



CITY OF BEVERLY HILLS STAFF REPORT

Meeting Date: December 6, 2011
To: Honorable Mayor & City Council
From: Kevin Watson, Water Operations Manager
Subject: Request for Authorization to Offer the Beverly Hills Desalination Facility for Use as an Emerging Technology Grant Test Site.

Attachments: 1. Letter of Intent

INTRODUCTION

The California Energy Commission is currently soliciting applications for grant funding for emerging technologies. Grants are targeted toward desalination and advanced water treatment technologies with the goal of developing new ways to conserve water and eliminate concentrate discharge to the sewer system.

Black & Veatch (B&V) is an internationally recognized Engineering and Consulting Company based out of Kansas City, Missouri and specializes in process engineering for water treatment systems. B&V has indicated its intention to submit an application to the California Energy Commission and their Water Technology Group has invited the City of Beverly Hills to participate in its proposal as the project demonstration site.

The City of Beverly Hills operates and maintains a Reverse Osmosis Water Treatment Plant or the Beverly Hills Desalination Facility (BHDF). Potential benefits to the City should it participate as a test site include a reduction in the concentrate discharge to the sewer system with subsequent savings in the costs of the disposal; an increase in water produced; and the benefits of an engineering study.

Grant awards will range between \$750,000 and \$2,000,000.

On November 15, 2011 staff sent a letter to the California Energy Commission stating the City's conditional intent, pending City Council approval on December 6, 2011 to support the 2011 Emerging Technology Grant Program research project proposed by the Black & Veatch team by providing a site for the demonstration facility at the Beverly Hills Desalination Facility (BHDF) and by providing in-kind support.

DISCUSSION

Black & Veatch conducted a bench-top laboratory study of various methods of treating brine concentrate so that zero liquid discharge could be achieved. The study began in

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2004 and was completed in 2005 at the City's Reverse Osmosis Water Treatment Plant. The study involved two to three of their staff working at the treatment plant five days per week for one year. The study used cutting edge technology, which proved the concept was feasible. The City was provided a copy of the final publication on the study. B&V used the information learned at Beverly Hills and continued their study by conducting pilot studies in other localities across the country. Having successfully completed the pilot studies to prove the technologies, they are ready to take the next step and again work with the City on a full-scale program.

The objective of the grant and the goal of B&V's proposal are to demonstrate a treatment technology to improve concentrate management. Concentrate is a by-product of the water treatment process. B&V proposes the Beverly Hills Reverse Osmosis Water Treatment Plant otherwise referred to as the Beverly Hills Desalination Facility (BHDF) as the site to conduct its program. The BHDF generates a concentrate flow of 250 gallons per minute (gpm). B&V will have a staff assigned to the project where they will work five days per week for one year.

To carry out the full-scale program, B&V would equip the BHDF with two full-scale electro dialysis stacks with a capacity of 25 gpm each. These units will treat 50 gpm of concentrate from BHDF. Ten stacks will be required to treat the total 250 gpm concentrate flow. Results from the study will be used to determine design criteria and costs to achieve Zero Liquid Discharge treatment of concentrate at BHDF.

FISCAL

In addition to providing a site for the demonstration program, the City will provide in-kind support with an estimated value of \$23,000. In-kind support will include labor and materials associated with setting up and demobilizing test equipment, provision of water quality data, use of our laboratory space, materials and equipment for field tests, coordination with our compliance laboratory for sample analyses, and ongoing maintenance support throughout testing.

Currently, BHDF discharges concentrate to the sanitary sewer, paying the City of Los Angeles to treat this by-product at the Hyperion Wastewater Treatment Plant. Through its participation during the one-year study, Beverly Hills will receive:

- A reduction in wastewater treatment costs resulting from the reduced volume discharged estimated at \$23,276.
- An increase in the annual subsidy from the Metropolitan Water District from the increase in local groundwater recovery production estimated to be \$16,500.
- Savings resulting in the reduction in water to be purchased from Metropolitan Water District estimated at \$52,404.

The City is likely to see an additional engineering benefit resulting from the design and process determined from the final study.

Through its participation in this study, Beverly Hills will essentially receive all the benefits associated with a \$1,000,000 engineering study to develop design criteria for treatment of the BHDF concentrate. Specific benefits are as follows:

- Design criteria will be developed for zero liquid discharge treatment of the BHDF concentrate.

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- Energy requirements for concentrate treatment will be determined.
- Treatment costs including capital, operations and maintenance will be determined.
- Space requirements for the concentrate treatment system will be determined.

At the end of the study, the City will have the information necessary to evaluate installing concentrate treatment equipment and eliminating concentrate discharge to the sewer.

RECOMMENDATION

It is requested the City Council Authorize the use of the Beverly Hills Desalinization Facility by Black & Veatch as a test site location to conduct a study associated with an Emerging Technology Grant for which the firm has submitted an application.



David Gustavson
Approved By

Attachment 1



David Gustavson, Director
Public Works & Transportation

November 15, 2011

California Energy Commission
Grants and Loans Office
Attn: ETDG II Program
1516 Ninth Street, MS-1
Sacramento, CA 95814

Attention: ETDG II Program

Subject: 2011 Emerging Technology Grant Program

This letter states the City of Beverly Hills' conditional intent, pending City Council approval on December 6, 2011, to support the ETDG research project proposed by the Black & Veatch team by providing a site for the demonstration facility at the Beverly Hills Desalination Facility (BHDF) and by providing in-kind support.

Brackish groundwater is treated for potable use with reverse osmosis membranes at the BHDF. Currently desalination concentrate is discharged to the sewer system, but the City is interested in transitioning to zero liquid discharge (ZLD) desalination to conserve water and eliminate concentrate discharge to the sewer. The proposed technology has the potential to achieve significant reductions in the cost and energy required for ZLD desalination.

In addition to providing a site for the demonstration facility, the City will provide in-kind support with an estimated value of \$23,000. Our in-kind support will include labor and materials associated with setting up and demobilizing test equipment, provision of water quality data, use of our laboratory space, materials and equipment for field tests, coordination with our compliance laboratory for sample analyses, and ongoing maintenance support throughout testing.

We support California Energy Commission's efforts to reduce the energy required for concentrate management in California, and we are eager to contribute to this effort by participating in the ETDGII program.

Sincerely,

David D. Gustavson
Director of Public Works & Transportation