United States International Boundary and Water Commission, United States Section
Engineering Department

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FROM : Gilbert Anaya, Supervisory Environmental Protection Specialist

SUBJECT : **Mexico's comments on the Draft EIS**

DATE : April 30, 2007

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Original letter to be mailed on a later date.

If you have any questions, please contact Mr. Gilbert Anaya at 915 832-4702.

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INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

April 30, 2007

Bureau of Reclamation
Attention: BCOO-1000
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Boulder City, NV 89006-1470

Dear Bureau Staff:

The U.S. Section of the International Boundary and Water Commission provided a copy of the Draft Environmental Impact Statement on Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead to the Mexican Section of the Commission and invited comment from the Mexican Section. The Mexican Section provided detailed comments by means of a letter dated April 25, 2007. By means of this letter, I wish to communicate the Mexican Section's views to the Bureau in English.

The Mexican Section indicates that its comments of April 25 supplement initial views presented in a letter on March 29, 2007. That initial letter expressed the following views:

The Mexican Commissioner has indicated that any proposal for basin operations that affects Mexico's allocation needs to be approved bilaterally within the framework of the IBWC, particularly any alternatives that imply an interpretation or application of the extraordinary drought clause of the 1944 Water Treaty. Any reduction in the allocation of water to Mexico shall be done in strict conformance with the terms of the Treaty. As stated in the meetings, Mexico views that the reduction applicable to Mexico in the event of extraordinary drought should be proportional to consumptive uses in all of the basin states, not just those of the lower basin.

He also expresses Mexico's interest in being informed about and participating in discussions about sustainable use of the basin and, as appropriate, for Mexico to be a proportional beneficiary of conservation measures that could affect water availability in the main channel of the Colorado River.

Moreover, he states concern that operations under the shortage criteria could affect the salinity of Colorado River water delivered to Mexico, reduce the likelihood of surplus waters being delivered to Mexico in excess of the 1.5 million acre-foot annual allotment, and reduce environmental flows to the Colorado River Delta.

The Mexican Section is also concerned that the Draft Environmental Impact Statement (EIS) includes aspects related to Mexico that have not been agreed upon by the IBWC, which could generate false expectations regarding application of shortage criteria in Mexico. The Commissioner expresses his strong disagreement that alternatives that include Mexico do not take into account the concept of extraordinary drought as required by the 1944 Water Treaty in order to reduce allotments to Mexico. He is concerned that a perception has been created that Mexico has accepted the reduced allotments modeled in the alternatives – alternatives that do not conform to the 1944 Water Treaty.

End of the Mexican Section's March 29 comments

In the letter of April 25, 2007, the Mexican Section expresses the following:

Any proposal for basin operations that affects allotments to Mexico must be agreed upon within the IBWC.

The EIS proposes conditions under which reductions of water allotments to users in the lower basin, including Mexico, will be undertaken. It clarifies that the modeling assumptions do not constitute an interpretation of the 1944 Water Treaty nor do they establish operating policies with regard to water deliveries to Mexico and that any determination about such deliveries will be made in accordance with the 1944 Water Treaty. Nevertheless, the use of modeling assumptions in relation to Mexico generates false expectations that those assumptions will be or must be accepted by Mexico and by having been recorded, they could be used in the future as a restriction or limiting factor in negotiations with Mexico.

We are concerned that in spite of the repeated statements from Mexico, the document that was released to the public presents assumptions that were not previously accepted by Mexico (timing, conditions, and proportion of the reductions to Mexico).

The reduction in the allotments of water to Mexico must be under the terms of the Treaty and proportional to consumption of all states in the basin.

The policy of reductions in the lower basin of the Colorado River and Mexico is maintained throughout the document but it does not include the upper basin, which means that Mexico bears a greater percentage of reduction (16.67%) than if proportional reductions were considered for all consumptive uses in the upper and lower basin (9.1%).

In the modeling of the reductions, Mexico is always included with Arizona and Nevada, while California is not included until level 2 is reached, and the upper basin is never included. This generates false expectations as to the timing and conditions under which there would be reductions to Mexico as well as the implicit acceptance by Mexico of those reductions.

Even the No Action alternative, which should not include implementation of any actions, contains strategies of cuts for Mexico.

After applying any of the four action alternatives, it reverts back to the No Action alternative, which is a de facto policy of cuts that significantly affect Mexico.

In this context, even the No Action alternative, as addressed in the EIS, is not acceptable to Mexico, yet the language implies that should none of the four alternatives be accepted, or once their period of application ends, Mexico would not object to the No Action alternative.

