in excess of 400 percent of the mean to a minimum of less than 5 percent of the mean."

In the Reclamation's determination of the Ventura River Project's safe yield (USBR 1954b), the Bureau summarized its approach to the safe yield as follows: "In general, for smaller reservoirs the most intense drought is critical, while for larger reservoirs the drought with the greatest product of length times mean deficiency is critical. Reconnaissance studies indicated that for CMWD Reservoir at 250,000 acre-feet the greatest drought of record (length times mean deficiency) is critical."

The Ventura River Project received the support of many federal agencies and moved with a sense of urgency to be authorized by Congress, design, and completion of facility construction by 1959. The key elements of the Ventura River Project are Casitas Dam and

Reservoir (Lake Casitas), the Robles Diversion and Canal on the Ventura River, and the water distribution system that consist of pipelines, pump plants, storage tanks and chlorination stations. Under a repayment Contract with the USBR, CMWD was assigned the responsibilities for the operation and maintenance of the Ventura River Project and the perpetual right to use all water that becomes available through the construction and operation of the Project, subject to the satisfaction of vested rights.

During the first 30 years of the Ventura River Project, Lake Casitas filled for the first time in 1978 and demands for water developed to full safe yield levels by 1990. The Project serves as a primary supply for many direct customers and as a supplemental, or backup supply, for groundwater users during times of drought.

*b. Subcriterion E.2: Expediting Future On-Farm Irrigation Improvements*

The proposed project will not include any future on-farm irrigation improvements

*c. Subcriterion E.3: Building Drought Resiliency*

- Explain in detail the existing or recent drought conditions in the project area. Describe the severity and duration of drought conditions in the project area. Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by drought.

On January 17, 2014, California Governor Edmund G. Brown Jr. declared a State of Emergency and directed state officials to take all necessary actions to prepare for the drought conditions and called upon every Californian to conserve water. As water supplies continued to diminish, the Governor's office called on all water agencies to implement drought measures to reduce water demands and the Department of Water Resources reduced SWP allocations for southern California contractors to zero on January 31, 2014, and then 5% for 2014. Water resources remain very low throughout the entire State today and DWR recently announced SWP allocations for 2015 will be 15%.

The State's water demand has reduced by an average of 10% over 2013, with the Sacramento Region leading the charge with 25.6% residential savings while the South Coastal region is bringing up the rear with 5-10% residential savings<sup>7</sup>. The City of Ventura is located in the South Central Coast region and has reduced water consumption 7% from all user types.

The Ventura County Region is at risk of not meeting drinking water demands. The water for 70,000 people in western Ventura County is at risk due to drought. Water agencies that typically get all or part of their water from wells have had to start purchasing Lake Casitas water, as their wells have run dry. Since 2011 (first drought year), purchases of Lake Casitas water have increased by 1,000%. The lake is an important, but dwindling,

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<sup>7</sup> "State Water Board Reports Improvements in Urban Water Conservation Rates for November", January 6, 2015. [www.ca.gov/Drought](http://www.ca.gov/Drought)

resource threatened by both water supply and, subsequently, water quality concerns. For the first time since 1968, levels in Lake Casitas are expected to drop below 50% volume. Lower water levels in 1968 resulted in significant thermal stratification and anoxic (without dissolved oxygen) conditions, rendering the lake generally unsuitable for aquatic life. The low oxygen levels also created an environment where manganese and hydrogen sulfide, normally trapped in sediments, became soluble, causing the lake water to have a brown color and bitter metallic taste. There were also large blue-green algae blooms.<sup>8</sup> Normally creek inflows provide supply and facilitate lake mixing (which helps maintain good water quality). Inflows have significantly decreased since 2012, causing the lake to stratify and stagnate. Data from Casitas Municipal Water District indicate that the lower parts of the lake are already anoxic and the affected lake volume is expected to increase as drought continues. The Casitas water treatment plant does not have sufficient coagulation or sediment treatment processes to address anoxic lake conditions, and widespread algae blooms may result in Casitas not meeting drinking water standards. The deteriorating conditions mean Lake Casitas, as a drinking water source, is threatened.<sup>9</sup>

**Ventura River Basin** groundwater wells are almost exclusively recharged from Ventura River flow. The basin is relatively shallow and responds quickly to rainfall or lack thereof. Due to the drought, the City of Ventura has lost 70% of its normal Ventura River supply. Due to low water levels in the Ventura River Basin, the wells operated by Meiners Oaks Water District have already gone dry and they are now entirely dependent on purchases of Lake Casitas water. Ventura River County Water District has only one of its four wells still in operation causing supplies to also be drawn from Lake Casitas.

**Groundwater supplies curtailed in Southern Ventura County by Fox Canyon Groundwater Management Agency (GMA)**, which support agriculture, municipal, and industrial water use for a significant portion of the developed regions of Ventura County.

<sup>10</sup> On April 11, 2014, the GMA adopted an emergency ordinance to prevent further seawater intrusion and to limit risk of subsidence. Groundwater from the Fox Canyon GMA area makes up approximately 45% of supplies for the City of Ventura, as well as Oxnard, Port Hueneme, Camarillo, and Moorpark, and various adjacent unincorporated communities. Emergency Ordinance E effectively mandates reduced groundwater use; as of July 1, 2014, pumpers were to reduce extractions by 10% with required reductions increasing to 15% by January 1, 2015 and to 20% by July 1, 2015 if drought conditions continue.<sup>11</sup> Given the fact that as of the DWR most recent water supply report and the lack of rain in the foreseeable forecast, it would appear that drought will continue to persist.

As a result of the GMA curtailment, the City has not been able to bring online its newly constructed Saticoy Well #3 needed to help meet supplies and provide redundancy during periods of maintenance and/or repairs to other wells and to improve supply

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<sup>8</sup> Casitas Municipal Water District. 2011. 2010 Urban Water Management Plan.

<sup>9</sup> Casitas MWD. 2013. Lake Casitas Water Quality Study. Prepared by Flow Science, Inc.

<sup>10</sup> Fox Canyon GMA website. [www.fcgma.org/about-fcgma](http://www.fcgma.org/about-fcgma). Accessed 1/20/15.

<sup>11</sup> Fox Canyon GMA. 2014. Emergency Ordinance E: *An Emergency Ordinance Limiting Extractions from Groundwater, Suspending Use of Credits and Prohibiting Construction of Any Groundwater Extraction Facility.*

reliability. The repair of Saticoy Well #2 is even more critical now without the ability to bring Saticoy Well #3 online, because this well is responsible for providing 1/5 of the city's water supply and with declining productivity rates and increasing water quality concerns, the loss of this well could potentially cause an interruption in water service until alternative supplies could be drawn upon. Furthermore, if Saticoy #2 were to be out of service, the City would be forced draw more water from Lake Casitas and/or Ventura River sources (River or groundwater basin) in excess of allocations, which would result in overdraft fees being assessed and increased rates to customers.

The following table represents the quantity of water supply forecasted for the City in its 2010 Urban Water Management Plan and the revised amount of projected water supply quantities and sources as a result of the multi-year drought. The revised projected amount of water represents a significant drop in the available supply and, when compared to the Water Demand by Customer Type table in Section 1.2, this projection shows a deficit of 1,335.42 acre-feet with respect to meeting the city's average water demands.

Supply/Source	2010 Urban Water Mgt. Plan	2015 Projected Supply
Casitas Municipal Water District	6000	4600
Ventura River @ Foster Park	4200	0-2000
Mound Groundwater Basin	4000	4000
Oxnard Plain Groundwater Basin	4100	3920
Santa Paula Groundwater Basin	1600	1600
Recycled Water	700	700
Saticoy Well	1400	0*
Total	22000	14800

\*Saticoy Well was taken out of service due to technical issues with pump design and water quality concerns caused by the drought.

- Describe the impacts that are occurring now or are expected to occur as a result of drought conditions. Provide a detailed explanation of how the proposed WaterSMART Grant project will improve the reliability of water supplies during times of drought. For example, will the proposed project prevent the loss of permanent crops and/or minimize economic losses from drought conditions? Will the project improve the reliability of water supplies for people, agriculture, and/or the environment during times of drought?

Unlike most of southern California, Ventura County typically receives all of its imported water from the State Water Project (SWP). 30 Percent of the City's water supply originates from Lake Casitas during typical hydrologic conditions. However, with SWP allocations at an unprecedented low of 5% for 2014, Ventura County purveyors have been receiving about 30% of its imported water demands from the Colorado River supplies through non-routine system operations and a wheeling arrangement with the Los Angeles Department of Water and Power, which also represents the maximum allowance of such water (30%).



On September 22, 2014, the Ventura City Council declared a "Stage 3, Water Shortage Emergency" and implemented water waste prohibition that limits and reduces outdoor water use; restaurants are restricted from serving water to requests only; and enforcement actions for water wasting. The City also created a Water Shortage Task Force to provide community input as the City responds to the drought. The Task Force's primary goals were: 1) establish drought rates, 2) adopt a water shortage contingency plan, and 3) approve creation of a customer incentive program. All three recommendations will be going before the City Council for consideration in February 2015.

The lake level for Lake Casitas is currently 51.6%, according to the Casitas website on January 20, 2015. The 50% capacity level is a critical point at which the following additional water conservation measures will be automatically triggered:

- Establish a water allocation program based on historical uses of Casitas water or other fair and equitable bases, which will establish the amount of water that can be obtained by each customer, including other water agencies.
- Implement or adjust an increasing block rate structure for any classification of water service (i.e. impose a drought surcharge.)
- Require all water agencies taking water from Casitas to implement water conservation and restrictive water use measures.
- May direct the oil companies to cease taking any Casitas water for secondary oil recovery purposes or other non-life-sustaining purposes.
- May request the Ventura County Board of Supervisors and the cities of Ojai and Ventura to place a moratorium for all building permits, lot splits, or subdivisions within Casitas boundaries.<sup>12</sup>

It is not clear yet how the 50% lake level condition will impact the City specifically, as this is an unprecedented issue; however, it is expected that the City will be required to further reduce its withdrawal of water from the lake.

The most significant impact caused by the drought for the City of Ventura water supply is to the groundwater. As discussed previously, the depletion of groundwater from the Ventura River groundwater basin and the pumping restrictions of the GMA managed basin represents a significant concern for maintaining water supplies. The proposed project to improve the pumping efficiency and reduce water losses of 10-20% or 516 AFY will significantly benefit the City and improve the reliability for residents, businesses, and institutions. This project will also allow the City to monitor pumping and flow rates and better manage water resources; something that is lacking currently.

Ventura County agricultural users receive 50,000 acre-feet of water annually from

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<sup>12</sup> Casitas Municipal Water District Resolution proclaiming Drought Conditions adopted July 9, 2014.

the groundwater managed by the GMA and are also required to comply with the Emergency Ordinance E mandated pumping reductions noted previously. Some agricultural users have been able to supplement with recycled water; however, the Ventura County Farm Bureau reports it is likely that farmers will comply with pumping restrictions by having few crop rotations, and if dry conditions persist the risk of agricultural fallowing grows and there is an increasing potential for growers to permanently leave the region.<sup>13</sup>

Depending on the outcome of groundwater safe yield study and if Casitas takes further action to reduce allocations, the City is considering a building moratorium; three other water districts that serve portions of Camarillo, Montecito and Altadena, and the City of Sierra Madre have already moratoriums in place—all Ventura County communities

*d. Subcriterion E.4: Other Water Supply Sustainability Benefits*

1. **Will the project make water available to address a specific concern? For example: Will the project address water supply shortages due to climate variability and/or heightened competition for finite water supplies (e.g. population growth or drought)?**  
The proposed project is located in an area where water supply shortages are a current concern as a result of a multi-year, statewide drought. Furthermore, the pumping of the groundwater basins are managed and there are always concerns over the potential for overdrafting and/or groundwater levels falling below sea level and creating a threat seawater intrusion.

