

**Central Arizona Water Conservation District
Metropolitan Water District of Southern California
Southern Nevada Water Authority**

January 14, 2009

Ms. Lorri Gray
Regional Director
United States Bureau of Reclamation
Lower Colorado Region
P.O. Box 61470
Boulder City, Nevada 89006-1470

RE: *Yuma Desalting Plant Proposed Pilot Operation*

Dear Ms. Gray:

We are writing on behalf of the Central Arizona Water Conservation District (CAWCD), the Metropolitan Water District of Southern California (MWD) and the Southern Nevada Water Authority (SNWA) (hereinafter collectively referred to as the Municipal Utilities). The Municipal Utilities have initiated discussions with the U.S. Bureau of Reclamation (Reclamation) regarding a proposed pilot operation of the Yuma Desalting Plant (YDP). The Municipal Utilities are exploring the feasibility of partially funding the pilot operation, as described more fully below, in order to obtain information regarding the capability and operational readiness of the YDP that can only be understood through actual operation of the facility.

We understand that Reclamation has held a public meeting to help gather information to determine the scope of issues associated with the proposed action, and has received comment letters from some environmental organizations raising concerns with the scope and timing of the proposal. It is clear from the comments that some confusion exists with regard to the intended purpose of the pilot operation. For that reason, the Municipal Utilities want to clarify for purposes of our ongoing discussions with Reclamation and what we see as the limited purpose and need for the pilot operation of the YDP.

In furtherance of our discussions, the Municipal Utilities retained the consulting firms of CH2M Hill and Black & Veatch to make an independent evaluation of both the purpose and estimated cost of a pilot operation of the YDP. That evaluation is summarized in the attached September 2008 Report entitled "Yuma Desalting Plant Pilot Operation Overview" (the Pilot Operation Report). As discussed in more detail below, the Pilot Operation Report finds that a pilot operation of the YDP for 12 months is necessary to evaluate the operational capabilities of the YDP and potential operating costs. Without this real-time information, it is impossible to determine whether the YDP could reliably operate on a long-term basis and what, if any, improvements to the facility may be necessary to ensure the most efficient, cost effective and reliable long-term operation.

Background

The Colorado River Basin Salinity Control Act of 1974 (Salinity Control Act) authorized construction of the Yuma Desalting Plant as part of the "permanent and definitive solution" to Colorado River salinity embodied in Minute 242 of the International Boundary and Water Commission, United States and Mexico. Built to treat brackish irrigation return flow from the Welton Mohawk Irrigation and Drainage District (WMIDD), the YDP was completed and placed into operation in 1992. It operated at one-third capacity for about six months until heavy flooding on the Gila River in January 1993 damaged the canal

that transports WMIDD drain water to the YDP, causing the plant to shut down. For the next several years, high flows on the Colorado River made it unnecessary to operate the YDP to meet the water quality requirement of Minute 242. As a result, Reclamation placed the plant in ready-reserve status and, except for a brief demonstration run in 2007, has maintained it in that state since. Periodically, Reclamation has conducted readiness assessments to assess steps necessary to return the YDP to operation.

With the YDP not operating, return flows from the WMIDD that otherwise would have been treated at the plant and delivered to the Colorado River have instead been conveyed through the bypass drain to the Cienega de Santa Clara (Cienega) in Mexico. Water conveyed through the bypass drain is not credited to the U.S. as a delivery to Mexico under the 1944 Treaty, and the U.S. is under no obligation to continue bypassing WMIDD return flows. However, because these flows have been conveyed through the bypass drain instead of being discharged to the Colorado River upstream of Morelos Dam, the U.S. has had to release an equal amount of water from Colorado River System storage to meet the Mexican Treaty obligation – water that otherwise would have been available for beneficial use in the U.S.

In 2007, Reclamation operated the YDP for three months at 10% capacity, producing 2,632 acre-feet of product water (the 2007 Demonstration Run). The purposes of the 2007 Demonstration Run were to show that the plant could run, demonstrate the plant's use of current technologies, validate cost and performance estimates for the plant, improve overall plant readiness and provide measurements of water quality impacts. As discussed below, however, the Municipal Utilities believe that the 2007 Demonstration Run did not fully meet a number of these objectives. As a result, further testing is warranted.

Description of Proposed Pilot Run in 2009

It is widely recognized that the regions served by the Municipal Utilities have a rapidly growing population but limited water supplies. The continuing need for water for municipal, agricultural, environmental and recreational uses in the Lower Colorado River Basin has generated interest by the Municipal Utilities in using the YDP as a tool to conserve additional water in Colorado River System storage. Therefore, the Municipal Utilities want to better understand the potential of operating the YDP.