Consistent with the above, all of the alternatives show reductions to Mexico of various frequencies and quantities of water and none of them is acceptable in how issues related to Mexico are addressed.

The interest of Mexico in knowing about and participating in discussions of sustainable use of the basin and, as appropriate, being a proportional beneficiary of the conservation measures that could result in the modification of water availability in the main stem.

The EIS considers a conserved volume for Mexico charged to its allotment that is designated for environmental use only and not for irrigation, its principal use in Mexico. Also, the delivery is not made when Mexico needs it (situation of scarcity or normal conditions), but rather only in surplus conditions. This type of voluntary conservation is of no use to Mexico.

No alternative was modeled in which Mexico could voluntarily conserve water to use it when it needs it.

Effect on the levels of salinity of the waters that Mexico receives.

In the analysis of the alternatives, only the quantity of water is evaluated, and not the quality of it. Given the time to undertake these analyses with the sets of rules delivered during the current month of April, it is assumed that the U.S. will comply with the salinity parameters agreed upon by the IBWC.

In the table shown on page ES18 it is observed that for three of the alternatives, increases in salinity levels are recorded at Imperial Dam (5-20 ppm), which consequently would represent an increase in the salinity of waters at Morelos Dam, since both are linked in conformance with Minute 242.

Limit on access to the surplus deliveries to Mexico.

Partial and total surpluses are allotted to U.S. users depending on reservoir storage and forecasts. Nevertheless, these additional allotments could have as a consequence the reduction in the levels of the dams that are indicators for declaring shortage. In this context, Mexico is excluded from distribution of surpluses but included during a shortage declaration, which is unacceptable to Mexico.

Reduction in the occurrence of environmental flows required by the Colorado River Delta.

In Chapter 3 of the EIS (Page 3-29) it is mentioned that due to potential changes in reservoir storage that occurs under the different action alternatives, the frequency and magnitude of flood control flows, which are those that generate surplus deliveries to Mexico, could be affected. This represents an impact to Mexico in both access to surplus deliveries as well as the occurrence of environmental flows in the Delta.

Around 16 species of fish and a list of bird species that live in the limitrophe reach are identified that could be affected by application of the proposed federal action (Table 3.8-7).

As part of the cumulative impacts, it is noteworthy that the Drop 2 storage project will reduce the volumes of over deliveries to Mexico and will have hydrologic effects in Mexican territory.

By allotting to the U.S. more frequent and greater quantities of surpluses, it leaves less water in Mead, so that when Mead spills (less frequently) it is of a lesser volume and, as a result, less water arrives in Mexico.

Inclusion of aspects that have not been agreed upon by IBWC that, by being made public in the U.S., generate false expectations on this issue.

During the binational meetings, Mexico questioned certain modeling assumptions related to Mexico; nevertheless, in spite of the repeated questioning by Mexico, the document that was released to the public

presents assumptions that previously were not accepted by Mexico (timing and conditions of reductions to Mexico, proportion of the reductions to Mexico).

The inclusion of these assumptions will have an effect on the talks to define the term of extraordinary drought referred to in the Treaty or at the time when both governments set about to define the timing and conditions for making reductions, as well as the consultations that Mexico undertakes with its users.

Although the EIS is a document for domestic use in the United States, it is not acceptable that aspects related to Mexico are presented about which Mexico repeatedly expressed its disagreement and, as previously stated, any proposal for operating the basin that affects Mexico's allotments must be agreed upon within the IBWC under the terms of the 1944 Water Treaty.

End Mexican Section's comments of April 25

In addition to the above comments presented by the Mexican Section of the International Boundary and Water Commission, the U.S. Section has received observations from Mexico's National Water Commission (CNA). CNA's comments are as follows:

The Draft EIS presents five alternatives for operating the Colorado River basin from 2008-2026. The alternatives are presented as four federal action alternatives and one for reference, called the No Action alternative, which should lack any implementation of actions; nevertheless it contemplates strategies (reasonable ones in accordance with the draft EIS) of cutbacks to Mexico. In this sense, there is no control scenario where water would continue to be distributed as it is today. Although the EIS is for the purpose of internal analysis in the U.S., in fact it means there is already a de facto policy of cuts that significantly affects Mexico since, following the period of application of one of the four action alternatives, it reverts to the No Action alternative. This concerns the National Water Commission because, if none of the other four alternatives is accepted, it could be construed that Mexico would not object to the No Action alternative because it supposedly represents current conditions.

In the meeting held March 14, 2007, representatives of the U.S. Bureau of Reclamation explained to Mexican personnel from the IBWC and CNA that the draft EIS has been opened for public comment in the U.S. and to the opinion of Mexico until the end of April.