With the City approving the new development plan in the Saticoy area, this has become a greater concern for other water purveyors and the United Water Conservation District. In addition, environmental pressures on the Ventura River may restrict water availability.

It is important for the City to evaluate and act on all potential improvements that will result in reducing water losses and allow the City to better manage this finite resource. The proposed project does both—reduces water losses thereby conserving water and better manages water using more effective meter technology. Upon completion of the installation of the production flow meters, the City will be able to identify system leaks and begin a leak detection and repair program to proactively address leaks before they cause pipe breaks and further reduce water waste.

2. **Will the project directly address a heightened competition for finite water supplies and over allocation?**  
Yes: By better managing the City's water distribution and improving well efficiencies, an estimated 516 acre-feet of water will be saved. Conserving water, reducing water losses, and better management of water is the simplest method to lessen competition for finite water supplies.

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<sup>13</sup> Watersheds Coalition of Ventura County personal communication with John Krist, Chief Executive Officer Ventura County Farm Bureau. May 2014.

3. Describe how the water source that is the focus of this project is impacted by climate variation.

The Ventura River watershed, the smallest of Ventura County's three major watersheds, covers an area of about 227 square miles (144,970 acres). All of this land drains into the Ventura River, either directly or through creeks and tributaries, each of which has its own smaller drainage area called a subwatershed. Major tributaries include Matilija Creek, North Fork Matilija Creek, San Antonio Creek, and Canada Larga. The Ventura River watershed, like the county's other major watersheds—Santa Clara River and Calleguas Creek—ultimately drains to the Pacific Ocean.

The Ventura River watershed is a remarkable watershed for several reasons. Unlike most watersheds in southern California, no imported water is used; residents rely 100 percent on local water supplies. Lake Casitas, fed by diverted Ventura River water and Coyote Creek, is the primary supplier of water from the watershed. The City of Ventura also diverts surface and subsurface water from the Ventura River in the Foster Park area. Groundwater, provided by individual wells or small water companies, is another important water source in the watershed, especially for farmers. Aquifers in the watershed tend to drain relatively quickly, but also recharge quickly with sufficient rain. However, with successive drought years, the aquifers are not recharging causing the groundwater manager to restrict pumping and increasing reliance upon surface water (Lake Casitas and Ventura River water) and imported water sources.

The dramatic increase in reliance on Lake Casitas for water as a result of the climate variation (drought) is causing the lake to be depleted more quickly as more communities turn to this water source as their primary water supply.

4. Will the project make additional water available for Native American tribes?

No Native American tribes are served by the City.

5. Will the project help to address an issue that could potentially result in an interruption to the water supply if unresolved?

While the proposed project is focused on long-term efficiency improvements, it is anticipated that the proposed water savings will be achieved beginning as soon as the project has been completed. Given the current drought conditions and developing water supply and water quality concerns with Lake Casitas, potential for seawater intrusion into the groundwater wells and prescriptive pumping curtailments, this project has the immediate potential to increase the City's water supplies by 516 AF without drilling new wells or additional withdrawal from Lake Casitas. This serves as a significant benefit for the City of Ventura and a greater benefit for the region by allowing the City to reduce its reliance on imported water sources, thereby allowing DWR and other water agencies access to more water supplies. Keeping more water in the Lake will help avoid water quality problems as well, and improving the efficiency of the wells will likely help the City to pump less water from the groundwater basins. All of the City's water sources are depleting and regulatory agencies implementing strict controls is having a significant impact on the City's water supplies. It is imperative that the City act to improve the water infrastructure to help avoid an interruption in water service. This project is anticipated to

reduce water use 10-20% and represents a significant benefit in the near term to address the drought impacts and into the future to improve water sustainability.

**6. Will the project generally make more water available in the water basin where the proposed work is located?**

Yes, the proposed project is estimated to conserve 516.61 AF annually, which would allow the City more flexibility in managing the groundwater basins and the Ventura River Watershed and will likely result in making more water available generally.

**7. Does the project promote and encourage collaboration among parties?**

Southern California Edison (SCE) is a collaborative partner. SCE has completed the energy efficiency analyses to help the City to identify which water facility will benefit from efficiency upgrades and will provide free, post-project energy efficiency analysis to calculate the actual energy efficiency benefits realized.

SCE also has an incentive program for customers who implement the efficiency upgrades proposed under its program. If awarded grant funds, the City will submit requests for cash incentives for completing the improvements to Saticoy Well #2 for the amount of \$8,290.61.

**8. Will the proposed WaterSMART Grant project help to expedite future on farm irrigation improvements, including future on farm improvements that may be eligible for Natural Resources Conservation Service (NRCS) funding?**

No on-farm irrigation improvements are proposed.

**9. Will the project increase awareness of water and/or energy conservation and efficiency efforts?**

The City of Ventura believes in promoting a "lead by example" philosophy. The proposed project is an example of the City making a short term investment that will yield a long-term benefit of greater efficiency and sustainability.

This project will help increase awareness of water and energy conservation and show the community the City is committed to better water management and achieving water conservation goals by investing in improving the water system's efficiency.

Once completed, the City will share the performance results in the community newsletter and on the City's website.

**10. Will the project serve as an example of water and/or energy conservation and efficiency within a community?**

Yes. Water and energy conservation efforts must be a holistic effort in order to be effective and sustaining. To call upon the community to reduce consumption, but make no efficiency improvements as a water provider would result in consumer apathy and result in little interest to conserve. The City must encourage conservation by being willing to be the first to conserve and better manage resources.

11. Will the project increase the capability of future water conservation or energy efficiency efforts?

Replacing the production flow meters system wide will increase the City's future water conservation potential by providing accurate flow data that can be used to better detect leaks within the water system and will lay the foundation for System Optimization Improvements Phase II, Automated Meter Infrastructure (AMI) citywide. The City is doing an assessment and making the necessary technology infrastructure and software improvements in preparation of this phase. However, in order to achieve all of the benefits associated with AMI, the production meters must provide accurate data in a consistent manner.

The proposed project has the potential to generate long-term savings for the next 15 to 20 years. Other water providers could also be made aware of the benefit from partnering with Southern California Edison's to complete an energy efficiency analysis to identify ways to improve their efficiency.

12. Does the project integrate water and energy components?

Yes, the proposed project seeks to improve the accuracy and efficiency of water distribution by using smart flow meters and replace the existing conventional pump and motor at the Saticoy Well with high efficient equipment to save water and reduce energy consumption.

## 1.9 Evaluation Criterion F: Implementation and Results

Subcriteria No. F.1. – Project Planning. Does the project have a Water Conservation Plan, System Optimization Review (SOR), and/or district or geographic area drought contingency plans in place? Is the project part of a comprehensive water management plan (e.g., the Yakima River Basin Integrated Water Resource Management Plan)? Please self-certify, or provide copies of these plans where appropriate, to verify that such a plan is in place. Provide the following information regarding project planning:

1. Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, or other planning efforts done to determine the priority of this project in relation to other potential projects.

The City of Ventura's 2010 Urban Water Management Plan (UWMP) provides the framework to help guide Ventura's water supply management and conservation actions for the future. Ventura is a member of the California Urban Water Conservation Council (CUWCC), and as a result has committed to implementing the CUWCC's Best Management Practices as outlined in the 2008 Memorandum of Understanding (MOU). As an urban water supplier Ventura Water is also required to meet the State of California's water conservation requirements as outlined in Senate Bill 7 of Special Extended Session 7 (SBx7-7), a bill targeting a 20 percent reduction in urban water use by year 2020. Ventura's 2010 UWMP demonstrates that the City has effectively already met its CUWCC and SBx7-7 targets, and therefore plans to focus its efforts on ensuring that demand does

not increase. The City plans to actively promote and expand its programs in order to keep its water use at the current levels.

The proposed scope of work is included under the City's 7-year Capital Improvement Plan as energy and water efficient projects.

2. Identify and describe any engineering or design work performed specifically in support of the proposed project.

To date, the City has requested a quote for the replacement infrastructure equipment costs. The cost estimate is based on this estimate and plus labor at prevailing wage rates.

Additional engineering and design will be required prior to making the proposed efficiency improvements to determine the most efficient sized motors and pumping equipment. The City staff has performed some initial hydrologic modeling and is planning to complete the engineering and design.

3. Describe how the project conforms to and meets the goals of any applicable State or regional water plans, and identify any aspect of the project that implements a feature of an existing water plan(s).

In addition to Ventura's UWMP, this proposed project supports regional water use efficiency goals included in the 2006 Ventura County Integrated Regional Water Management Plan (IRWMP). The first objective included in the IRWMP is to *reduce dependence on imported water and protect, conserve and augment water supplies*. The proposed project is projected to conserve 1,053.78 AF of water within the Ventura County IRWMP region.

*Subcriteria No. F.2. – Readiness to Proceed.*

Describe the implementation plan of the proposed project.

No new permits are required to implement the proposed project.

*Project Schedule Summary*

Task #	Description	Start Date	End Date
1	Project Management	Sept. 2015	Sept. 2017
1.1	Contract Procurement	Sept. 2015	Feb. 2016
1.2	Grant Administration	Sept. 2015	April 2017
2	Saticoy Well #2, Pump & Motor Replacement & Rehab	Feb. 2016	Jan. 2017
3	Production Meter replacement	Oct 2015	June 2017
4	Performance Monitoring	Jan. 2017	Sept. 2017

## Implementation Plan

### Task 1.1 Contract Procurement (Project Development, Bid Solicitation, and Onsite Inspection Services)

Perform water quality analysis for encrustation and bacterial fouling characterization;

- 1) Prepare well rehabilitation project plans and specification for City bid package;
- 2) Solicit bids from qualified well Contractors;
- 3) Conduct onsite inspection during performance of well rehabilitation work and document Contractor activities;
  
- 4) Summarize results of operations and well performance along with recommendations to City for new well pump design and assist City with RWQCB NPDES Permit reporting process.

### Task 2: Saticoy Well #2, Pump & Motor Replacement & Rehab

- 1) Well pump assembly removal and down hole video survey inspection;
- 2) Conduct brush and bailing operations to clean and remove the debris from inside of the well casing and screen;
- 3) Conduct a video of the well to verify structural integrity of the brushed well casing and screen materials subsequently exposed;
- 4) Treat the well with chemicals (acid mixture) in amounts and with procedures described in project specifications;
- 5) Conduct mechanical air-percussion type stimulation to breakup and dislodge encrustation in well screen openings and further surge chemicals outside the well;
- 6) Develop the well by mechanical surging with a dual-swab assembly and simultaneous airlift pumping after treating with chemicals;
- 7) Video the well to verify structural integrity and cleaning effectiveness on the well casing and screen;
- 8) Conduct disinfection of the well with a concentrated chlorine mixture;
- 9) Provide equipment for conditioning of well discharge for disposal as designated by the City;
- 10) Provide for conveyance of development water to a discharge point as approved by the City;

- 11) Provide and install test pump, column pipe, and shaft assemblies to depths specified and conduct pump and surge operations for hydraulic well development and subsequent well performance testing.

Based on the age of the low carbon steel pump column pipe, tubing, and shaft assembly, it is anticipated that the City will likely need to replace these materials, along with the installation of a new pump bowl assembly.

### Task 3: Production Meter Replacement

- 1) Purchase production meters
- 2) Remove and replace production meters using City maintenance workers
- 3) Connect the power leads
  - Prior to applying power, check voltage is correct, verify connections, check polarity, and check to see that the two hall effect switches on the front of the transmitter are in place.
- 4) All flowmeters are factory calibrated, therefore, field calibration is not required.
- 5) Test readings

### *Subcriteria No. F.3. – Performance Measures.*

The following performance measures will be implemented to quantify actual benefits upon completion of the project:

1. The City will review energy expenditures on a monthly basis and compare to previous expenditures.
2. After one (1) year in service, the City will request an energy efficiency and hydraulic analysis from Southern California Edison to re-evaluate the facilities to validate the improved performance. The tests will be conducted using the same methodology and the data presented as noted in Appendix C.
  - o The analysis will include site-specific information and verify water savings as well as energy savings.
3. Conduct a hydraulic test to verify the pumps are working as designed.

