

- **Board of Directors**  
**Water Quality and Operations Committee**

March 13, 2007 Board Meeting

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8-3

## **Subject**

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Authorize a memorandum of understanding with Las Vegas Valley wastewater treatment agencies to participate in the Boulder Basin Adaptive Management Plan for protection of water quality in Lake Mead

## **Description**

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### **Background**

The Las Vegas Valley in southern Nevada is home for over one million residents and is continuing to grow. This region uses most of Nevada's 300,000 acre-feet annual apportionment to consumptive use of Colorado River water. The water agencies serving the region divert over 500,000 acre-feet from the Colorado River and receive credits for over 200,000 acre-feet of water that return to Lake Mead through the Las Vegas Wash.

Since 1956, the cities in Las Vegas Valley have discharged their treated wastewater into Las Vegas Wash. This natural drainage feature carries both the treated wastewater and stormwater/surface runoff into Las Vegas Bay of Lake Mead. Approximately 80 percent of Las Vegas Valley's treated wastewater is released into the Wash, with the remaining 20 percent being used for landscape irrigation and similar uses. The quantity of treated wastewater discharged back to the Colorado River has increased along with the population of the valley.

The Nevada Division of Environmental Protection (NDEP) is responsible for protecting water quality within that state, including setting water quality standards for wastewater discharged from Nevada's publicly owned treatment plants. In 1987, the NDEP established standards for Las Vegas Bay that impose limits on the quantities of phosphorus and ammonia from municipal wastewater plants. Treatment facilities were upgraded to meet these requirements, but the municipalities anticipate that water quality standards will be exceeded as population increases cause greater effluent volumes. Additionally, the assimilation ability of Las Vegas Bay will reduce with the elevation of Lake Mead due to greater use and potentially reduced inflows.

To deal with water quality issues, the regional municipalities completed a needs assessment in 1997 that identified relocation of the wastewater discharge site as a potential long-term solution. Further study was completed in 2000 and included recommendations to construct an interceptor line to collect treated wastewater before it enters Las Vegas Wash and convey this effluent to the bottom of Lake Mead in Boulder Basin. The Clean Water Coalition (CWC) was created as a joint powers agency consisting of the city of Las Vegas, the city of Henderson, the Clark County Water Reclamation District, and the city of North Las Vegas. The CWC will construct and operate the facilities recommended in the studies, now called the System Conveyance and Operations Program (SCOP).

### **The Scope of System Conveyance and Operations Program**

The SCOP consists of a series of pipelines to collect treated wastewater from each of the treatment plants and deliver the effluent to a diffuser constructed on the bottom of Lake Mead in Boulder Basin. The volume of treated wastewater released from the treatment plants is expected to rise from current levels below 200 million gallons per day (mgd) to 250 mgd by 2020 and nearly 400 mgd in 2050. The SCOP facilities will be designed to release a minimum flow of 30 mgd into Las Vegas Wash to maintain the habitat that has grown due to effluent flows. The balance of the treated wastewater would be delivered through a new pipeline and a series of diffusers constructed at an elevation of 880 feet (i.e., a depth of approximately 250 feet below the current surface elevation of Lake Mead). The outfall would be constructed southeast of Saddle Island where the Southern Nevada Water Authority (SNWA) intakes are located.

In addition to the new effluent release facilities, each of the treatment plants would be operated to optimize their efficiency in removing unwanted constituents. The amount of phosphorus in the wastewater has been a particular concern due to its contribution to algae growth. Phosphorus is an essential nutrient in lakes and its relative absence in Lake Mead protects against algae blooms that create water quality problems. The CWC has committed to limiting the quantity of phosphorus released in effluent to the current limits imposed by NDEP. Furthermore, each of the wastewater agencies must comply with any new regulatory standards imposed by the NDEP for releases from the facilities.

### **The Boulder Basin Adaptive Management Plan**

The analysis of the effects of the project on water quality must take into account many variables, including future lake levels, the accuracy of models used to calculate water mixing and movement, and results of new research on constituents of concern. As a cooperating agency participating in the environmental review of the project, Metropolitan strongly urged the adoption of an adaptive management plan that would include monitoring of Lake Mead and an action plan to address unexpected circumstances. In the Final Environmental Impact Statement, the federal agencies with approval authority over the project, Bureau of Reclamation (Reclamation) and National Park Service (NPS), have required the inclusion of the Boulder Basin Adaptive Management Plan (Boulder Basin AMP) as part of implementation of the project.

