

**TO: James L. App, City Manager**  
**FROM: Doug Monn, Public Works Director**  
**SUBJECT: Water Treatment Plant Design Services Contract**  
**DATE: December 18, 2007**

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**NEEDS:** For the City Council to consider amending the water treatment plant design services contract.

**FACTS:**

1. The City will take delivery of 4,000 AFY of water from the Nacimiento Water Project in June of 2010.
2. The City needs to design and construct a water treatment facility to process water for consumption.
3. The City contracted with Black & Veatch to design the treatment plant and associated water pipelines.
4. The design contract was scoped to provide a conventional sand/multi-media filtration process. As design proceeded, closer examination water attributes and blending needs revealed that membrane filters are needed. Thus, a principal component of the proposed contract amendment is to provide for this substantive change in work scope.
5. Related to this is the membrane equipment procurement methodology. Three membrane manufacturers have proven certified equipment; each approaches equipment configuration differently.
6. There are two basic types of membrane systems; one provides equipment that is submerged in a tank with pumps to draw water out the other end of the membranes; another pressurizes flow into the membranes and pushes the water through. Each manufacturer requires different arrangements of piping, supports, power supply, chemical feed, and pumps.
7. One design approach would be to prepare detailed drawings to match each of the three manufacturers' configurations and release one bid package for the project. This would involve multiple designs and a more complex bidding process, all of which cost more in the design phase.
8. Another approach would be to bid the membrane system first, then complete the plant design around the successful membrane manufacturer. This approach has the complexity of a two-step bid process, but provides a more streamlined engineering design of support infrastructure. This method would also reduce the potential for incompatibility between the selected membrane system and support infrastructure, and the potential for construction change orders. Separate procurement of the membrane system, followed by design of the balance of the treatment plant facilities, is most efficient.
9. Since commencement of design, the City experienced another summer high demand period, emphasizing the importance of maintaining maximum production during summer months. For this reason, the hydraulic capacity of the treatment plant was reanalyzed to include flow from the Ronconi Wells along with Nacimiento deliveries, to provide the much-needed peak production. To accommodate peak

production demands, and more fully utilize existing production capacity, the 7 million gallons per day (MGD) plant needs to be expandable to 14 MGD. The design work required to address this change is another factor in the change in work scope, and in this cost for contract amendment.

10. Thirdly, since entering into design, opportunities to design non-conventional improvements for energy efficiency (operational cost savings), storm water runoff, and water efficient landscaping have been considered. Modification of the work scope is required to include design of solar power generation, energy efficient mechanical equipment, building materials floor coverings, etc. More specifically, it includes special treatment of storm water runoff, specifying solar-reflective building materials, installation of solar panels to offset the plants energy consumption, reduction of exterior light pollution, and planting of water-efficient landscaping. Integration of these features will require the designer to participate in strategy sessions with City, to work with the City's energy commissioning agent and local utilities to ensure that the energy-saving items are incorporated into the design documents.

**ANALYSIS &  
CONCLUSION:**

The operation of the water treatment plant will have a direct impact on public health; compliance with drinking water regulations is paramount. Following through with the designer's recommendation that a membrane filtration plant be constructed brings a high degree of confidence in this regard.

Certified membrane providers in the United States configure their respective systems differently, requiring significantly differing mechanical and structural components to support their operation. It is to the advantage of the City to procure the membrane system ahead of completing the design of the overall treatment plant to allow one, clear bid package to be issued for the overall facility.

A separate competitive membrane procurement would allow the City to select the most cost-effective filtration system (based on initial costs and on-going, reoccurring operations coats) over its useful life while allowing the designers to specify the balance of the plant facilities around the selected process. Recommended Amendment No. 1 to the Black & Veatch design contract would authorize the design changes and procurement support to follow this approach.

Amendment No. 1 would also authorize Black & Veatch to include energy-saving design features, resulting in a more energy efficient facility with lower long term operating (energy) costs.

Therefore, the professional services contract with Black & Veatch is proposed for amendment to include membrane filtration, a separate membrane filtration procurement step, allowing capacity for treatment of much-needed groundwater supply, and incorporation of energy-efficient design features.

**POLICY**

**REFERENCE:**

Economic Strategy; Integrated Water Resource Plan; Nacimiento Water Project Entitlement Contract.