Upon replacing the production flow meter, the City will be able to accurately measure water production and determine water losses/leaks within the system, which the City is currently not able to detect. Furthermore, the new meters will be smart meters, allowing the City to gather data remotely. This is especially important for the two meters the City has in the Ventura River. These meters are inaccessible and unreadable unless the River level is low. Given the current drought conditions, replacement of these meters this year would be ideal due to the lower volume of water.



Estimated Energy conserved and value:

Facility	Annual kWh Savings	Rate of Efficiency Improvement	Annual Energy Cost Savings
Saticoy Well #2	76,671	17.5%	\$ 6,970.20
Production Flow Meters	296,582	14.6%	\$26,692.38
<b>Total</b>	<b>373,253</b>	<b>32.1%</b>	<b>\$33,662.58</b>

**Performance Measures – Endangered Species**

The proposed project will reduce the impact on the steelhead by improving water management and allow the City to utilize the Ventura River in a more environmentally sensitive manner. It is estimated that the proposed project will conserve approximately 227.44 AFY (excluding Saticoy Well savings); 50 percent of the City’s water supply comes from Ventura River Watershed sources, therefore the proposed project will improve water management of our River.

Reducing draws from the Ventura River will aid in the recovery of the steelhead by reducing the diversion of water from their habitat. Currently the City is not able to accurately monitor the amount of water diverted from the River; therefore, a more accurate accounting of water diverter will assist in the management of the River and the Salmonid recovery effort.

*Additional Points*

**Cost Share:** Ventura Water is proposing to provide a 60% cost share for the proposed project.

Non-Federal Funding = \$344,447.22  
 Total Project Cost = \$574,078.70

*Criterion G. Connection to Reclamation Project Activities.*

**1. How is the proposed project connected to Reclamation project activities?**

As described previously, about 30 percent of Ventura water supplies come from Casitas Reservoir. Casitas Reservoir is a part of Reclamation’s Ventura River Project. Water savings in the City of Ventura service area will result in reduced demand for Ventura River Project Water.

Additionally, with the State reducing SWP allocations for southern California contractors, United has been supplementing the water supplies provided by their agency with water

from the lower Colorado River via a connection to the Los Angeles Department of Water and Power. United supplies the City of Ventura with approximately

**2. Does the applicant receive Reclamation project water?**

Ventura receives 5,000 to 8,000 AFY of water from Lake Casitas formed under the Reclamation's Ventura River Project.

**3. Is the project on Reclamation project lands or involving Reclamation facilities?**

No, the proposed project will not be on Reclamation project lands or directly involve Reclamation facilities.

**4. Is the project in the same basin as a Reclamation project or activity?**

The proposed project is in the same basin as Reclamation's Ventura River Project.

**5. Will the proposed work contribute water to a basin where a Reclamation project is located?**

The proposed project will reduce demands for water in the Ventura River Basin. Some of the conservation savings will be realized as reduced demands on Ventura River Project water ultimately resulting in water savings within the Lake Casitas Reservoir.

## **Section 2: Environmental Compliance**

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1. Will the project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The proposed project involves replacement of an existing drinking water well (Saticoy Well#2) pump and motor to increase efficiency and to replace 26 facility water production meters. Under the National Environmental Policy Act "maintenance, rehabilitation, and replacement of existing facilities which may involve a minor change in size, location and/or operation", such as that which would occur under the proposed project, qualify for a Categorical Exclusion. Similarly, the project is exempt from the California Environmental Quality Act (CEQA). Under section 15301(b), Existing Facilities of the CEQA Guidelines "... minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination..." are exempt from CEQA. The types of "existing facilities" which fall under this Class 1 exemption as noted under subpart b, "Existing facilities both investor and publicly-owned utilities used to provide electric power, natural gas, sewerage, or other public utility services."

2. 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? If so, would they be affected by any activities associated with the proposed project?

The southern California Steelhead has critical habitat designated for the Ventura and Santa Clara River Watersheds. However, the proposed project is not likely to adversely affect the steelhead or any other species listed under the Federal Endangered Species Act. All of the proposed work will occur on existing water utility infrastructure. In fact, completing the proposed improvements may benefit these two watersheds and this endangered species by potentially reducing the City's water extractions.

3. Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "waters of the United States?" If so, please describe and estimate any impacts the project may have.

Yes, there are surface waters and wetlands located inside the project boundaries that potentially fall under CWA jurisdiction as "waters of the United States". The Ventura River, Ventura River Estuary and the Santa Clara River Estuary are within the project boundaries. The proposed activities will not impact any of these waters, as the improvements are limited to the retrofit of existing pumping and pipeline infrastructure to improve efficiency and does not include an expansion or destruction of infrastructure and will not result in an increased draw from or discharge to these waters.

4. **When was the water delivery system constructed?**

The Spanish Fathers for the Mission San Buenaventura developed the first water system for the City. It consisted of an aqueduct (that is now abandoned) to convey water from the Ventura River, near San Antonio Creek, to a reservoir located behind the Mission. During subsequent development around the Mission, additional groundwater was obtained from wells in the Ventura and Santa Clara River basins. Water facilities were developed and operated for the City by several individuals and companies over the period of 1869 to 1923. In 1923, the City acquired the water system, along with its water rights from the Ventura River, from the Southern California Edison Company and assumed the responsibility of providing water to City residents. In years following, the City developed additional sources of surface and groundwater, including wells and improvements to the surface water diversion from the Ventura River. Also, since 1960, the City has purchased surface water from Casitas Municipal Water District to supplement its water supplies. As development occurs on the east side of the City, additional groundwater facilities have been completed to meet increasing demands.

5. **Will the project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.**

No modifications are being made to an irrigation system.

6. **Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.**

No buildings, structures, or features associated with the proposed project are listed or eligible for listing on the National Register of Historic Places.

7. **Are there any known archeological sites in the proposed project area?**

There are no known archeological sites that would be affected by the proposed project. The proposed project will replace existing motors, pumps, and meters on infrastructure that has been in operation for 20 years or more and will not include any ground disturbing activities.

8. **Will the project have a disproportionately high and adverse effect on low income or minority populations?**

The proposed project will have no impact on low or minority populations. The proposed improvements are intended to improve system efficiencies and reduce water losses system wide.

The project could actually benefit all populations, with the greatest benefit to low/fixed income or minority populations, by improving water management and reducing losses,

which reduces the need for the City to seek more expensive imported water supplies and increase water rates.

9. Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

The proposed project will not limit access to or ceremonial use of Indian sacred sites or result in other impacts on tribal lands as the infrastructure to be improved are not located within such areas.

10. 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 replacement of well pumps and motors, and production meters will not contribute to the introduction, continued existence, or spread of, noxious weeds or non-native invasive species.

11. Required Permits and Approvals

No permits or approvals are anticipated for the proposed project; however, the City may need to consult with the California Department of Fish and Wildlife concerning the replacement of the production meters located at the Ventura River.

### **Section 3: Official Resolution**

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Ventura City Council approved a resolution on February 6, 2013 authorizing the general manager to submit a grant application to and execute a Cooperative Agreement with Reclamation for implementation of the proposed project. The resolution agrees to use the funds identified in this funding plan for the proposed project. The official resolution provided in Appendix A.

## Section 4: Project Budget

### 4.1 Funding Plan and Letters of Commitment

All non-Reclamation funds will be provided by the City of Ventura. These funds will consist of in-kind costs for project management and monetary contributions from water revenues and/or municipal bond sales, and Southern California Edison efficiency incentives.

No other federal or state funds have been requested or received to complete the proposed project to date.

The funds requested from Reclamation will allow the City of Ventura to implement Phase I of a system optimization effort to better manage the city's water. The proposed improvements will replace pumps, motors, and production meters that are inefficient by today's standards, and are likely misrepresenting water outputs (production meters) making it impossible to correctly assess leakages in the system. This project, if funded, will improve water efficiency and water management, reduce energy use and energy costs, and save an estimated 516.66 AFY.

**Cost Share:** Ventura Water is proposing to provide a 60% cost share for the proposed project.

Budget Table 1: Summary of non-Federal and Federal sources

Funding Sources	Funding Amount
Non-Federal Entities: Ventura Water (City of Ventura)	\$ 184,772.39
Ventura Water -In Kind Direct Labor	\$ 151,384.70
Southern California Edison	\$ 8,290.61
Non-Federal Entities Subtotal	\$ 344,447.70
Other Federal Entities:	0
Requested Reclamation Funding	\$ 229,631
Total Project Funding:	\$ 574,078.70

\*In-kind project management/grant administration costs.

### 4.2 Budget Proposal

Budget Table 1: Funding Sources

Funding Sources	Percent of Total Project Cost	Funding Amount
Recipient Funding	60%	\$344,447.70
Requested Reclamation Funding	40%	\$229,631
Other Federal Funding	0	0
Total Project Funding:	100%	\$ 574,078.70

**Budget Table 2: Budget Estimate**

Budget Item Description	COMPUTATION		Quantity Type (hours/days)	TOTAL COST
	\$/Unit	Quantity		
<b>Salaries And Wages</b>				
Water Utility Manager	53.65	80	hrs	\$ 4,292.00
Water Distribution Lead	28.03	334	hrs	\$ 9,362.02
Water Utility Worker	23.63	334	hrs	\$ 7,892.42
Purd Super	43.82	190	hrs	\$ 8,325.80
Managment Analyst II	28.90	80	hrs	\$ 2,312.00
Purd Lead	32.39	2420	hrs	\$ 78,383.80
<b>Fringe Benefits</b>				
Water Utility Manager	16.74	80	hrs	\$ 1,339.20
Water Distribution Lead	10.86	334	hrs	\$ 3,627.24
Water Utility Worker	10.03	334	hrs	\$ 3,350.02
Purd Super	15.22	190	hrs	\$ 2,891.80
Managment Analyst II	13.76	80	hrs	\$ 1,100.80
Purd Lead	11.78	2420	hrs	\$ 28,507.60
<b>Travel</b>				
Trip 1	0			\$ -
<b>Equipment</b>				
Item A	0			\$ -
<b>Supplies/Materials</b>				
Large Water Meter 6"	2788	5		\$ 13,940.00
LARGE METERS 8"	3216	6		\$ 19,296.00
Large Water Meter 10"	4100	2		\$ 8,200.00
LARGE METERS 12"	4544	5		\$ 22,720.00
Large Water Meters 14"	5496	1		\$ 5,496.00
LARGE METERS 16"	6040	3		\$ 18,120.00
Large Meter 18" phone est	7120	2		\$ 14,240.00
Large Meter 24" phone est	10400	1		\$ 10,400.00
Pipe Material and Wiring	1300	37		\$ 48,100.00
Bowl Assy & Motor for Saticoy #2	1	18,750		\$ 18,750
<b>Contractual/Construction</b>				
Prevailing Wage Pipe laborer	48.88	1400	hrs	\$ 68,432
Saticoy Well #2 Efficiency Improvements	1	172000		\$ 172,000.00
<b>Other</b>				
Reclamation Environmental Review	1	3000		\$ 3,000.00
<b>Total Direct Costs</b>				<b>\$ 574,078.70</b>



### **4.3 Budget Narrative**

The budget table is divided into the following categories and sub-categories described in detail in this section:

#### **Salaries and Wages**

##### **Project Manager**

Omar Castro, City of Ventura's Water Utility Manager.

Mr. Castro joined the City of Ventura June of 2012 and manages the Water Utility Division consisting of 3 Water Purification Facilities, 380 miles of Water distribution pipeline, 31,500 water service connections, and 11 Water Production Wells. Additionally Mr. Castro serves as a Subject Matter Expert for the California Department of Public Health Services for Operator Certification. Mr. Castro began his career in the water industry in 1993 working for Southern California Water Company as a Meter Reader. After moving up the ranks in water treatment and water quality Mr. Castro began his Managerial career path in 2004 as a Special District Operations and Maintenance Manager for the Carpinteria Valley Water District.

