

**WEST BASIN MUNICIPAL WATER DISTRICT****AUGUST 15, 2005 - Water Resources**  
Little, Baker**AUGUST 22, 2005 - Board Meeting**

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ACTION CALENDAR

OCEAN-WATER DESALINATION UPDATESUMMARY:**Pilot Plant Ultrafiltration Pretreatment Unit Lease Extension**

At the conclusion of West Basin's Phase A of coldwater piloting research, West Basin proceeded to implement equipment modifications and improvements to the Pilot Plant to facilitate the next phase of research (Phase B). Phase B involves the assessment of using ultrafiltration pretreatment in combination with reverse osmosis treatment while utilizing the power plant's post condenser effluent (warmwater) as the feedwater source. West Basin's membrane consultant evaluated numerous ultrafiltration membrane manufacturers on a performance and cost criteria and ultimately recommended that West Basin implement the Zenon ultrafiltration pretreatment system for Phase B.

In June 2004, West Basin executed a one-year contract with Zenon, Inc. for an amount of \$95,000. Approximately \$43,000 of the contract has been expended to date, leaving approximately \$52,000 available under the existing contract. Due to challenges in establishing a warmwater connection feedwater source at the El Segundo Power Plant, West Basin did not take delivery of the ultrafiltration pretreatment unit until January 2005. In addition, the Phase B research program was originally scheduled to only last one-year. However, after further investigation of regulatory compliance issues West Basin elected to extend the Phase B research program an additional six months in an effort to canvass all potential questions that may be raised during the permitting process of West Basin's future ocean-water demonstration and full scale projects.

Therefore, staff is requesting that the Board authorizes the Co-General Managers to enter into a contract with Zenon Inc. for 18 months for a not-to-exceed contract amount of \$102,000 to allow completion of the Phase B scope of research.

**Department of Health Services (DHS) Advisory Panel**

Over the past three years, West Basin has experienced tremendous success operating the Ocean-Water Desalination Pilot Plant. West Basin is continuing to aggressively pursue all of the project components that will be essential to the development of West Basin's full-scale Ocean-Water Desalination Project. A major benefit recognized from West Basin's Pilot Plant research program has been the ability to evaluate and discuss actual water quality characterizations and findings with regulatory agencies. This ongoing dialogue with regulators has resulted in critical information and concerns being brought forth in the collaborative partnership process. These continued discussions with regulators will be paramount to better understand regulators concerns and areas of permitting challenges as West Basin begins the permitting efforts for the ocean-water desalination demonstration and full-scale projects.

In March 2005, West Basin and the City of Los Angeles Department of Water and Power (LADWP) initiated discussions with DHS regarding the criteria that would be used to obtain a water supply permit for operations of a full-scale Ocean-Water Desalination facility. Due to the relatively uncertain water quality characteristics of ocean-water and the lack of practical experience in permitting such an unknown potable water source, DHS has expressed a number of concerns that they would like to see addressed through the piloting and demonstration project's water quality assessments. These concerns, if not adequately addressed, could potentially delay the issuance of a water supply permit at the full-scale level. Some of the issues raised through the continued discussions with DHS include the removal effectiveness by the reverse osmosis elements of algal toxins (produced from red tide events), disinfection by-products formulated as a result of the seawater matrix, defining the source water assessment boundaries, and effects of blending treated ocean-water with other water supply sources. Due to the potentially infinite issues that could be raised by DHS at any point in the permitting process, it has become apparent that a standardized permitting process be developed to assist each agency pursuing the development of an ocean-water desalination facility.

On June 20, 2005, West Basin, LADWP, and other California water agencies joined together with DHS regulatory staff at the West Basin Water Recycling Plant in a collaborative workshop effort to discuss the next steps in developing a standardized ocean-water supply permitting process. A number of permitting, water quality, and technology specific issues were raised and discussed by each agency and DHS in an effort to determine the next steps in the standardization process. It was suggested by DHS that an Ocean-Water Desalination Supply Permit Guidance document be formulated similar to the 1999 Ultra-Violet Disinfection Guidance document that was generated through a collaborative partnership with water industry professionals, the National Water Research Institute, and DHS. This guidance document would serve as an outline to the specific treatment, distribution, and operational requirements expected by DHS to obtain a water supply permit for an ocean-water desalination facility.