To that end, the Municipal Utilities propose that Reclamation undertake a pilot operation of the YDP to assess its operational capability for 365 days of operation over an 18-month period at one-third capacity (Pilot Run). The Pilot Run would use agricultural return flow resulting from the use of Colorado River water on WMIDD lands that is conveyed to the plant through the Main Outlet Drain and the Main Outlet Drain Extension (MODE). The product water produced from the Pilot Run would be blended with additional water from the MODE to reach a target total dissolved solids (TDS) concentration and then discharged to the Colorado River for credited delivery to Mexico under the Treaty. It is anticipated that approximately 30,000 acre-feet of water would be released to the Colorado River during the Pilot Run, conserving an equivalent amount of water in Lake Mead. The reject brine stream from the Pilot Run would be discharged to the MODE in accordance with Minute 242.

The Pilot Run would utilize a different pretreatment process and different reverse osmosis membranes than were utilized for the 2007 Demonstration Run to allow for additional testing and data collection. Operating the YDP at its full capacity is not possible at present, but also not required to collect the data necessary for potential full-capacity operation. However, running the plant at a very low capacity, as was done in 2007, would not be valuable because such a limited operation could result in over- or under-estimating capabilities of some of the treatment processes, given that performance is a function of the flow rate. Therefore, the Municipal Utilities are proposing that the YDP be operated at one-third capacity for the Pilot Run.

Purpose and Need for the Pilot Run

Depending upon the results of the proposed Pilot Run, the Municipal Utilities are potentially interested in subsequent discussions and processes that would evaluate the long-term viability and operation of the YDP. For example, on a long-term basis it is possible that the YDP might be operated for its

originally authorized purpose, as a municipal water supply, for a combination of these purposes, or for other, yet-to-be-determined purposes. The YDP could be operated using its existing design or it could be modified to use different pre-treatment methods and reverse osmosis membranes. The source water for long-term operation of the YDP could be as originally intended or a different source altogether. The results of the proposed Pilot Run along with research and other information would be important in assessing long-term alternatives for the YDP, whether it be operation or a temporary return to ready reserve status. However, these are long-term questions that are beyond the scope and proposed purpose of the Pilot Run. Any decision on long-term operation would require independent environmental compliance and perhaps additional Congressional authorization depending upon the purpose of such operation. However, the Pilot Run is a preliminary action designed to gain information necessary to inform any such later decision. The Pilot Run would neither preclude nor commit resources toward any later use or operation of the YDP.

The Municipal Utilities view the principal benefit of conducting the Pilot Run as generating information to better understand both the operational readiness of the YDP and its long-term capabilities

As more fully discussed in Section 6 of the Pilot Operation Report, the specific information that would be gained from conducting the Pilot Run at this time includes the following.

- The Pilot Run would be designed to be at a flow and for a duration sufficient to (1) assess the cost of long-term YDP operation at design capacity, and (2) verify the suitability of the treatment processes and associated facilities currently in place at the YDP to reliably produce product water that could be used for multiple end uses. This will help determine whether any additional improvements to the YDP are necessary to ensure reliable medium and long-term operation beyond those already identified by Reclamation and the cost implications of such improvements. (Pilot Operation Report at 18-19).

More specifically, in the more than two decades since the initial design of the YDP, water treatment technology has advanced substantially in terms of both type and efficiency. For example, reverse osmosis (RO) membranes have improved salt removal while reducing energy use and operational requirements. While lime softening followed by dual-media filtration – the original pretreatment process used at the YDP – is still considered standard technology, many utilities are turning to the use of microfiltration or ultrafiltration as pretreatment preceding RO. Before making a commitment to long-term operation of any facility, it is important to assess its capabilities, cost of operation, and treatment processes. A desktop evaluation is important, but has a high level of uncertainty due to the unknown condition of the facility and equipment. Simply assuming that everything needs to be replaced would artificially increase the cost without considering the actual condition of equipment. To more accurately determine its capabilities and cost, the facility should be tested.

- The Pilot Run would also be used to provide a baseline cost for evaluation of other pretreatment processes and membrane types identified by Reclamation and the Municipal Utilities. Performance and cost data developed during the Pilot Run will provide a baseline by which alternative treatment configurations can be benchmarked, including those previously developed by Reclamation. The Municipal Utilities are interested in evaluating additional testing using Reclamation's Water Quality Improvement Center facilities in conjunction with the Pilot Run to better quantify the actual costs for all operational alternatives that could potentially provide more cost effective and reliable YDP operation in the long term. (Pilot Operation Report at 19).
- The Pilot Run will also fully test the distributed control system (DCS) implemented by Reclamation so that potential future operating costs could be reduced. The original DCS systems supplier went out of business several years ago and Reclamation has been working on an upgrade with a new system supplier. Although most of the original local manual and local automatic controls are still operational at the YDP, a majority of the DCS automatic controls and monitoring have not been tested using the new system. The Pilot Run will allow the testing and completion of the fully automated DCS control.

- Additionally, the Pilot Run can provide information to help determine the viability of the YDP to treat saline water supplies for the benefit of the Colorado River Basin States.