The Boulder Basin AMP establishes water quality monitoring requirements that specify sampling locations and frequency, and identify constituents to be measured. The constituents include not only phosphorus, but also pharmaceuticals and personal care products. This data will be collected, along with other water quality data collected by other programs, into a single data repository.

The results of the monitoring will be used to identify water quality concerns that may arise. These concerns can be addressed through identified actions that include modified operation of the diffusers to reduce or increase mixing, increased treatment to reduce phosphorus levels in the effluent, or increasing the flow of effluent discharged to the Las Vegas Wash instead of Boulder Basin. Other action plans will be developed as necessary to address specific concerns.

A team of representatives from the CWC, SNWA, Reclamation, and NPS will oversee the Boulder Basin AMP. This team will be supported by technical advisory committees that allow input from other federal, state, and local agencies with a stake in the water use and quality of Lake Mead.

### **The CWC-SNWA-Metropolitan Memorandum of Understanding**

Metropolitan has actively participated in the federal environmental review of the SCOP. Although the federal agencies did not concur in Metropolitan's proposal to establish limits on phosphorus levels as a condition of approval, the project was revised to retain the current limit on total phosphorus that is released to Lake Mead. To ensure that water quality concerns continue to be considered and addressed, it is important that Metropolitan retain a voice in the management of the operation of the SCOP facilities and the Boulder Basin AMP.

CWC and SNWA have approved Metropolitan's participation on the technical committee that provides input to the team overseeing the Boulder Basin AMP. To ensure the effectiveness of this role, CWC will make available to Metropolitan the water quality monitoring data collected for the program, as well as other data made available and collected in the data repository. The CWC and SNWA have further agreed to establish direct communication with Metropolitan staff to allow discussion of issues or proposals that Metropolitan may wish to raise outside the context of the formal technical committee. These issues may be raised to the management level at the request of any party.

The approval by CWC and SNWA of Metropolitan's role in the Boulder Basin AMP and creation of direct technical contacts among the agencies would be documented in a memorandum of understanding. The memorandum expressly reserves the rights of Metropolitan to seek enforcement of applicable water quality standards, and Metropolitan may pursue additional regulatory restrictions as appropriate to protect water quality.

**Policy**

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Policy Principle for Source Water Protection, M.I. 40878 – June 14, 1994  
Colorado River Policy Principles, M.I. 42375 – April 8, 1997

**California Environmental Quality Act (CEQA)**

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CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it involves continuing administrative activities (Section 15378(b)(2) of the State CEQA Guidelines). In addition, where it can be seen with certainty that there is no possibility that the proposed action in question may have a significant effect on the environment, the proposed action is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is not subject to CEQA pursuant to Sections 15378(b)(2) and 15061(b)(3) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

**Board Options**

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**Option #1**

Adopt the CEQA determination and authorize the General Manager to execute a memorandum of understanding with the Clean Water Coalition and Southern Nevada Water Authority to approve Metropolitan’s participation in the Boulder Basin Adaptive Management Plan, share water quality monitoring data, establish technical level contacts to address water quality concerns, and provide for management level contacts to resolve problems that arise.

**Fiscal Impact:** Review of water quality data and participation in technical committee oversight of Las Vegas area wastewater discharges will require a commitment of staff time. The cost of the additional work is not anticipated to be significant.

**Business Analysis:** Management of potential water quality issues from upstream discharges on the Colorado River may avoid or limit future treatment or replacement supply costs.

**Option #2**

Do not authorize execution of the memorandum of understanding, but allow staff to monitor water quality issues on the Colorado River through publicly available information and applicable regulatory procedures.

**Fiscal Impact:** None

**Business Analysis:** The availability of water quality data may be limited and the response of regulatory agencies may be delayed, resulting in water quality problems not being timely addressed to protect Metropolitan from implementing its own treatment or replacement supply measures.

**Staff Recommendation**

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Option #1

  
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Manager, Water System Operations

2/26/2007  
Date

  
Jeffrey Kightlinger  
General Manager

2/26/2007  
Date