Mr. Castro will be responsible for the day-to-day project management.

##### **Authorized Representative**

Shana Epstein, General Manager

Prior to becoming Ventura Water's first General Manager in May 2010, Shana Epstein served for seven years as the Environmental Utilities Manager for the City of Beverly Hills where she lead a staff of more 70 employees and was responsible for overseeing water, wastewater, solid waste and stormwater services. Previously, she worked in the public utilities department for the City of Anaheim. Epstein holds a Master's Degree in Public Administration from George Washington University and a Bachelor's degree in Political Science from the University of California, San Diego.

Ms. Epstein or her designee, will serve as the authorized representative for the project.

##### Grant Administration/Reporting:

Management Analyst II, \$38.74/hour, plus fringe

The amount for the grant reporting and general grant administration was based on completing four (4) quarterly progress reports, at least quarterly requests for funding, the preparation of a final report and potential interim communications regarding the grant both internally and with Reclamation. The assumption is the quarterly progress reports will take between 5 to 8 hours to complete and a final report will take an additional 10 to 15 hours to complete, and the financial requests and project accounting will take approximately 8 hours per quarter.

##### Production Meter Replacement and Saticoy Well #2

Water Production Lead Workers, \$32.39/hour, plus fringe

Water Production Supervisor, \$41.72/hour, plus fringe

## **Fringe Benefits**

City of Ventura staff hourly unit rates described in the budget includes the base rate, plus fringe benefits. The fringe benefits include holiday, sick pay, vacation, medical, dental, vision, and CalPers and are determined based on job classification. The fringe benefits range from 31% to nearly 47% of the employees base rate.

## **Travel**

Not included in this program budget.

## **Equipment**

No Equipment costs.

## **Materials and Supplies**

Sparling TigerMagEP Model 656 Magnetic Flow meters will be purchased to replace the existing production meters. A cost estimate for these meters and the specification sheet is provided under Appendix B.

The cost of the production meters targeted for replacement is \$147,000.00. The \$22,000.00 represents the total sum of the added items on the Patten Systems Inc. bid list. The bid list items identify cost for each unit. Meter replacement and recalibration was identified as a priority to increase efficiency and to reduce water loss. The City is proposing to replace a total of 26 meters ranging in size from 6" to 24".

Miscellaneous pipe will be needed for the well pump.

### Bowl assy. & Motor for Saticoy #2

1 LS Supply bowl assembly 7 stage American Turbine 12-M-70 Customer specified design of 625 gpm @ 524' TDH=\$7,778.60

1 LS 100 HP US Electric Motor, Vertical Hollow Shaft, Non-reverse ratchet. Premium Efficient, 3Ph/60Hz/460V  
=\$9,287.70

## **Contractual**

The City of Ventura contracts with local contractors and vendors to provide skilled, semi-skilled and non-skilled labor to assist in day to day operations, projects, and emergencies. The place holder of \$48.88 represents current state prevailing wage rates. The tasks provided will be that of lifting material, delivering material, and assisting in the trenching and installation of the production meters. The production meter replacement project will solicit competitive bids for outside labor/services.

The City will solicit competitive bids to complete the Saticoy Well #2 improvements.

## **Environmental and Regulatory Compliance Costs**

Costs under this category are limited to costs incurred by Reclamation to determine the level of environmental compliance required for the project.

It is anticipated that the proposed scope of work qualifies for a categorical exemption.

**Reporting**

Reporting will be handled in house by City of Ventura Management Analyst II staff person.

**Other**

No other costs are expected or included in the proposed budget.

**Indirect Costs**

No indirect costs are included in the budget.

**Contingency Costs**

None have been included.

**Total Costs**

Funding Sources	Funding Amount
Non-Federal Entities: Ventura Water (City of Ventura)	\$ 184,772.39
Ventura Water -In Kind Direct Labor	\$ 151,384.70
Southern California Edison	\$ 8,290.61
Non-Federal Entities Subtotal	\$ 344,447.70
Other Federal Entities:	0
Requested Reclamation Funding	\$ 229,631
Total Project Funding:	\$ 574,078.70

## **Section 5: References**

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City of Ventura, Ventura Water. June 2011. *2010 Urban Water Management Plan*.  
<http://www.cityofventura.net/files/file/Final%20UWMP%208-23-11.pdf>

City of San Buenaventura, March 2011. Water Master Plan.

Watersheds Coalition of Ventura County. 2006. *Integrated Regional Water Management Plan*.  
[http://portal.countyofventura.org/portal/page/portal/ceo/divisions/ira/WC/Library/IRWMP\\_Document](http://portal.countyofventura.org/portal/page/portal/ceo/divisions/ira/WC/Library/IRWMP_Document)

Energy Efficiency Analysis, Southern California Edison, September 2012.

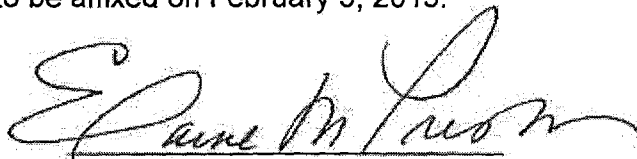
Southern California Steelhead Recovery Plan Summary, NOAA's National Marine Fisheries Services Southwest Regional Office. , accessed 1/18/14  
[http://www.westcoast.fisheries.noaa.gov/publications/recovery\\_planning/salmon\\_steelhead/domains/south\\_central\\_southern\\_california/southern\\_california\\_steelhead\\_recovery\\_plan\\_executive\\_summary\\_012712.pdf](http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/south_central_southern_california/southern_california_steelhead_recovery_plan_executive_summary_012712.pdf)

APPENDIX A

Resolution to Execute Cooperative Agreement with the United States Bureau of Reclamation.

STATE OF CALIFORNIA )  
 )  
COUNTY OF VENTURA ) ss.  
 )  
CITY OF SAN BUENAVENTURA )

I, Elaine M. Preston, Deputy City Clerk of the City of San Buenaventura, do hereby certify that the attached is a true and correct copy of Resolution No. 2013-002, Authorizing the Ventura Water General Manager to apply for, receive, and appropriate grant funds from the Bureau of Reclamation WaterSMART Water and Energy Efficiency Grants. IN WITNESS WHEREOF, I have hereunto set my hand and caused the official seal of said City to be affixed on February 5, 2013.

  
Elaine M. Preston, CMC  
Deputy City Clerk



**RESOLUTION NO. 2013- 002**

**A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN BUENAVENTURA AUTHORIZING THE VENTURA WATER GENERAL MANAGER TO APPLY FOR, RECEIVE, AND APPROPRIATE GRANT FUNDS FROM THE BUREAU OF RECLAMATION WATERSMART WATER AND ENERGY EFFICIENCY GRANTS**

**BE IT RESOLVED**, by the Council of the City of San Buenaventura as follows:

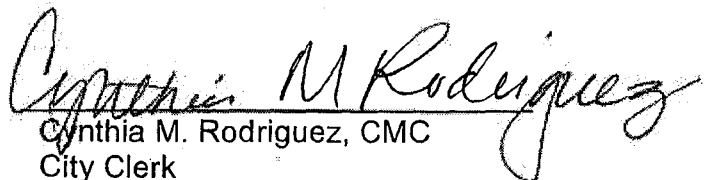
**SECTION 1:** The General Manager of Ventura Water, or his/her designee, is hereby authorized and directed to sign and file, for and on behalf of the City, a WaterSMART Water and Energy Grant Application for Funding Group 1, for a grant from the United States Bureau of Reclamation in the amount not to exceed \$300,000 for well pump and motor and production meter replacement.

**SECTION 2:** The Ventura Water General Manager, or his/her designee, is hereby authorized to acknowledge and approve of the application and the information submitted for consideration, and is further authorized to certify that the City of San Buenaventura has and will provide the amount of funding and/or in-kind contributions specified in the funding plan.

**SECTION 3:** The Ventura Water General Manager, or his/her designee, on behalf of the City of San Buenaventura is hereby authorized to negotiate and execute a grant contract and any amendments or change orders thereto and further agrees to work with the U.S. Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

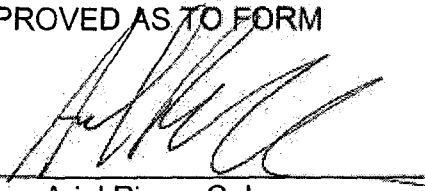
**SECTION 4:** This Resolution will take effect immediately upon adoption.

PASSED AND ADOPTED this 4th day of February, 2013.

  
Cynthia M. Rodriguez, CMC  
City Clerk

APPROVED AS TO FORM

By:

  
Ariel Pierre Calonne  
City Attorney

STATE OF CALIFORNIA            )  
COUNTY OF VENTURA         ) ss  
CITY OF SAN BUENAVENTURA    )


I, Elaine M. Preston, Deputy City Clerk of the City of San Buenaventura, California, certify that the foregoing Resolution was passed and adopted by the City Council of the City of San Buenaventura at a regular meeting on February 4, 2013, by the following vote:

AYES:        Councilmembers Brennan, Weir, Morehouse, Andrews,  
              Monahan, Deputy Mayor Heitmann, and Mayor Tracy.

NOES:        None.

ABSENT:     None.

IN WITNESS WHEREOF, I have set my hand and affixed the seal of the City of San Buenaventura on February 5, 2013.

  
Deputy City Clerk





## APPENDIX B

Sparling TigermagEP FM656 Flowmeter Data Sheet,  
Equipment Estimate, and  
Made in America Certification

# PATTEN SYSTEMS, INC

15598 Producer Lane  
Huntington Beach, CA 92649  
Tel: (714)-799-5656 Fax: (714)-799-5353

October 22, 2012

City of Ventura  
Attn : Bob Peterson  
336 SanJon St.  
Ventura, CA 93002

Ph: 805-652-4537  
[bpeterson@venturawater.net](mailto:bpeterson@venturawater.net)

## Quote #Q1210-051

As the Representative for **Sparling Instruments**, we are pleased to offer our quotation for the following:

### Item 1

Qty 1 Sparling Magnetic Flow Meter, Tigermag Series FM656  
**Size:** 6"  
**Style:** Flanged, 150 #  
**Liner:** Polyurethane  
**Electrodes:** 316SS  
**Transmitter/ Enclosure:** Integral Mount NEMA 4X/NEMA 7 Enclosure  
**Power:** 120 VAC  
**Grounding Rings:** SS (AC615-06-1)  
**Calibrated Full Scale Flow:** *Please Provide with Order*  
**Process Media:** *Water*  
**Part No. FM656-065-110-0/ AC615-06-1**  
**Unit Price \$2,788.00** **Total Price: \$2,788.00**

### Item 2

Qty 1 Sparling Magnetic Flow Meter, Tigermag Series FM656  
**Size:** 8"  
**Style:** Flanged, 150 #  
**Liner:** Polyurethane  
**Electrodes:** 316SS  
**Transmitter/ Enclosure:** Integral Mount NEMA 4X/NEMA 7 Enclosure  
**Power:** 120 VAC  
**Grounding Rings:** SS (AC615-08-1)  
**Calibrated Full Scale Flow:** *Please Provide with Order*  
**Process Media:** *Water*  
**Part No. FM656-085-110-0/ AC615-08-1**  
**Unit Price \$3,216.00** **Total Price: \$3,216.00**

### Item 3

Qty 1 Sparling Magnetic Flow Meter, Tigermag Series FM656  
**Size:** 12"  
**Style:** Flanged, 150 #  
**Liner:** Polyurethane  
**Electrodes:** 316SS  
**Transmitter/ Enclosure:** Integral Mount NEMA 4X/NEMA 7 Enclosure  
**Power:** 120 VAC