Although Reclamation operated the facility for a short time in 2007, the information gained from the 2007 Demonstration Run was inadequate to evaluate the facility's long-term water supply capabilities. For example, the 2007 Demonstration Run used a polymer pretreatment method, rather than the lime softening process included in the original YDP design. The Demonstration Run used a combination of new and "used" membranes, with the used membranes showing increasing salt passage. Reclamation concluded that the polymer pretreatment did not produce suitable results with the plant's cellulose acetate membranes to justify its continued use. As a result, the cost and performance data from the 2007 Demonstration Run are not accurate indicators of longer-term YDP operating costs. By comparison, the Pilot Run would include the lime softening process and unused Fluid Systems RO membranes, of which Reclamation has a stockpile. The Pilot Run would provide additional baseline data to help assess YDP capabilities, cost of operation, and impacts.

Implementation of a pilot operation in advance of full-scale operation is conventional practice in the industry. The objectives of pilot operation usually include minimization of overall operational costs, insuring that the finished water quality meets required standards, and allowing operational flexibility, particularly related to the costs of operation associated with the use of chemicals and energy. In general, the larger the pilot operation, the more closely the pilot results will match full-scale plant operations. The determination of the size of the pilot operation is usually based on balancing piloting costs versus information obtained to assess the design and operation of the full scale plant. Another general rule of pilot operations is that the piloting be conducted over an adequate length of time to allow for the full range of variation of influent water quality. This period is typically one year to allow for seasonal variations. The 2007 Demonstration Run did not constitute a true pilot operation of the YDP, as it lasted only 90 days and the plant operated at only 10% capacity during that time.

Public Concerns

Some environmental groups have already written Reclamation commenting on the potential environmental impacts from the Pilot Run. In part, these groups are concerned with potential loss of biological habitat and water quality impacts to the Cienega from reduced flows in the bypass drain. The reduction in flow in the bypass drain, however, would be within the range of variability in both the quantity and quality of flows that have occurred historically. As discussed above, bypass drain flows are irrigation return flows, and as such are inherently variable and dependent on the extent and continuation of irrigation.

There is no obligation, either under U.S. law or the 1944 Treaty, on the part of WMIDD, the United States or any other entity to maintain flows in the bypass drain of any particular quantity or quality. In fact, Minute 242 expressly provides that the United States may discharge the YDP brine stream to the Cienega through the bypass drain.

As discussed above, however, the Municipal Utilities are considering providing a portion of the funding for the environmental review of the Pilot Run. Environmental groups also commented that Reclamation should undertake a broader range analysis of various operational configurations of the YDP. Such review is unnecessary and inappropriate in light of the limited purposes and scope of the Pilot Run. Of course, any consideration of long-term YDP operations would involve a different set of potential environmental or other impacts. This proposal does not raise those considerations.

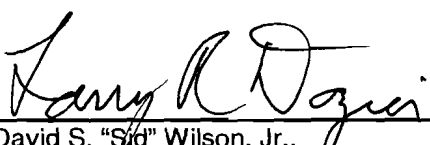
Conclusion

The YDP is a resource that should be fully considered to help conserve water in the Lower Colorado River Basin. The Municipal Utilities would support and to the extent appropriate participate in consultations by Reclamation with Mexico pursuant to Minute 242, concerning the Pilot Run.

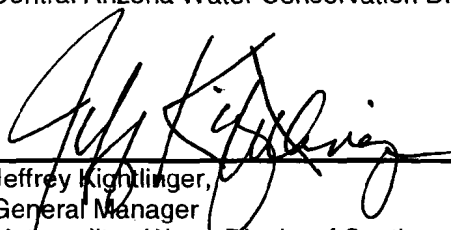
The Municipal Utilities believe a Pilot Run of the limited scope and duration described above would provide valuable data to inform future decisions about options for long-term YDP operation. The

Municipal Utilities are willing to enter into a cost sharing arrangement with Reclamation to fund the environmental compliance costs necessary to evaluate the Pilot Run. Such funding would be used by the United States, and the environmental compliance and permitting would be subject to the procedural and substantive requirements of applicable federal and state law. The Municipal Utilities would reserve their rights to participate in and challenge the results of any environmental review and permitting decision, as would any other affected person. Moreover, even though we do not anticipate material adverse impacts to the Cienega from the proposed Pilot Run, the Municipal Utilities have proposed an environmental monitoring program that would evaluate conditions in the Cienega before, during and after the Pilot Run.

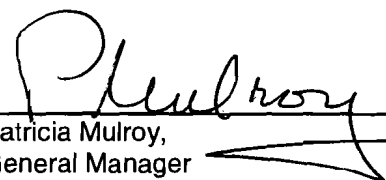
Should a decision be made to conduct the proposed Pilot Run, the Municipal Utilities would also consider providing additional funds to partially fund the cost of implementing the Pilot Run in exchange for intentionally created surplus (ICS) credits in accordance with the 2007 Colorado River Interim Guidelines. . While operation of the Pilot Run would provide the Municipal Utilities with some additional water, this is a one-time water supply opportunity and not the primary purpose of the Pilot Run. The Municipal Utilities will not be asking Reclamation to make any long-term commitment with regard to how or even if the YDP would operate in the future prior to completion of the Pilot Run.

for 

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General Manager
Central Arizona Water Conservation District



Jeffrey Kightlinger,
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Patricia Mulroy,
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