



## Legislation Details (With Text)

**File #:** 2019-1282  
**Type:** Consent Calendar Item      **Status:** Passed  
**File created:** 8/13/2019      **In control:** Sonoma County Water Agency  
**On agenda:** 9/17/2019      **Final action:** 9/17/2019  
**Title:** Forecast Informed Reservoir Operations Hydrometeorology Consulting Services  
**Sponsors:** Sonoma County Water Agency  
**Indexes:**  
**Attachments:** 1. Summary Report, 2. Resolution, 3. Amended Agreement

Date	Ver.	Action By	Action	Result
9/17/2019	1	Board of Supervisors	Approved as recommended	Pass

**To:** Board of Directors, Sonoma County Water Agency  
**Department or Agency Name(s):** Sonoma County Water Agency  
**Staff Name and Phone Number:** Chris Delaney 707-547-1946  
**Vote Requirement:** 4/5th  
**Supervisorial District(s):** All

**Title:**  
Forecast Informed Reservoir Operations Hydrometeorology Consulting Services

### Recommended Action:

- A) Authorize Sonoma County Water Agency's General Manager to execute the Second Amended Agreement for Forecast Informed Reservoir Operation Hydrometeorology Consulting Services with Robert K. Hartman to provide hydrometeorology services. The amended agreement increases the amount by \$200,000, adds a task to the scope to assist in developing the Final Viability Assessment, and extends the agreement term by three years for a new not-to-exceed agreement total of \$350,000 and end date of October 5, 2022.
- B) Adopt a resolution authorizing adjustments to the Board Adopted Budget for Fiscal Year 2019-2020 for the Sonoma County Water Agency Russian River Projects Fund, in the amount of \$100,000.

(4/5<sup>th</sup> Vote Required)

### Executive Summary:

The Sonoma County Water Agency (Sonoma Water) works with the United States Army Corps of Engineers (Corps) to operate water storage facilities at the Lake Mendocino Coyote Valley Dam. In coordination with state and federal agencies, Sonoma Water is exploring methods to better balance flood control and water supply needs by utilizing modern rainfall observation and prediction technology to implement Forecast Informed Reservoir Operations (FIRO). The goal of this effort is to improve the water supply reliability of Lake Mendocino, but not increase the flood risk to communities downstream of Coyote Valley Dam. This item requests authority for Sonoma Water's General Manager to execute an amended agreement with Robert K. Hartman (Consultant) to provide services related to the assessment and implementation of FIRO operations in

the amount of \$200,000 and to extend the term of the agreement to October 5, 2022.

**Discussion:**

HISTORY OF ITEM/BACKGROUND

Lake Mendocino is located on the East Fork of the Russian River in Mendocino County, California. Created in 1958 by the Coyote Valley Dam, it provides flood control, water supply, recreation, and stream flow regulation. The United States Army Corps of Engineers (Corps) owns and operates the dam in accordance with the Lake Mendocino Water Control Manual (Manual), 1959, revised in 1986. Sonoma Water is the local partner that manages water stored in Lake Mendocino for water supply. The Manual specifies elevations for an upper volume of reservoir storage that must be kept available for capturing storm runoff and reducing flood risk and a lower volume of storage that may be used for water supply. During a flood event, runoff is captured by the reservoir and released soon after to create storage space for another potential storm. The Manual is based on typical historical weather patterns- wet during the winter, dry otherwise.

The Manual utilizes gross estimates of flood potential to establish reservoir storage and release requirements. It does not account for changing conditions in the watershed-for example, increased variation in dry and wet weather patterns and reductions to imported flows into the Lake that have occurred since 1986. Also, the Manual's reservoir operations procedures were developed decades ago, without the benefit of current science that more accurately predicts weather and streamflow.

Given reduced supplies, changed hydrologic conditions, and technological advances, some adjustments to the current reservoir operating procedures may be possible to optimize the goals of maintaining flood control while bolstering water supply reliability for downstream users and the environment (e.g., to support recovery of endangered and threatened fish). FIRO is a proposed alternative management strategy that aims to use data from watershed monitoring and state of the art weather and water forecasting to adaptively manage reservoir storage levels by incorporating forecasts of available water to meet the goals of improving water supply reliability without impairing flood protection to downstream communities.