**FISCAL IMPACT:**

The cost for this service is being paid from the Nacimiento Water Fund. The City initially authorized a design fee of \$2,150,000, from this fund to cover design cost. The original allocation included a \$200,000 contingency, \$30,000 of which has been allocated to provide value engineering services. The requested additional fee authorization for the amended design services described in the attached Amendment No. 1 to the Black & Veatch Agreement for Professional Engineering

Services would be \$385,830.00. Staff recommends holding the remaining \$170,000.00 in contingency this time and adding the above listed amount. The amended design cost would be as follows.

Initial authorization (design fee & contingency)	\$2,150,000
Additional Amend No. 1	<u>+385,830</u>
Total recommended authorization	\$2,535,830

- OPTIONS:**
- a.** Adopt Resolution No. 07-xx appropriating \$385,830 from Nacimiento Water Fund (No. 226.910.5452.544) to Nacimiento Water Treatment (No. 229.910.5452.544) and authorizing the City Manager to enter into a contract amendment with Black & Veatch in that amount.
  - b.** Amend, modify, or reject the above option.

Prepared by: Christine Halley, Water & Utility Consultant,  
TJ Cross Engineers, Inc.

Attachments (2)

- 1) Amendment No. 1
- 2) Resolution

PUBLIC WORKS DEPARTMENT  
1000 Spring Street  
Paso Robles, CA 93446

Amendment No. 1

AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES  
WATER TREATMENT PLANT DESIGN

The City of el Paso de Robles (City) and Black & Veatch (Engineer) hereby agree to amend the following articles of the Agreement for Professional Engineering Services to design the water treatment plant in anticipation of Nacimiento Water Project deliveries (Agreement) dated May 15, 2007, as follows:

A. Under Section 1, the services subject to this Agreement and to be performed by Engineer for the Project is described in Exhibit "B", Scope of Services, as amended per this Amendment No. 1. The amended Scope of Services expands the Engineer's services to include separate design and procurement document preparation for the membrane system, evaluation and selection process for procurement, and incorporation of energy efficient design.

B. Section 6 is amended to read as follows:

"A. Basic Services.

"1. City shall pay Engineer for full and faithful performance of Basic Services a fee that is not to exceed Two Million Three Hundred Thirty Five Thousand Eight Hundred and Thirty Dollars (\$2,335,830) (the 'Not-to-Exceed Amount') without the express authorization of the City Council. The Not-to-Exceed Amount includes all Reimbursable Expenses required for performance of the Basic Services."

C. All provisions of the Agreement not affected by this Amendment No. 1 shall remain unchanged and in full force and effect. In the event of any conflict between the provisions of this Amendment No. 1, and the provisions of any lower-numbered amendment, the provisions of this Amendment No. 1 shall prevail.

**IN WITNESS WHEREOF**, the parties have executed this Amendment to be effective on the date executed by City.

**ENGINEER:**

By: \_\_\_\_\_  
Name: Steven N. Foellmi, P.E.  
Vice President

Date: \_\_\_\_\_

**CITY OF EL PASO DE ROBLES**

By: \_\_\_\_\_  
James L. App  
City Manager

Date: \_\_\_\_\_

**APPROVED AS TO FORM:**

By: \_\_\_\_\_  
Linda R. Beck  
Special Counsel

Attest:  
  
\_\_\_\_\_

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RESOLUTION NO. 07-XX

A RESOLUTION OF THE CITY COUNCIL OF THE  
CITY OF EL PASO DE ROBLES APPROPRIATING FUNDS AND  
APPROVING AMENDMENT #1 TO THE WATER TREATMENT  
PLANT DESIGN SERVICES CONTRACT

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WHEREAS, the City Council of the City of El Paso Robles has previously entered into a contract with Black & Veatch Associates for the design of a water treatment plant; and

WHEREAS, the design of the water treatment plant requires a scope of services beyond the original scope provided in the executed agreement with Black and Veatch to incorporate membrane filtration, membrane procurement, and energy efficiency; and

WHEREAS, the City has determined that advanced procurement of membranes for the treatment plant will facilitate design and construction of the project;

THEREFORE BE IT HEREBY RESOLVED by the City Council of the City of El Paso de Robles to approve the appropriation of \$385,830 from the Nacimiento Water Fund (No. 226.910.5452.544) to Nacimiento Water Treatment (No. 229.910.5452.544), and authorize the City Manager to enter into a Contract Amendment No. 1 with Black & Veatch in that amount.

PASSED AND ADOPTED by the City Council of the City of Paso Robles, this 18th day of December 2007 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

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Frank R. Mecham, Mayor

ATTEST:

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Deborah D. Robinson, Deputy City Clerk