The minutes of that meeting confirm that the U.S. Bureau of Reclamation would provide to Mexico during the week of March 19 additional information requested by CNA so that CNA could provide its opinion on time. Nevertheless, it was not until April 10 that CNA received from the Mexican Section the agreed upon information, forcing us to review it under much pressure and it still has not been completely examined.

Upon conducting an analysis of the EIS, it is observed that at all times a policy of reduction in the lower part of the Colorado River basin and to Mexico is maintained. During the meetings it was mentioned that this was due to the fact that the states of the upper basin have natural reductions due to the fact that the flow of the river is insufficient for the required demand. It was also commented that the droughts in the upper basin are more frequent than in the lower basin. First, it must be reiterated that, according to the 1944 Water Treaty, the first step consists of declaring an extraordinary drought and, based on that, proportional reductions will be applied according to consumption in both countries, meaning the upper and lower basin together. Additionally, the term "consumption" implies that of current users and not to

the volumes allotted that are still not utilized in the upper basin. From the analysis of drought undertaken in the upper basin, it can be seen that its frequency and severity is not significant, and as such does not constitute an argument to exclude the upper basin. It is observed in most cases that California is not reduced until reaching a level 2. In any case, if the U.S. decides not to reduce California in any of the alternatives, that is its decision. However, the reduction to Mexico should have been modeled only when reductions were applied to the entire American basin, in conformance with the 1944 Water Treaty. Mexico reiterates its concern that this modeling will generate false expectations and misinformation about the timing and conditions under which there would be reductions in Mexico as well as Mexico's implicit acceptance. This has great relevance when it comes time for both countries to evaluate the terms under which cuts in allotments will have to be made, to define the term extraordinary drought, or for Mexico to undertake consultations with its users. Until extraordinary drought is defined and declared, the U.S. must comply with water deliveries to Mexico under the terms of the 1944 Water Treaty. What the EIS proposes is a "goodwill" agreement.

An additional analysis performed on the Colorado River basin to verify that the upper basin is more affected than the lower basin shows that the annual historic precipitation (1908-2006) has diminished less than runoff. This could be due to three possible factors: 1) the basin could be dry in a year prior to a wet year and part of the volume of water is lost due to seepage; 2) over pumping of groundwater reduces the aquifer's contribution to base flow and, in extreme cases, suctions the flow from the streams; 3) rainwater could seep into local sinkholes (natural or induced). In any event, more information is required, especially regarding supply and demand of groundwater, in order to reach a possible conclusion. What is certain is that the analyses show a noticeable reduction in rainfall and runoff. The fact that runoff has been reduced with respect to water allotted in the Colorado River Compact, added to the presence of more frequent droughts in the last two decades (the most recent since 2002) according to our analysis, indicates that we must prepare ourselves for an imminent situation of periods of less runoff.

In the EIS (Appendix M) (*U.S. Section comment – we believe this is actually a reference to Appendix N*) it appears that it is indicated that in 2026 the levels of Lake Mead will be stabilized because it will receive a constant delivery from Lake Powell and because of that it won't fluctuate as much as during the interim period for some of the alternatives studied. It is not clear what is meant by a stable situation for 2026 given that in the same Appendix M: 1) the graph of probability of shortages shows that they will exist beyond 2026 and they will not have low values; 2) in 2010 there are cuts in the Reservoir Storage alternative; 3) in 2017 there are lesser cuts to 1.0 maf; 4) in 2026 the majority are reductions of less than 1.0 maf but there are many at other levels; 5) in 2060 the majority of the cuts are of 500 kaf.

In conducting an analysis of the five alternatives and their effects on allotments to Mexico, the one that seems to have fewer negative impacts on Mexico is Conservation Before Shortage. That is because U.S. users would make voluntary efforts to maintain high levels in Powell. Nevertheless, the EIS refers to voluntary conservation. In this scenario, conservation is managed as a voluntary reduction, but for modeling purposes the U.S. Bureau of Reclamation ran suggested reductions. It must be noted that that conserved waters are accounted for and charged to the users' allotments and the conserved volume could be used later (discounting evaporation and a 5% charge for the benefit of the basin). In the case of Mexico, the conserved volume at the expense of the allotment (1.5 maf) is designated for environmental use only and not for irrigation (Mexico's main use). Also, the delivery is made not when it is required (situation of scarcity or normal conditions) but rather only in a situation of abundance (modeled every five years). Voluntary conservation in this manner is not useful for Mexico as a consumptive use.