# FLOW RATES & DIMENSIONS

**Table 1 - Flow & Dimensions**

Meter & mating flange size (inches)	Dimensions								Flowrates - GPM - Full Scale		
	A		B		C		D		1 fps.	3 fps.	33 fps.
	150 lb.	300 lb.	150 lb.	300 lb.	150 lb.	300 lb.	150 lb.	300 lb.			
0.5	4.00	4.00	3.50	3.75	9.50	9.62	9.25	9.37	0.6	1.7	18
1	4.00	4.00	4.25	4.88	10.19	10.50	9.94	10.25	2	6	66
1.5	4.00	4.00	5.00	5.12	10.88	11.44	10.63	11.19	5	15	174
2	4.00	4.00	6.00	6.50	11.69	11.89	11.44	11.64	9	27	303
3	6.00	6.00	7.50	8.25	13.00	13.40	12.75	13.15	20	60	664
4	6.00	6.00	9.00	10.00	14.38	14.88	14.13	14.63	35	107	1182
6	13.38	14.88	11.00	12.50	17.00	17.75	16.75	17.50	85	254	2800
8	13.38	15.40	13.50	14.25	19.40	19.78	19.15	19.53	145	436	4800
10	18.15	20.55	16.00	17.50	22.56	23.31	22.31	23.06	236	709	7800
12	19.40	21.78	19.00	20.50	25.00	25.75	24.75	25.50	333	1000	11000
14	21.38	23.75	21.00	23.00	26.67	27.67	26.42	27.42	409	1227	13500
16	23.38	25.88	23.50	25.50	28.97	29.97	28.72	29.72	545	1636	18000
18	27.25	29.88	25.00	28.00	31.14	32.64	30.89	32.39	667	2000	22000
20	27.63	30.40	27.50	30.50	33.39	34.89	33.14	34.64	879	2636	29000
24	32.75	35.75	32.00	36.00	37.44	39.44	37.19	39.19	1273	3818	42000
30	43.50	46.63	38.75	43.00	43.72	45.85	43.47	45.60	1909	5727	63000
36	47.75	50.85	46.00	50.00	50.20	52.20	49.95	51.95	2925	8775	96525
42	51.75	55.12	53.00	57.00	56.90	58.90	56.65	58.65	4040	12120	133320
48	51.75	55.38	59.50	65.00	63.05	65.80	62.80	65.55	5322	15966	175626
54	53.50	*	66.25	*	69.88	*	69.63	*	7144	21433	235800
60	65.50	*	73.00	*	76.75	*	76.50	*	8500	25500	280500
66	65.50	*	80.00	*	83.75	*	83.50	*	10300	31000	341000
72	72.75	*	86.50	*	90.00	*	89.75	*	12700	38100	419100

Dimensions for flanges. Allow 1/8" to 1/4" for lining thickness / Dimensions C & D ± .0125"

## HOW TO ORDER A TIGERMAG EP MODEL 656

Base Model Number  
FM-656 - TigermagEP

### Size

OD = 0.50", OF = 1", OG = 1.5", O2 = 2", O3 = 3", O4 = 4", O6 = 6", O8 = 8", etc.

### Table 3 - Liner Material

1 Hard Rubber (6"-72")	3 Tefzel® (0.5"-48")	6 Ceramic liner (0.5"-2")
2 Soft Rubber (6"-72")	5 Polyurethane (1"-48")	9 Neoprene (6"-72")

### Table 4 - Electrode Material

1 316SS	4 Titanium	7 Platinum
2 Hastelloy C	5 Tantalum	8 Zirconium
3 316SS Bullet Nosed	6 Fused Platinum	9 Monel

### Table 5 - Flange Rating

1 150 lb. flanges	4 PN 10 DIN	6 JIS 10K
3 300 lb. flanges	5 PN 16 DIN	7 JIS 20K

### Table 6 - Transmitter and Mounting

0 Integral NEMA-4X/NEMA-7 enclosure
1 Remote NEMA-4X/NEMA-7 enclosure, 15' cable
3 Remote NEMA-4X/NEMA-7 enclosure, 15' cable, accidental submergence proof sensor
5 Remote NEMA-4X enclosure, 15' cable
6 Remote NEMA-4X encl., 15' cable, accidental submergence proof sensor
7 Remote NEMA-4X encl., 15' cable, permanent submergence proof sensor

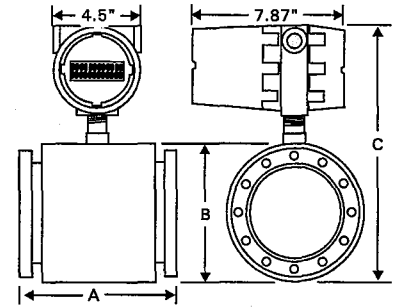
### Table 7 - Power Supply\*

0 77-265 VAC Power	1 12-60 VDC Power
--------------------	-------------------

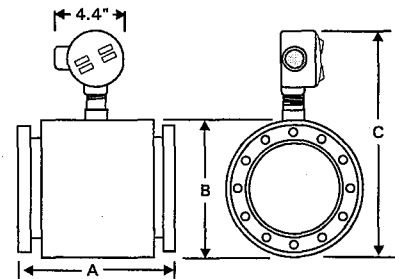
### Special Notes for Construction

- \_\_\_ Hart® protocol (KP602 programmer available)
- \_\_\_ RS-485 Communications port
- \_\_\_ High temperature coils - required for temperatures over 266 °F
- \_\_\_ Requires remote mount option from Table 6
- \_\_\_ Ceramic max temp 420 °F / Tefzel® max temp 300 °F @ 100 psi
- \_\_\_ Hot Tap removable electrode design (6" & above only)
- \_\_\_ Removable electrode design (6" - 72")
- \_\_\_ Special cable length (over 15 feet - Max. 100 ft.)
- \_\_\_ Alarm with relay contacts (remote only)

## Integral Mount Transmitter

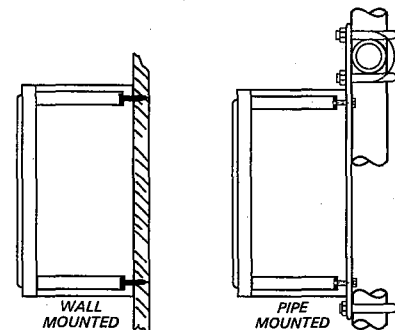
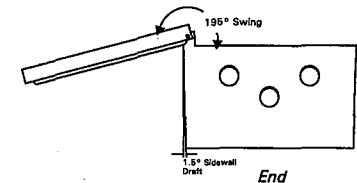
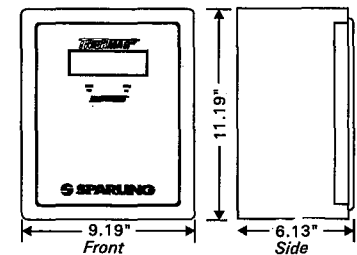


## Remote Mount Transmitter



▲ Sensor

▼ Transmitter Enclosure (NEMA-4X)



## STANDARD SPECIFICATIONS

Accuracy:	1.0"-72"
(Frequency Output)	0.5% of flow rate (1-33 fps)
	0.5"
	1% of flow rate (1-33 fps)
Temperature Effect:	±0.025 % FS/°C
Full Scale Ranges:	From 0-3 to 0-33 ft/sec.
Repeatability:	±0.1% full scale
Electrodes:	Stainless steel standard (others available)
Liner:	Ceramic (aluminum oxide 99.5%), Hard Rubber, Soft Rubber, Neoprene, Polyurethane or Tefzel®
Outputs:	1) Isolated analog 4-20 mA dc into 800 ohms (std); 2) scaled pulse 24 Vdc with selectable 12.5/25/50/100 ms on time, max. freq. 60 Hz; 3) 0-1000 Hz freq., for 0-100% flow rate. 15 Vdc; 4) two flow alarms; 5) fault, with open collector; 6) RS232 communication; 7) flow direction with open collector; 8) Positive Zero Return (PZR) for external relay contacts. Outputs 2 & 3 can be open collector if required.
Mag-Command™:	Selection and change of meter parameters by magnetic probe without opening the enclosure.
Display:	2-Line, 16 Digit alphanumeric backlit display (rate and total) Modular, rotatable 360° in 90° increments.
Conductivity:	Minimum 5 micromhos/cm
Minimum Velocity:	0.3 fps (0.1 mps)
Power Requirements:	*77 - 265 Vac 50/60 Hz (12-60 Vdc optional)
Power Consumption:	Less than 20 Watts
Enclosures:	Transmitter: Cast aluminum epoxy coated. Integral (NEMA-7) or remote mounted (NEMA-4X). Sensor Housing: Fabricated steel, epoxy coated.
Electrical Rating:	FM - Class I, Div. 1, Groups B, C, D; Class II, Div. 1, Groups E, F, G (150 psi integral mount), CSA Approved for Class 1, Division 2
Preamp Impedance:	10 <sup>12</sup> ohms minimum.
Ambient Temp:	-20° to 140°F (-30° to 60°C) Display darkens over 158°F (70°C)
End Connections:	150 lb. or 300 lb.
Sensor Tube:	304 Stainless Steel
Process Temp:	<b>Integral Mount:</b> Hard rubber, Soft rubber, Neoprene, Polyurethane/Food Grade Polyurethane ..... -40 - 180°F Tefzel®, Ceramic ..... -40 - 212°F <b>Remote Mount (opt)</b> Tefzel® (to 300 psi), Ceramic ..... -40 - 266 °F <b>High Temp Coils (opt)</b> Tefzel® (to 100 psi) ..... -40 - 300 °F Ceramic ..... -40 - 420 °F
Selectable Damping:	0-99 sec.
Low Flow Cutoff:	Selectable 0-9% of FS.
Options:	<ul style="list-style-type: none"><li>• Remote Mounted NEMA -4X Enclosure</li><li>• Remote Two-Stage Batching Transmitter</li><li>• Electrode Materials: Titanium, Hastelloy C, Monel, Zirconium, Tantalum, Platinum, Fused Platinum (ceramic only)</li><li>• Process Temperature to 420 °F (216 °C) (ceramic only)</li><li>• 12-60 Vdc operation</li><li>• Digital Communications (HART Protocol)</li><li>• Accidental/Permanent Submergence Proof Sensor (remote mount only)</li><li>• Removable Electrodes (6"-72" only)</li><li>• Hot-Tap Removable Electrodes (6" - 72" only)</li><li>• RS-485 Communication</li><li>• Alarm with relay contacts (remote mount only)</li></ul>

