

**WEST BASIN MUNICIPAL WATER DISTRICT**

**JUNE 7, 2001 – Water Resources**  
**JUNE 18, 2001 – Board Meeting**  
Prepared by: Wyatt Won  
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Approved by: Darryl G. Miller

## ACTION CALENDAR

OPERATIONS SUPPORT SERVICESSUMMARY:

West Basin is one of the largest users in the nation of microfilters and reverse osmosis (RO) membranes. West Basin uses the microfiltration and RO process to treat recycled water for use in the West Coast Seawater Barrier and for use at the Chevron, Exxon-Mobil, and BP-Arco refineries. With the recent addition of the Chevron Boiler Feed facilities, West Basin has over 22 million gallons per day (mgd) of RO membrane capacity at its recycling and desalter facilities. The District has about \$3.5 million invested in the RO elements alone.

Operating and maintaining the microfilters and RO membranes requires skilled operators and specialized technical assistance in regularly monitoring and evaluating the performance of the membranes. Separation Process, Inc. (SPI) is uniquely qualified to render technical assistance to evaluate the performance of the membranes and to troubleshoot potential problems. 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 RO membranes. 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 an integral part of the team that operates and maintains the membrane facilities since the start of the recycled water and desalter programs. The District currently has an agreement with SPI to provide technical assistance in the operation and maintenance of the membranes. The agreement was approved by the Board in March 2000 and is approaching its contract amount. SPI's accomplishments over the past 15 months include:

- Provided technical information regarding serving recycled water to Exxon-Mobil's low-pressure boilers;
- Provided technical information for the seawater desalination pilot plant project;
- Regularly monitored all membranes to spot potential problems;
- Identified scaling problem in Barrier Train No. 3 and recommended appropriate cleaner and new antiscalant;
- Recommended installing polyamide thin film composite membranes in the third stage of Barrier Train No. 2 as an interim solution to improve train performance. Monitored and analyzed data from the third stage;

- Coordinating efforts to more effectively clean the cellulose acetate membranes in Barrier Train Nos. 1 and 2. SPI is in the process of determining the most effective cleaner and the cleaning procedure;

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- Identified fouling of Exxon-Mobil RO Trains due to ultra-violet light penetration of the pressure vessels. Coordinating with the pressure vessel manufacturer to implement a fix;
- Provided technical assistance for the current pilot test of the U.S. Filter CMF-S (Continuous Microfiltration – Submerged) system as a potential alternative to the current microfilters;
- Managed the pilot testing of membrane processes at the County Sanitation Districts of Los Angeles County Carson plant'
- Identified fouling of membranes at the desalter and recommended appropriate cleaner;
- Provided technical documents for the antiscalant bid package; and
- Provided three training sessions to operations staff.

Staff is proposing to retain SPI to provide technical assistance in the following areas:

- Monitor and evaluate the performance of the membranes;
- Provide technical assistance regarding the operation and maintenance of the membranes;
- Provide assistance in developing information required by new customers; and
- Provide operator training.

#### FISCAL IMPACTS:

Funds have been provided in the recycled water and desalter O&M budget for fiscal year 2000-01 and fiscal year 2001-02.

#### ENVIRONMENTAL COMPLIANCE:

Not applicable.

#### COMMITTEE STATUS:

This item was reviewed by the Water Resources Committee meeting on June 7, 2001 and was recommended for approval. This item was agendaized to the June 18, 2001 Board meeting as an action item.

#### RECOMMENDED MOTION:

Authorize the General Manager to enter into an agreement with Separation Process, Inc. to provide technical assistance for the operation and maintenance of the microfilters and reverse osmosis membranes and to provide technical assistance to the District's customer development efforts. The agreement shall be for an amount not-to-exceed \$150,000.

#### LIST OF EXHIBITS:

None.

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