Lake Mendocino is the first pilot location to evaluate the feasibility of FIRO, which is led by an interagency Steering Committee consisting of members from the University of California San Diego, Scripps Institution of Oceanography, California Department of Water Resources, Corps, National Oceanic and Atmospheric Administration, Bureau of Reclamation, United States Geological Services, and Sonoma Water. In July 2017, the Steering Committee completed a preliminary viability assessment (Preliminary Assessment) of FIRO for Lake Mendocino, which found that a forecast based decision support system could be a viable solution to meet project goals. In October 2018, the Corps approved a major deviation request made by the Steering Committee to implement components of the Preliminary Assessment for water year 2019, and results of this limited implementation have supported the findings of the Preliminary Assessment. The Steering Committee has begun development of the Final Viability Assessment (Final Assessment), which will build off of the studies completed for the Preliminary Assessment to further analyze the feasibility of FIRO for Lake Mendocino and potentially make recommendations for permanent modifications of the Manual.

Sonoma Water desires a consultant with expertise in the field of hydrometeorological forecasting to assist with development of FIRO implementation strategies, coordination of the multiple study partners for the completion of the Final Assessment, preparation of annual major deviation requests to the Corps for near-term implementation of FIRO, development of FIRO decision support systems for reservoir operations, and final implementation of FIRO through permanent modification to the Manual.

Sonoma Water entered into an agreement for hydrometeorology and related services, dated October 5, 2016, in the amount of \$50,000. The agreement was amended on October 26, 2017, to extend the term two years to October 5, 2019, add new tasks to the scope, and increase the amount by \$100,000 for a new agreement total of \$150,000.

#### SELECTION PROCESS

Robert K. Hartman (Consultant) was the only individual or firm contacted and was selected to perform the work based on his unique qualifications. Consultant served for 20 years as the Hydrologist-in-Charge for the National Weather Service California-Nevada River Forecast Center and has played a key role in the project as lead representative of the National Weather Service California-Nevada River Forecast Center and a member of the FIRO steering committee. Consultant has retired from the National Weather Service California-Nevada River Forecast Center but is working as an independent consultant. Consultant led the development of hindcast forecasts that are utilized in the modeling studies that are evaluating the viability of FIRO.

Due to the specialized nature of the work, Consultant's expertise in hydrometeorology and his relationships within the National Weather Service, National Oceanic and Atmospheric Administration, National Weather Service California-Nevada River Forecast Center, Corps, and California Department of Water Resources are essential for the continued success of the FIRO project.

#### SERVICES TO BE PERFORMED

Under the proposed amended agreement, Consultant will continue work to support the FIRO project. A new task has been added for Consultant to assist in developing the Lake Mendocino FIRO Final Viability Assessment including technical studies, analysis, evaluation, and document review.

The total additional cost is \$200,000 allocated as follows: \$100,000 in fiscal year 2019/2020, \$50,000 in fiscal year 2020/2021, and \$50,000 in fiscal year 2021/2022. The new total agreement amount is \$350,000. The new end date is October 5, 2022.

The agreement includes two options for Sonoma Water to extend this agreement for a period of one year each by providing written notice to Consultant thirty days in advance of the expiration date of the agreement and of the first extension option.

#### **Prior Board Actions:**

None.

**FISCAL SUMMARY**

<b>Expenditures</b>	<b>FY 19-20 Adopted</b>	<b>FY20-21 Projected</b>	<b>FY 21-22 Projected</b>
Budgeted Expenses		\$50,000	\$50,000
Additional Appropriation Requested	\$100,000		
<b>Total Expenditures</b>	<b>\$100,000</b>	<b>\$50,000</b>	<b>\$50,000</b>
<b>Funding Sources</b>			
General Fund/WA GF			
State/Federal			
Fees/Other		\$50,000	\$50,000
Use of Fund Balance	\$100,000		
Contingencies			
<b>Total Sources</b>	<b>\$100,000</b>	<b>\$50,000</b>	<b>\$50,000</b>

**Narrative Explanation of Fiscal Impacts:**

Additional appropriations, in the amount of \$100,000, are required to process this expense in the Russian River Projects Fund. A budgetary resolution has been submitted with this item. Fiscal Year 2020/2021 and Fiscal Year 2021/2022 appropriations will be budgeted in those fiscal years.

With Board approval of the requested additional appropriations the Russian River Projects Fund ending fund balance will be approximately \$493,000.

<b>Staffing Impacts:</b>			
<b>Position Title (Payroll Classification)</b>	<b>Monthly Salary Range (A-I Step)</b>	<b>Additions (Number)</b>	<b>Deletions (Number)</b>

**Narrative Explanation of Staffing Impacts (If Required):**

N/A

**Attachments:**

Attachment 1: Resolution

Attachment 2: Amended Agreement with Robert K. Hartman

**Related Items "On File" with the Clerk of the Board:**

None.