## MODEL FM-656 SPECIFICATIONS

- 1.0 The magnetic flowmeter shall be microprocessor-based, and flanged. It shall indicate, totalize, and transmit flow in full pipes.
- 1.1 The magnetic flowmeter shall utilize DC bipolar pulsed coil excitation, operating at frequencies up to 100 Hz and automatically re-zeroing after every cycle.
- 1.2 The accuracy shall be at least 0.5% of flow rate over a 33:1 turndown at all flow rates above 1 fps. Accuracy shall be verified by calibration in a flow laboratory traceable to the U.S. National Institute of Standards and Technology.
- 1.3 The flow sensor liner shall be Ceramic, Hard Rubber, Soft Rubber, Neoprene, Polyurethane or Tefzel®. The housing shall be steel.
- 1.4 The integrally-mounted flow sensor and transmitter shall be FM approved for Class I, Division 1 & 2, Groups B, C, D and Class II, Division 1, Groups E, F, G environments without use of air purge. CSA Approved for Class 1, Division 2.
- 1.5 The electronics shall be integrally or remote mounted.
- 1.6 When remote mounted, the flowmeter transmitter shall be furnished in a NEMA-4X enclosure box, with a larger 3/8" character, 2-line 16 digit backlit display and 15 feet of cable (standard). Batch controller option available.
- 1.7 The flowmeter shall be suitable for operation at temperatures from -40°F to 266°F and at pressures from full vacuum to 740 psi. Temperatures to 420°F (optional).
- 1.8 The flowmeter electrodes on ceramic liners shall be fused platinum and shall not require O-rings.
- 1.9 The meter shall incorporate HI-Z circuitry. The preamplifier input impedance shall not be less than 10<sup>12</sup> ohms. External ultrasonic electrode cleaners shall not be acceptable.
- 2.0 Available outputs shall be 1) Isolated analog 4-20 mA dc into 800 ohms (standard); 2) scaled pulse 24 Vdc with selectable 12.5/25/50/100 ms on time, max. freq. 60 Hz.; 3) 0-1000 Hz freq., for 0-100% flow rate. 15 Vdc; 4) two flow alarms; 5) fault, with open collector; 6) RS232 communication; 7) flow direction with open collector; 8) Positive Zero Return (PZR) for external relay contacts. Outputs 2 & 3 can be open collector if required.
- 2.1 Low flow cutoff shall be selectable from 0-9% of FS and there shall be two flow alarms settable from 0-99% of span.
- 2.2 A 2-line, 16 character backlit alphanumeric display shall indicate user-defined flow units and total flow. All menu advice and commands shall be visible on this display. The display shall be modular and rotatable 360°, in 90° increments. Characters shall be at least 0.125" high for ease of readability.
- 2.3 The flowmeter shall incorporate the MAG-COMMAND feature allowing menu selection and changes to be made from outside the housing via Hall-effect sensors. It shall not be necessary to remove covers, panels or fasteners to accomplish calibration or program changes.
- 2.4 The TigermagEP's unique diagnostic functions eliminate the need for a technician to carry test equipment or open the housing. Current ramp, complete coil check and true front-end input simulator may be activated in MAG-COMMAND without opening the enclosure.
- 2.5 The meter software shall incorporate a password feature preventing inadvertent program changes.
- 2.6 The meter shall feature nonvolatile E<sup>2</sup>PROM memory and universal electronics module compatibility between all TigermagEP meters.
- 2.7 The flowmeter shall have a switching power supply having an operating range from 77 - 265 Vac 50/60 Hz (12-60 Vdc). Power consumption shall not exceed 20 Watts.
- 2.8 All printed circuit boards shall be contained in a plug-in module and be interchangeable for any size without requiring test equipment.
- 2.9 The flowmeter manufacturer shall have meters of the DC pulse type in similar flowing mediums for a minimum of five years.
- 3.0 The flowmeter shall be warranted against defective workmanship or materials for a period of two years from date of shipment.
- 4.0 Totalized flow and programmed configuration shall be maintained in memory for the meters lifetime.
- 5.0 The flowmeter shall be MODEL 656 TigermagEP™ as manufactured by Sparling Instruments, Inc.



4097N. Temple City Blvd. • P.O. Box 5988 • El Monte, CA USA 91731  
Ph (626) 444-0571 • Fx (626) 452-0723  
Internet: <http://www.sparlinginstruments.com> • E-mail: [sales@sparlinginstruments.com](mailto:sales@sparlinginstruments.com)



**Grounding Rings:** SS (AC615-12-1)  
**Calibrated Full Scale Flow:** *Please Provide with Order*  
**Process Media:** *Water*  
**Part No. FM656-125-110-0/ AC615-12-1**  
**Unit Price \$4,544.00** **Total Price: \$4,544.00**

**Item 4**  
Qty 1 Sparling Magnetic Flow Meter, Tigermag Series FM656  
**Size:** 14"  
**Style:** Flanged, 150 #  
**Liner:** Polyurethane  
**Electrodes:** 316SS  
**Transmitter/ Enclosure:** Integral Mount NEMA 4X/NEMA 7 Enclosure  
**Power:** 120 VAC  
**Grounding Rings:** SS (AC615-14-1)  
**Calibrated Full Scale Flow:** *Please Provide with Order*  
**Process Media:** *Water*  
**Part No. FM656-145-110-0/ AC615-14-1**  
**Unit Price \$5,496.00** **Total Price: \$5,496.00**

**Item 5**  
Qty 1 Sparling Magnetic Flow Meter, Tigermag Series FM656  
**Size:** 16"  
**Style:** Flanged, 150 #  
**Liner:** Polyurethane  
**Electrodes:** 316SS  
**Transmitter/ Enclosure:** Integral Mount NEMA 4X/NEMA 7 Enclosure  
**Power:** 120 VAC  
**Grounding Rings:** SS (AC615-16-1)  
**Calibrated Full Scale Flow:** *Please Provide with Order*  
**Process Media:** *Water*  
**Part No. FM656-165-110-0/ AC615-16-1**  
**Unit Price \$6,040.00** **Total Price: \$6,040.00**

Prices listed do not include any applicable taxes, set-up, training or freight charges.

**PLEASE ISSUE ORDER TO:**

**Sparling Instruments**  
**c/o Patten Systems, Inc.**  
15598 Producer Lane  
Huntington Beach, CA 92649

Materials purchased will be shipped and invoiced directly by Sparling Instruments.

Shipment can be made in approximately **6-8** weeks from receipt of order. Terms of payment are Net 30 days from invoice date, **F.O.B. El Monte, CA**. Prices quoted are firm for 60 days from this date.

We thank you for this opportunity to offer our quotation and we look forward to working with you. If we can be of any further service or assistance, please contact us.

Regards,

John Raia



May 12<sup>th</sup>, 2009

Sparling Instruments Customers and Manufacturer's Representatives:

Earlier this year, the Federal Government passed the 'American Recovery and Reinvestment Act of 2009' (ARRA), more commonly known as the 'Stimulus package.' The total funds to be spent under this Act are approximately \$800 billion of which around \$20 billion or so will be invested in water related projects.

Many of these projects include flow meters. Thus, in the last few weeks, we have had an increasing number of conversations about the requirements related to these funds. Specifically, we have been asked by several of our customers if Sparling's products comply with the 'Made in America' provisions of the Act and the related regulations.

After review of the Act and regulations, we are pleased to verify that the majority of Sparling's product lines comply with the Act and regulations. In particular, the following lines comply:

- 1) All Sparling magnetic flow meters and accessories, including TigermagEPT<sup>TM</sup> and Economag<sup>TM</sup>.
- 2) All Sparling propeller flow meters and accessories, including MainLine<sup>TM</sup>, Masterflow<sup>TM</sup>, VertiFlow<sup>TM</sup>, Open Channel, Low Pressure Line and Fire Hydrant meters.
- 3) All Sparling circular chart recorders (Model 770)
- 4) All Sparling indicators and totalizers (series 710), MiniBatchers (series 720) and flow computers (series 730)

At this time, Sparling's vortex meters and positive displacement meters do not comply with the requirements of the Stimulus package.

Please contact me if you have any questions regarding this.

Best regards,

A handwritten signature in black ink, appearing to read 'Yosufi M. Tyebkhan', with a long horizontal stroke extending to the right.

Yosufi M. Tyebkhan  
President, Sparling Instruments, LLC

## APPENDIX C

### Southern California Energy Efficiency Analysis Reports

**Confidential/Proprietary Information**

October 22, 2012

ERIC DETTLOFF  
VENTURA WATER  
P.O. BOX 99  
VENTURA, CA 93003

**PUMPING COST ANALYSIS,** Plant: GOLF CRS BST#2  
Location: 3750 OLIVAS PARK DR HP: 250.0  
Cust #: 0-002-0152 Serv. Acct. #: 001-3884-52  
Meter: V349N-9206 Pump Ref. #: 2223

The following energy efficiency analysis is presented as an aid to your cost accounting. This is an estimate based on the conditions present during the Edison pump test performed on September 17, 2012, billing history for the past 12 months, and your current rate of TOU-8-B.

Assuming that water requirements will be the same as for the past year, and all operating conditions (annual hours of operation, head above, and water pumping level) will remain the same as they were at the time of the pump test, it is estimated that:

1. Overall plant efficiency can be improved from 61.8% to 72.0%.
2. This can save you up to 108,548 kWh and \$12,335.43 annually.
3. These kWh savings translate to a 47-ton decrease in CO<sub>2</sub> emissions.

	<u>Existing</u>	<u>Plant Efficiency Improved</u>	<u>Savings</u>
Total kWh	766,620	658,072	108,548
kW Input	99.0	85.0	14.0
kWh per Acre Foot	476	409	67
Acre Feet per Year	1,609.8		
Average Cost per kWh	\$0.11		
Average Cost per Acre Foot	\$54.12	\$46.46	\$7.66
Overall Plant Efficiency (%)	61.8	72.0	
<hr/> Total Annual Cost	<hr/> \$87,118.70	<hr/> \$74,783.27	<hr/> \$12,335.43

It is sincerely hoped that this information will prove helpful to you, and that your concerns over maintaining optimum pumping efficiency will be continued. If you have any questions regarding this report, please contact STEVE VILLEGAS at (805)654-7121.

RUSS JOHNSON  
Manager  
Hydraulic Services



**Save Energy,  
Save Money. . .  
Your test results show that you can!**

October 22, 2012

ERIC DETTLOFF  
VENTURA WATER  
P.O. BOX 99  
VENTURA, CA 93003

**PUMPING COST ANALYSIS**, Plant: GOLF CRS BST#2  
Location: 3750 OLIVAS PARK DR HP: 250.0  
Cust #: 0-002-0152 Serv. Acct. #: 001-3884-52  
Meter: V349N-9206 Pump Ref. #: 2223

Dear SCE Customer:

Helping California businesses save energy and money is a major goal at SCE. As you know, our Technical Specialist performed a free energy efficiency test on one or more pumps at your facility on September 17, 2012. We thank you for the opportunity to provide this service, and appreciate your interest in the performance of your pumps.

The results of the testing, shown in the table below, indicate that the pump listed above has the potential for improved Overall Plant Efficiency (OPE), lower energy costs, and a cash incentive.

	Projected Incentive, Energy, and Cost Savings			
	<u>Existing</u>	<u>Improved</u>	<u>Savings</u>	<u>Cash Incentive</u>
Total kWh	766,620	658,072	108,548	\$9,769.35
kW Input	99.0	85.0	14.0	
kW on-peak activity factor *			9.1	\$911.15
Acre Feet per Year	1,609.8			
kWh per Acre Foot	476	409	67	
Average Cost per Acre Foot	\$54.12	\$46.46	\$7.66	
Overall Plant Efficiency (%)	61.8	72.0		
<hr/> Annual Total	<hr/> <b>\$87,118.70</b>	<hr/> <b>\$74,783.27</b>	<hr/> <b>\$12,335.43</b>	<hr/> <b>\$10,680.50</b>

(\*The kW on-peak activity factor represents how the kW impacts the SCE system during on-peak periods as determined by SCE's agricultural and water pumping customers' average load profiles. By improving efficiency, your expected kW savings is 14.0 kW, and the savings used for incentive calculations is 65% of 14.0, or 9.1 kW.)

Case studies have shown that repairing, retrofitting, or replacing inefficient pumps can save energy and money, and may even help you avoid serious operational problems. For your business, this could mean the following:

- **Improved Plant Efficiency:** Your OPE can be improved from 61.8% to 72.0%.
- **Lower Energy Costs:** Based on the test data, your past energy usage, and your current rate of TOU-8-B, we estimate that you may save up to 108,548 kWh annually (which translates to a 47-ton decrease in CO<sub>2</sub> emissions). This may result in **energy cost savings of \$12,335.43.**
- **Cash Incentive:** Through the retrofit and installation of more energy-efficient equipment, you have the potential to receive an incentive of \$0.09 per kWh and \$100 per on-peak activity factored kW reduced, courtesy of SCE's Customized Efficiency Program. Based on your estimated kWh and kW, you would be eligible for a **Potential Cash Incentive of \$10,680.50**, capped at 50% of your project cost. (See contract for details.)

If you are interested in an incentive for this pump, please contact **Chris Coronel** at (661)607-0543 to complete a project application. All applicants must receive a **written approval authorization before** implementing any project; failure to comply will result in forfeiture of incentive funding.

