

WEST BASIN MUNICIPAL WATER DISTRICT **DECEMBER 6, 2001 – Water Resources**
McDonald, Little
DECEMBER 17, 2001
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ACTION CALENDAR

SEAWATER DESALINATION PILOT PLANT DEVELOPMENT AND TESTING

SUMMARY:

At the November Board meeting, staff presented an update on the past years accomplishments towards the implementation of a small-scale (40 gallons per minute) seawater desalination pilot plant. The accomplishments include:

- Staff convened a workshop of industry experts including AWWARF, NWRI, SPI, DHS, and others to discuss the highest needs for seawater desalination testing. The top areas of research needed were determined to be seawater desalination pretreatment and water quality;
- The El Segundo Power LLC II board and your Board have approved a “Memorandum of Understanding” outlining a three year commitment to pilot testing seawater desalination. Key points of the MOU include:
 - El Segundo Power will:
 - Provide access to the seawater inlet and outlet,
 - Provide site and utilities for a seawater pilot plant, and
 - Allow ingress and egress for the researchers.
 - West Basin will:
 - Design, construct and operate the seawater pilot plant at its own cost,
 - Prepare the research program and testing protocol,
 - Perform the research testing, and
 - Obtain any permits needed to operate the plant;
- AWWARF has approved a grant of \$175,000 for water quality research at the seawater desalination pilot plant. Other agencies have approved \$100,000 in additional cash contributions plus in-kind services. West Basin has approved \$75,000 for total cash contributions of \$350,000.
- NWRI has approved a grant of \$77, 830 for seawater pilot plant testing. (Total testing costs \$152,830 of which West Basin will contribute \$75,000); and
- USBR has approved a grant of \$176,000 for the development of a seawater pilot plant unit. (Total development cost \$253,000 of which the USBR will contribute \$176,000 and West Basin \$77,000).

The table below shows the total funding sources available to West Basin for the first year's pilot plant work. The total budget is \$755,000. West Basin's portion of the funding is \$227,000.

Seawater Desalination Pilot Plant Funding Sources

Agency	Pilot Plant Development	Pilot Plant Testing	Water Quality Testing	Total
WBMWD	\$77,000	\$75,000	\$75,000	\$227,000
USBR	\$176,000			\$176,000
NWRI		\$77,830		\$ 77,830
AWWARF			\$175,000	\$175,000
Others				
-LADWP			\$50,000	\$50,000
-Tampa			\$25,000	\$25,000
-Callegus			\$25,000	\$25,000
-MWD			in-kind	in-kind
-Long Beach			in-kind	in-kind
TOTAL	\$253,000	\$152,830	\$350,000	\$755,000

As shown in the table above, expenses for the Pilot Plant development are expected to total \$253,000 and will consist of:

Pilot Plant Development

Consultant - (Pilot Plant Design)	\$53,000
West Basin Staff time	\$15,000
Fabrication, Installation, MF lease and Aux. Equipment	<u>\$185,000</u>
TOTAL	\$253,000

As shown in the table above, expenses for the Pilot Plant Testing are expected to total \$152,830 and will consist of the following:

Pilot Plant Testing

Consultant - (Development of Testing Protocols, Evaluate data, modify protocol as necessary, progress reports, final report and workshop)	\$46,290
Chemical costs	\$5,500
Operations Labor	\$34,000
Laboratory services	\$20,000
West Basin Staff time	\$15,000
<u>Project Contingency</u>	<u>\$32,040</u>

TOTAL

\$152,830

WBMWD Board Memorandum
December 17, 2001 Page 3

The next step for West Basin is to authorize the General Manger to develop and test the Seawater Desalination Pilot Plant.

Staff recommends design of a reverse osmosis pilot plant and development of testing protocols. Staff recommends using Separation Processes, Inc. (SPI) to perform these tasks and to monitor the results of the pilot plant for a period of 12 months. SPI is uniquely qualified to render the design and technical assistance necessary for these tasks. The three main experts from SPI who would be working with District staff have over 85 years of experience in the manufacture, design, and operation of reverse osmosis membrane projects. Since 1980, SPI has been involved in over 100 membrane technology projects in California, Arizona, Texas, Florida, Mexico, Bahamas, Netherlands, and Saudi Arabia. They serve more than a dozen municipal water district clients in California. SPI has been part of the West Basin team that operates and maintains the membrane facilities since the start of the recycled water and desalter programs.

The schedule for the first year's pilot plant testing is as follows:

Design of pilot plant and development of testing protocol	- Two months
Development and construction of the pilot plant unit	- Three months
<u>Initial pilot plant test program (AWWARF and NWRI)</u>	- <u>Seven months</u>
Total schedule	- Twelve months

The pilot plant unit will be operational in May 2002.

FISCAL IMPACTS:

The estimated cost of the Seawater Desalination Pilot Plant development is \$253,000 and Pilot Plant testing is \$152,830 for a total of \$405,830. There are funds in the current budget for these items. West Basin will fund these items in advance and the expenses will be reimbursed by the USBR up-to \$176,000 and by the NWRI up-to \$76,830. After reimbursement West Basin's total outlay will be \$152,000.

ENVIRONMENTAL COMPLIANCE:

An updated NPDES permit for the ocean outfall may be needed. Staff will follow up with the Regional Water Quality Control Board.

COMMITTEE STATUS:

This item was reviewed at the Water Resources Committee meeting on December 6, 2001 and recommended for approval at the December 17, 2001 Board meeting.

RECOMMENDED MOTION:

Authorize the General Manager to:

1. Expend an amount not-to-exceed \$253,000 for pilot plant development and testing plus ten percent to cover unforeseen conditions; and
2. Enter into an agreement with Separation Processes, Inc. for the design of the seawater pilot plant (\$53,000) and for the testing of the seawater pilot plant (\$46,290) for an amount not-to-exceed \$99,290.

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