In an effort to take advantage of the work previously performed on the Ultra-Violet Disinfection Guidance document effort, workshop attendees proposed to have the National Water Research Institute also lead the guidance document development for this project. Agencies interested in participating on the DHS Advisory Panel in the development of the Ocean-Water Supply Permitting Guidance document will be requested to financially contribute to the collaborative workshop and document review process. Development of the guidance document is expected to take approximately one-year. West Basin will be assisting in the development of this guidance document through the collaborative workshop and document review process. Staff will bring updates back to the Board as the framework progresses on the development of this guidance document.

### **Red Tide Events - Impact of Phytoplankton and Domoic Acid Occurrence**

There have been recent concerns that red-tide events caused by high-levels of Phytoplankton in ocean waters create algal toxins that may be dangerous to marine life and humans. The primary toxin present in these red-tide events is domoic acid. For the last several months there has been a major red-tide bloom off the coast of Southern California. Staff has extensively sampled for the existence of red-tide and domoic acid in the ocean water. The sampling results are shown in Exhibits "A" and "B". The results of the two graphs clearly indicate a robust red-tide event ongoing and that domoic acid, up to the level of 2 ug/l, is

present in the ocean-water intake supply. The good news from our testing is that the domoic acid is removed through West Basin's microfiltration and reverse osmosis treatment processes resulting in non-detect readings for all product water. Additional testing is being performed to further investigate the impact of the red-tide events on water quality. Staff will continue to update the Board on testing progress as additional results are obtained.

### **U.S. Desalination Coalition**

The U.S. Desalination Coalition will be holding its next meeting in Washington, D.C. in October. This meeting has been scheduled in Washington D.C. at the suggestion of the supporting Congressional sponsors to allow the potential for additional lobbying on the proposed energy legislation. The meeting will commence with a reception on Wednesday, October 5. The Board meeting will be held at 9:00 a.m. on Thursday, October 6. The Board meeting will be followed by a lunch and a briefing on Capitol Hill for Congressional staffers. Meetings with Congressional offices will be held that same afternoon.

### **American Membrane Technology Association Conference**

Staff made a presentation on the status of West Basin's Ocean-Water Desalination Pilot Plant and the Affordable Desalination Collaboration Project at the American Membrane Technology Association Conference in Minneapolis, Minnesota on August 5. West Basin's participation in this conference continued to promote the research and development of the District's Ocean-Water Desalination Program.

### **Monterey County Ocean-Water Desalination Project**

Cal Am, a privately owned utility, released its long awaited environmental assessment this month initiating the month-long timeframe in which the public has to respond to the environmental assessment for the construction of the proposed ocean-water desalination facility that will be located on property owned by Duke Energy. Cal Am held a public meeting for the citizens of Moss Landing to hear public comments on the proposed construction. A variety of concerns were expressed by local citizens. These concerns were focused on the following topics:

- Handling and disposal of sludge;
- Chosen treatment technology and associated water quality;
- Recycling of brine;
- The potential for hazardous particles from the local landfill affecting the ocean feedwater source;
- Brine concentration effects upon the ocean;
- Co-location of a desalination plant would provide longevity to Duke Energy and the use of the once-through cooling system; and
- Traffic congestion and mitigation.

If all goes well and the Public Utilities Commission approves the environmental assessment, Cal Am expects to start construction on the full scale facility by 2008. Cal Am is currently constructing a pilot plant facility to test operational and water quality protocols to use in support of their full scale design.

FISCAL IMPACTS:

Funds are available in the Ocean-Water Desalination Budget for FY 2005-06.

ENVIRONMENTAL COMPLIANCE:

None.

COMMITTEE STATUS:

This item was reviewed by the Water Resources Committee on August 15, 2005 and was recommended for approval at the August 22, 2005 Board meeting.

RECOMMENDED MOTIONS:

That the Board authorizes the Co-General Managers to enter into a contract with Zenon Inc. for 18 months for a not-to-exceed amount of \$102,000 to allow completion of the Phase B scope of research.

EXHIBITS:

Exhibit "A" - Phytoplankton Concentration  
Exhibit "B" - Domoic Acid Concentration

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