We encourage you to review your results and take advantage of SCE's energy efficiency expertise and incentives. Visit [www.sce.com/rebatesandsavings](http://www.sce.com/rebatesandsavings), or give us a call and let us know how we can be of further service to you.

Sincerely,

Southern California Edison



**Confidential/Proprietary Information**

September 28, 2012

ERIC DETTLOFF  
CITY OF VENTURA WATER  
P.O. BOX 99  
VENTURA, CA 93001

**HYDRAULIC TEST RESULTS, Plant:** SAT CC WELL #2  
Location: 0 NXT TO 4234 CLUBHSE HP: 100.0  
Cust #: 0-000-5230 Serv. Acct. #: 000-0419-44  
Meter: 3412M-6014 Pump Ref. #: 20432

In accordance with your request, an energy efficiency test was performed on your turbine well pump on September 24, 2012. If you have any questions regarding the results which follow, please contact STEVE VILLEGAS at (805)654-7121.

<b>Equipment</b>		
Pump:	L&B	No: 801099
Motor:	US	No: T035270R068R-3

**Results**

Discharge Pressure, PSI	72.4
Standing Water Level, Feet	213.8
Drawdown, Feet	110.0
Discharge Head, Feet	167.2
Pumping Water Level, Feet	323.8
Total Head, Feet	491.0
Capacity, GPM	468
GPM per Foot Drawdown	4.3
Acre Feet Pumped in 24 Hours	2.069
kW Input to Motor	84.1
HP Input to Motor	112.8
Motor Load (%)	104.9
Measured Speed of Pump, RPM	1,781
Customer Meter, GPM	479
<b>kWh per Acre Foot</b>	<b>976</b>
<b>Overall Plant Efficiency (%)</b>	<b>51.5</b>

RUSS JOHNSON  
Manager  
Hydraulic Services



September 28, 2012

ERIC DETTLOFF  
CITY OF VENTURA WATER  
P.O. BOX 99  
VENTURA, CA 93001

**PUMPING COST ANALYSIS,** Plant: SAT CC WELL #2  
Location: 0 NXT TO 4234 CLUBHSE HP: 100.0  
Cust #: 0-000-5230 Serv. Acct. #: 000-0419-44  
Meter: 3412M-6014 Pump Ref.#: 20432

The following energy efficiency analysis is presented as an aid to your cost accounting. This is an estimate based on the conditions present during the Edison pump test performed on September 24, 2012, billing history for the past 12 months, and your current rate of TOU-PA-B.

Assuming that water requirements will be the same as for the past year, and all operating conditions (annual hours of operation, head above, and water pumping level) will remain the same as they were at the time of the pump test, it is estimated that:

1. Overall plant efficiency can be improved from 51.5% to 69.0%.
2. This can save you up to 76,671 kWh and \$6,970.20 annually.
3. These kWh savings translate to a 33-ton decrease in CO<sub>2</sub> emissions.

	<u>Existing</u>	<u>Plant Efficiency</u> <u>Improved</u>	<u>Savings</u>
Total kWh	301,488	224,817	76,671
kW Input	84.1	62.7	21.4
kWh per Acre Foot	976	728	248
Acre Feet per Year	308.9		
Average Cost per kWh	\$0.09		
Average Cost per Acre Foot	\$88.72	\$66.16	\$22.56
Overall Plant Efficiency (%)	51.5	69.0	
<hr/> Total Annual Cost	<hr/> \$27,408.27	<hr/> \$20,438.07	<hr/> \$6,970.20

It is sincerely hoped that this information will prove helpful to you, and that your concerns over maintaining optimum pumping efficiency will be continued. If you have any questions regarding this report, please contact STEVE VILLEGAS at (805)654-7121.

RUSS JOHNSON  
Manager  
Hydraulic Services

## Save Energy, Save Money. . . Your test results show that you can!

September 28, 2012

ERIC DETTLOFF  
CITY OF VENTURA WATER  
P.O. BOX 99  
VENTURA, CA 93001

**PUMPING COST ANALYSIS**, Plant: SAT CC WELL #2  
Location: 0 NXT TO 4234 CLUBHSE HP: 100.0  
Cust #: 0-000-5230 Serv. Acct. #: 000-0419-44  
Meter: 3412M-6014 Pump Ref. #: 20432

Dear SCE Customer:

Helping California businesses save energy and money is a major goal at SCE. As you know, our Technical Specialist performed a free energy efficiency test on one or more pumps at your facility on September 24, 2012. We thank you for the opportunity to provide this service, and appreciate your interest in the performance of your pumps.

The results of the testing, shown in the table below, indicate that the pump listed above has the potential for improved Overall Plant Efficiency (OPE), lower energy costs, and a cash incentive.

	Projected Incentive, Energy, and Cost Savings			
	<u>Existing</u>	<u>Improved</u>	<u>Savings</u>	<u>Cash Incentive</u>
Total kWh	301,488	224,817	76,671	\$6,900.43
kW Input	84.1	62.7	21.4	
kW on-peak activity factor *			13.9	\$1,390.19
Acre Feet per Year	308.9			
kWh per Acre Foot	976	728	248	
Average Cost per Acre Foot	\$88.72	\$66.16	\$22.56	
Overall Plant Efficiency (%)	51.5	69.0		
<hr/> Annual Total	<hr/> <b>\$27,408.27</b>	<hr/> <b>\$20,438.07</b>	<hr/> <b>\$6,970.20</b>	<hr/> <b>\$8,290.61</b>

(\*The kW on-peak activity factor represents how the kW impacts the SCE system during on-peak periods as determined by SCE's agricultural and water pumping customers' average load profiles. By improving efficiency, your expected kW savings is 21.4 kW, and the savings used for incentive calculations is 65% of 21.4, or 13.9 kW.)

Case studies have shown that repairing, retrofitting, or replacing inefficient pumps can save energy and money, and may even help you avoid serious operational problems. For your business, this could mean the following:

- **Improved Plant Efficiency:** Your OPE can be improved from 51.5% to 69.0%.
- **Lower Energy Costs:** Based on the test data, your past energy usage, and your current rate of TOU-PA-B, we estimate that you may save up to 76,671 kWh annually (which translates to a 33-ton decrease in CO<sub>2</sub> emissions). This may result in **energy cost savings of \$6,970.20.**
- **Cash Incentive:** Through the retrofit and installation of more energy-efficient equipment, you have the potential to receive an incentive of \$0.09 per kWh and \$100 per on-peak activity factored kW reduced, courtesy of SCE's Customized Efficiency Program. Based on your estimated kWh and kW, you would be eligible for a **Potential Cash Incentive of \$8,290.61**, capped at 50% of your project cost. (See contract for details.)

If you are interested in an incentive for this pump, please contact **Natalie Maese** at (626)633-3316 to complete a project application. All applicants must receive a **written approval authorization before** implementing any project; failure to comply will result in forfeiture of incentive funding.

We encourage you to review your results and take advantage of SCE's energy efficiency expertise and incentives. Visit [www.sce.com/rebatesandsavings](http://www.sce.com/rebatesandsavings), or give us a call and let us know how we can be of further service to you.

Sincerely,

Southern California Edison

Program funded by California utility ratepayers, and administered by Southern California Edison under the auspices of the California Public Utilities Commission.

10180 Telegraph Road  
Ventura, CA 93004

April 9, 2014  
Project No. 01-009-05D

City of San Buenaventura  
Ventura Water  
Post Office Box 99  
Ventura, California 93002-0099

Attention: Mr. Omar Castro  
Water Utility Manger, Ventura Water

Subject: Well Conditions Study for Saticoy Country Club Well No. 2 Repair Project.

Dear Mr. Castro:

As requested, Hopkins Groundwater Consultants, Inc. (Hopkins) has reviewed available data provided by the City of San Buenaventura (City) for Saticoy Country Club Well No. 2 (SCC No. 2). It is our understanding that the City would like to repair SCC No. 2 pump equipment and restore the well's performance in order to return it to a reliable supply facility. Available data reviewed for SCC No. 2 included water level measurements, well production records, water quality test results, well construction records, and periodic well performance testing. Based on our review of these data, we are providing the following findings, conclusions, and recommendations for potential well pump equipment repair and well efficiency restoration for City consideration.

## **Findings**

### **Well Construction**

Saticoy Country Club Well No. 2 was drilled in 1990 and designated as State Well No. 02N/21W-08L02. The well was constructed to a depth of 1,041 feet below ground surface (bgs) with low carbon steel well casing and screen materials. The well casing consists of a 14-inch-diameter blank section (5/16-inch wall thickness) that extends from ground surface to a depth of 480 feet bgs. At this depth, the casing section reduces to a 12-inch-diameter well screen section (5/16-inch wall thickness) which extends to a depth of 1,041 feet bgs. The well screen section is continuous between the depths of 641 and 1,041 feet and is constructed with a louvered casing design. The well screen slots have a 0.080-inch-opening and the screen section is enveloped in a very coarse-grained sand gravel pack material identified on the drillers log as a No. 5 gradation.

**Well Performance**

Original production data provided at the time of well construction indicate that the well had a specific capacity value of approximately 12 gallons per minute per foot of drawdown (gpm/ft) at a production rate of approximately 1,100 gpm. A summary of select data points over the period of well operation is provided in Table 1 – SCC Well No. 2 Performance Data. This summary shows a comparison of the changes in the well production rate, static and pumping water levels, and the well’s performance. As indicated by these data, the well production rate has declined to producing approximately 460 gpm with a specific capacity of 4.3 gpm/ft.

**Table 1 – SCC Well No. 2 Performance Data**

YEAR	INFORMATION SOURCE	PRODUCTION RATE (GPM)	STATIC WATER LEVEL (FEET)	PUMPING WATER LEVEL (FEET)	DRAWDOWN (FEET)	SPECIFIC CAPACITY (GPM/FT)
1990	DRILLERS REPORT	1,100	279	370	91	12.0
2001	DHS DWSAP	630	223	314	91	6.9
2006	CITY DATA	680	175	392	217	3.1
2012	SCE DATA	468	214	324	110	4.3

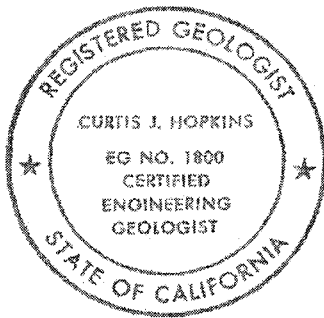
Based on available information, we infer that the well plugging mechanisms are likely bacterial fouling and mineral precipitate within the well screen section and surrounding porous materials. These conditions are typical of an aging well. If the well is reconditioned it may perform for another 5 to 10 years before production declines to a level that is impractical for use.

**Conclusions and Recommendations**

The findings of this study indicate that the present condition of Saticoy Country Club Well No. 2 will require the City to conduct significant repair work or risk well failure in the future. We conclude that the significant decline in well performance is a result of an aging well that is plugging and must be reconditioned or replaced. If the well is not reconditioned, the new well pump must be designed to pump from a deeper water level. Water production under the existing condition will require more energy to lift the water an additional 100 to 150 feet to get it out of the well.

Over the last 20 years SCC No. 2 has almost solely provided the supply of water for the Saticoy Country Club system and is in dire need of repair. The decline in the well production rate is a result of well pump equipment deterioration resulting from corrosion and perhaps abrasion (if the well is beginning to produce sand). Well pump assembly replacement will be required in order to restore the well as a reliable source for the Saticoy Country Club water system. When the well production is increased to the desired 800 gpm (roughly double the pump ability at this time), the drawdown in the well is anticipated to double if the well is not reconditioned to restore its efficiency. This will require additional energy and the cost per acre-foot of water will increase.

We trust this summary of the Saticoy Country Club Well No. 2 existing conditions and recommended repair work is sufficient for your administrative and planning purposes. If you have any questions or need any additional information, please do not hesitate to give us a call.



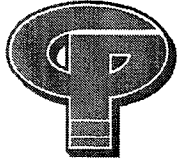
Sincerely,

HOPKINS GROUNDWATER CONSULTANTS, INC.