Likewise, the EIS has a table in Appendix M with an error in that it shows that Mexico receives more water than conserved. (*U.S. Section comment – we are unclear from Mexico's comments which specific table is referenced.*) This is not possible from the physical point of view. The conserved volume is identical to the volume released in various examples on the table M4; but it should be less.

What is not modeled in the alternative is that Mexico would voluntarily conserve water to use when needed. One aspect still pending is that, should this scenario take effect, and if it is in Mexico's best interest, the U.S. government would need to take internal steps so that Mexico could store its conserved volume. Additionally, Mexico would have to evaluate the legal impact of this measure.

In conclusion, this alternative only could be attractive for Mexico, in alliance with U.S. environmental organizations, if economic support from the U.S. is provided to make technical improvements to irrigation in Mexico. Otherwise, this is not considered a viable option for Mexico.

To better evaluate the behavior of the alternatives, analysis was done extending the interim period for 20 years before the No Action alternative entered into operation and sequences 23 and 46 were applied to this interim period, modeling the least favorable conditions that have occurred in the basin. These analyses show that for Mexico (in case it is obligated to choose from these five alternatives) the Water Supply alternative guarantees its complete allotment during the entire simulated period before the No Action alternative enters into force. Nevertheless, there exists the risk that once the No Action alternative enters into force, storage in the reservoirs would be so low that there would automatically be severe cuts for Mexico. Given the recent climatic variability of the Colorado River basin, it would need to be evaluated if this strategy of reductions after the interim period or a strategy of smaller shortages distributed over the period would be beneficial to Mexico. Perhaps the decision could be supported with U.S. funding to make technical improvements to irrigation systems in Mexico.

If the existing level of the reservoirs will be the indicator for making decisions, then there is no pressure on users that take water upstream of the reservoirs. This can be appreciated in the Basin States alternative where the volumes from the dams in the upper basin (including Powell) are high and the support to Mead is only produced when it reaches near the level of 1000.

For all the alternatives, it would be recommended that the U.S. establish a program to monitor volumes allotted, used, and returned and report on water conservation measures.

Finally, it must be mentioned that when comparing the results of the No Action and Water Supply alternatives, it is noted that Mexico receives less surplus water in the No Action alternative. The interpretation is that this alternative assigns surplus waters to the U.S. more frequently and in greater quantity than in the Water Supply alternative and leaves less water in Mead such that when Mead spills (less frequently) it is of a lesser volume and, as a result, less is provided to Mexico.

In summary, except for the considerations of the Water Supply and Conservation Before Shortage alternatives, the rest of the alternatives always show reductions to Mexico of various frequencies and quantities of water. It is evident that none of these options is appropriate for Mexico.

The CRSS model provided recently still has values of 10 acre-feet in some segments; this does not correspond to environmental flow. The requirement of a minimum flow of 10 acre-feet/month for each segment was used in the original model for salinity calculations. To avoid dividing by zero in calculating

salinity, in case there were an upstream segment with zero flow, the original CRSS model limited flow to a minimum of 10 acre-feet/month. In the analysis of the alternatives, only the quantity of the water and not its quality is considered. Given the amount of time to undertake these analyses with the set of rules delivered in April, one is left with the assumption that the U.S. will comply with the Minutes undertaken within the terms of the 1944 Water Treaty in relation to the salinity parameters. It is also assumed that the modeling of quantity is more linked to the reality of the basin and the quality model has many more assumptions and considerations that would have to be discussed in specific meetings. Additionally, if the allotted volumes are complied with, the salinity in the lower part should not be a problem in the alternatives.

In the alternatives modeled, it is observed that in the reservoirs much care is taken to leave space for flood control; Mexico has no objection to this.

With the model, by running the alternatives with drier runoff scenarios (23 and 46), it is observed that the reservoirs upstream of Powell are emptied. The table of results shows negative values which physically is not possible. Perhaps the model would have to consider a minimum level (dead storage) to avoid that situation of generating erroneous results allotting water that does not exist.

Another observation about the model is that since it does not model groundwater, it could cause water that doesn't exist to be allotted to meet demand downstream of the sources, as well as overstated inflows to the lower dams. This is derived from the possible losses in the channels caused by overexploitation in the areas of groundwater use.

End CNA comments

I appreciate the opportunity the U.S. Bureau of Reclamation has afforded the International Boundary and Water Commission to share the international view of the Draft EIS. I also appreciate the Bureau's willingness to engage in meaningful technical discussions with Mexico through the Commission.

Should you have any questions, please do not hesitate to contact me at 915-832-4702.

Sincerely

Gilbert Anaya
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