A handwritten signature in black ink that reads "Curtis J. Hopkins".

Curtis J. Hopkins  
Principal Hydrogeologist  
Certified Engineering Geologist EG 1800  
Certified Hydrogeologist HG 114

Attachment:



**GENERAL  
PUMP  
COMPANY**

934 W. VERDULERA STREET - CAMARILLO, CA 93010  
PHONE: (805) 482-1215 - FAX: (805) 484-2135

WELL & PUMP SERVICE SINCE 1952

Lic. #496765

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April 9, 2014

City of San Buenaventura  
P.O. Box 99  
Ventura, California 93002-0099

Attn: Eric Dettloff

**Re: Saticoy Country Club Well 2  
Replacement Bowl Assy  
GPC Job No.: 80-TBD**

**General Pump Company, Inc. (GPC)** is pleased to provide a price for a replacement bowl assembly and motor (supply only) for the City of San Buenaventura (City) Saticoy Country Club Well 2. The pump selected is as specified by the bid request. The bid is for the assembled bowl assy only and does not include a suction pipe or strainer and a 100 HP Premium Efficient stock motor.

		<b>Labor Equipment</b>	<b>Taxable Materials</b>
<b>Bowl assy. &amp; Motor for SCC2</b>			
1	LS	Supply bowl assembly 7 stage American Turbine 12-M-70 Customer specified design of 625 gpm @ 524' TDH Assembled from the factory Column Size to be confirmed with order Tube & shaft design to be confirmed with order tube & shaft projections to be confirmed with order Warranty through American Turbine Supply material only	\$0.00    \$7,778.60
1	LS	100 HP US Electric Motor, Vertical Hollow Shaft, Non-reverse ratchet. Premium Efficient, 3Ph/60Hz/460V Shaft Diameter to be confirmed with order Supply of material only	\$0.00    \$9,287.70
1	Hrs	Engineering and Hydrogeology Support	Included    \$0.00
		<b>Labor/Equipment - Shop and Field</b>	<b>\$0.00</b>
		<b>Taxable Materials</b>	<b>\$17,066.30</b>
		Sub-Total Freight	\$375.00
		Local Sales Tax at 7.50%	\$1,308.10
		<b>Sub-Total Taxable Charges</b>	<b>\$18,749.40</b>
		<b>Total Estimated Project Charges</b>	<b>\$18,749.40</b>

**General Pump Company, Inc.** appreciates the opportunity to assist with this project and if you have any questions regarding the technical aspects of this project please do not hesitate to give me a call.





*"Now Serving All Southern California and Central Coast!"*

City of San Buenaventura  
August 2, 2011  
Page 2

Regards,  
GENERAL PUMP COMPANY, INC.

*Daniel W. Roth*

Project Engineer

GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS  
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1

FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: #LABORER AND RELATED CLASSIFICATIONS**

**DETERMINATION:** SC-23-102-2-2013-1

**ISSUE DATE:** August 22, 2013

**EXPIRATION DATE OF DETERMINATION:** June 30, 2014\*\* The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director – Research Unit for specific rates at (415) 703-4774.

**LOCALITY:** All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, and Ventura counties.

Classification <sup>a</sup> (Journey person)	Basic Hourly Rate	Employer Payments					Straight-Time		Overtime Hourly Rates		
		Health and Welfare	Pension	Vacation/ and Holiday <sup>d</sup>	Training and Payment	Other	Hours	Total Hourly Rate	Daily <sup>b</sup> 1 1/2X	Saturday <sup>bc</sup> 1 1/2X	Sunday and Holiday

**CLASSIFICATION GROUPS**

Group 1	\$28.99	6.81	6.00	4.25	0.64	0.49	8	47.18	61.675	61.675	76.17
Group 2	29.54	6.81	6.00	4.25	0.64	0.49	8	47.73	62.50	62.50	77.27
Group 3	30.09	6.81	6.00	4.25	0.64	0.49	8	48.28	63.325	63.325	78.37
Group 4	31.64	6.81	6.00	4.25	0.64	0.49	8	49.83	65.65	65.65	81.47
Group 5	31.99	6.81	6.00	4.25	0.64	0.49	8	50.18	66.175	66.175	82.17

# Indicates an apprenticeable craft. The current apprentice wage rates are available on the Internet @ <http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp>. To obtain any apprentice wage rates as of July 1, 2008 and prior to September 27, 2012, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at <http://www.dir.ca.gov/das/das.html>.

<sup>a</sup> For classification within each group, see page 14.

<sup>b</sup> Any hours worked over 12 hours in a single workday are double (2) time.

<sup>c</sup> Saturdays in the same work week may be worked at straight-time if job is shut down during work week due to inclement weather or similar Act of God, or a situation beyond the employers control.

<sup>d</sup> Includes an amount per hour worked for supplemental dues

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at <http://www.dir.ca.gov/OPRL/PWD>. Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the Internet at <http://www.dir.ca.gov/OPRL/PWD>. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

**CLASSIFICATION GROUPS**

**GROUP 1**

Boring Machine Helper (Outside)  
Certified Confined Space Laborer  
Cleaning and Handling of Panel Forms  
Concrete Screeding for Rough Strike-Off  
Concrete, Water Curing  
Demolition Laborer, the cleaning of brick if performed by an employee performing any other phase of demolition work, and the cleaning of lumber  
Fiberoptic Installation, Blowing, Splicing, and Testing Technician on public right-of-way only  
Fire Watcher, Limbers, Brush Loaders, Pilers and Debris Handlers  
Flagman  
Gas, Oil and/or Water Pipeline Laborer  
Laborer, Asphalt-Rubber Material Loader  
Laborer, General or Construction  
Laborer, General Cleanup  
Laborer, Jetting  
Laborer, Temporary Water and Air Lines  
Plugging, Filling of Shee-Bolt Holes; Dry Packing of Concrete and Patching  
Post Hole Digger (Manual)  
Railroad Maintenance, Repair Trackman and Road Beds; Streetcar and Railroad Construction Track Laborers  
Rigging and Signaling  
Scaler  
Slip Form Raisers  
Tarman and Mortar Man  
Tool Crib or Tool House Laborer  
Traffic Control by any method  
Water Well Driller Helper  
Window Cleaner  
Wire Mesh Pulling - All Concrete Pouring Operations

**GROUP 2**

Asphalt Shoveler  
Cement Dumper (on 1 yard or larger mixer and handling bulk cement)  
Cesspool Digger and Installer  
Chucktender  
Chute Man, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks, floors, foundations, footings, curbs, gutters and sidewalks  
Concrete Curer-Impervious Membrane and Form Oiler  
Cutting Torch Operator (Demolition)  
Fine Grader, Highways and Street Paving, Airport, Runways, and similar type heavy construction  
Gas, Oil and/or Water Pipeline Wrapper-Pot Tender and Form Man  
Guinea Chaser  
Headerboard Man-Asphalt  
Installation of all Asphalt Overlay Fabric and Materials used for Reinforcing Asphalt  
Laborer, Packing Rod Steel and Pans  
Membrane Vapor Barrier Installer  
Power Broom Sweepers (small)  
Riprap, Stonepaver, placing stone or wet sacked concrete  
Roto Scraper and Tiller  
Sandblaster (Pot Tender)  
Septic Tank Digger and Installer (leadman)

**GROUP 2 (continued)**

Tank Scaler and Cleaner  
Tree Climber, Faller, Chain Saw Operator, Pittsburgh Chipper and similar type  
Brush Shredders  
Underground Laborer, including Caisson Bellower

**GROUP 3**

Asphalt Installation of all fabrics  
Buggymobile Man  
Compactor (all types including Tampers, Barko, Wacker)  
Concrete Cutting Torch  
Concrete Pile Cutter  
Driller, Jackhammer, 2 1/2 ft. drill steel or longer  
Dri Pak-it Machine  
Gas, Oil and/or Water Pipeline Wrapper - 6-inch pipe and over by any method, inside and out  
High Scaler (including drilling of same)  
Impact Wrench, Multi-Plate  
Kettlemen, Potmen and Men applying asphalt, lay-kold, creosote, lime caustic and similar type materials  
Laborer, Fence Erector  
Material Hoseman (Walls, Slabs, Floors and Decks)  
Operators of Pneumatic, Gas, Electric Tools, Vibrating Machines, Pavement Breakers, Air Blasting, Come-Alongs, and similar mechanical tools not separately classified herein; operation of remote controlled robotic tools in connection with Laborers work  
Pipelayer's backup man, coating, grouting, making of joints, sealing, caulking, diapering and including rubber gasket joints, pointing and any and all other services  
Power Post Hole Digger  
Rock Slinger  
Rotary Scarifier or Multiple Head Concrete Chipping Scarifier  
Steel Headerboard Man and Guideline Setter  
Trenching Machine, Hand Propelled

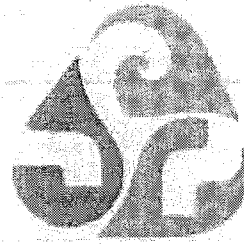
**GROUP 4**

Any Worker Exposed to Raw Sewage  
Asphalt Raker, Luteman, Ironer, Asphalt Dumpman, and Asphalt Spreader Boxes (all types)  
Concrete Core Cutter (walls, floors or ceilings), Grinder or Sander  
Concrete Saw Man, Cutting Walls or Flat Work, Scoring old or new concrete  
Cribber, Shorer, Lagging, Sheeting and Trench Bracing, Hand-Guided Lagging Hammer  
Head Rock Slinger  
Laborer, Asphalt-Rubber Distributor Bootman  
Laser Beam in connection with Laborer's work  
Oversize Concrete Vibrator Operator, 70 pounds and over  
Pipelayer  
Prefabricated Manhole Installer  
Sandblaster (Nozzleman), Water Blasting, Porta Shot-Blast  
Traffic Lane Closure, certified

**GROUP 5**

Blasters Powderman  
Driller  
Toxic Waste Removal  
Welding, certified or otherwise in connection with Laborers' work

Trusted life source for generations



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Omar,

Per your request, attached you will find the personnel list you requested from the City's confidential files, called Salary Planner. Salary Planner contains a list of permanent employees and their estimated salary and benefit costs for Fiscal Year 2014. Using 2,080 hours a year the hourly break down is as follows:

Job Class	Salaries	Benefits	Total
S39	\$43.83	\$15.22	\$59.05
A62	\$32.39	\$11.78	\$44.17
M20	\$55.41	\$16.74	\$72.15
S09	\$38.74	\$13.76	\$52.50
A63	\$28.03	\$10.86	\$38.89
A86	\$23.63	\$10.03	\$33.66

Regards,  
Lisa Kern  
Management Analyst  
Ventura Water  
[\(805\) 652-4542](tel:8056524542)  
[lkern@venturawater.net](mailto:lkern@venturawater.net)

Personnel Cost Summary

Dept #	Bargaining Unit	Job Class	Position	Position (T)	Incumbent (T)	Allocated		Business		Total Salaries	Total		Total
						FTE	Fund	Unit	Project		Benefits	Total WKC	
11	M	M20	M20-001	Water Utility Manager	OMAR CASTRO	1.00	52	110301	63101	115,256	33,825	999	150,081
11	A	A63	A63-002	Lead Water Distribution Operator	JEREMY J. HANSON	1.00	52	110302	63130	58,306	21,675	904	80,885
11	A	A86	A86-005	Water Distribution Operator II	LEON M. LOPEZ	1.00	52	110302	63130	49,158	20,145	726	70,029
11	A	A62	A62-001	Water Production Leadworker	ERIC A. DETTLOFF	1.00	52	110302	63141	67,381	23,456	1,044	91,881
11	S	S39	S39-001	Water Treatment/Production Supervisor	MIKHAIL OAKLEY	1.00	52	110302	63151	91,160	30,246	1,413	122,819
11	S	S09	S09-001	Management Analyst II	LISA A. KERN	1.00	52	110202	63162	80,573	27,914	717	109,204