

Comments Submitted By Federal Agencies

This section contains comment letters submitted by the following federal agencies:

- F-1 Department of Energy, Western Area Power Administration
- F-2 United States Fish and Wildlife Service
- F-3 United States Environmental Protection Agency, Region IX
- F-4 International Boundary and Water Commission, United States Section
- F-5 International Boundary and Water Commission, Mexico Section
- F-6 National Oceanic and Atmospheric Administration



Department of Energy
Western Area Power Administration
Desert Southwest Customer Service Region
P.O. Box 6457
Phoenix, AZ 85005-6457

APR 26 2007

CERTIFIED MAIL REQUESTED

Regional Director
Bureau of Reclamation
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Regional Director:

On February 28, 2007, the Bureau of Reclamation (Reclamation) published the Draft Environmental Impact Statement for the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (Draft EIS) and requested that comments on the Draft EIS be submitted no later than April 30, 2007. The Desert Southwest Region of the Western Area Power Administration (Western) would like to take this opportunity to provide comments in regard to the Draft EIS.

Western has the responsibility for the marketing of the generation from Federal hydropower in much of the Western United States, including generation on the Colorado River. The Desert Southwest Region has responsibility for projects on the Lower Colorado River including the Boulder Canyon (Hoover generation) and Parker-Davis Projects. Western has followed the development of the Draft EIS with great interest because of the potential impacts to our power customers for these projects. The power and benefits provided from these projects are currently distributed to millions of customers in Arizona, California, and Nevada. Due to the unique characteristics of hydropower generation, the Federal generation facilities on the Colorado River contribute greatly to the reliability of the entire interconnected electrical power system in the Southwest.

While our responsibility is for the marketing of federal hydropower, we recognize that Reclamation must manage the Colorado River, consistent with applicable federal laws, for all the affected resources including water supply, power, recreation, and environmental. Western's comments are therefore provided with consideration of all affected resources and are focused on issues that significantly affect the projected impacts of the alternatives analyzed and on the selection of a preferred alternative.

Comparison of Alternatives (by Operational Elements)

Reclamation has stated that it may combine aspects of more than one alternative in its preferred alternative, therefore we will provide comments on each of the Operational Elements presented in the Matrix of Alternative in Table 2.7-1.

F-1

Shortage Guidelines

The efficacy of the shortage guidelines for the alternatives may be demonstrated to a large extent by the Lake Powell and Lake Mead elevation projections by the end of the interim guideline period. The 50th percentile projection for lake elevations in 2026 show that for three (Basin States, Conservation Before Shortage, and Water Supply) of the four action alternatives, the total combined storage of the lakes are essentially unchanged or even lower than the initial storage at the start of the study period and less than No Action. This is even with inflow projections that we believe are overestimated as discussed in our comments on Modeling and Hydrologic Resources. Only under the Reservoir Storage alternative is a substantial increase in the total combined storage projected in 2026 at the 50th percentile, due primarily to the shortage guidelines for this alternative. Water storage at the 10th percentile is also much higher for the Reservoir Storage alternative.

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It seems that shortage guidelines that do not show an appreciable increase in water storage in almost 20 years (even with overly optimistic inflow projections) from relatively low levels reached after a 7-year drought are inadequate. This would leave the reservoirs languishing in the middle to lower range of storage during normal inflows and thus without sufficient storage to handle significant drought periods without drastic cuts in water deliveries. The proposal under the Basin States alternative for a re-consultation once Lake Mead drops below elevation 1025’ appears contrary to the purpose of having shortage guidelines. We believe that shortage guidelines that do not address shortages at lower lake elevations do not fulfill the need set forth in Purpose and Need “for more specific guidelines ...to assist in the Secretary’s determination of annual water supply conditions in the Lower Basin under low reservoir conditions.” Specific guidelines would be absent at the lowest reservoir elevations at which they are most critical.

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The shortage guidelines under the Reservoir Storage alternative result in much higher water storage under the full range of probabilities. This would result in much better capability to meet water demands during periods of drought which is a primary purpose for developing these interim guidelines. In addition, other purposes for which these dams were built such as power production and recreation will also benefit from these higher storage levels. We find the shortage guidelines under the Reservoir Stage alternative are superior and recommend that they be incorporated into the preferred alternative.

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Coordinated Reservoir Operations

Coordinated releases from Lake Powell based upon the elevations or volumes at Lake Mead and Lake Powell at lower elevations provides an overall benefit to the system resources. We do not believe that there is an appreciable difference in the impacts based upon the triggers used in the Basin States and Conservation Before Shortage alternatives versus the Reservoir Storage triggers. We recommend either the Coordinated Reservoir Operations from the Basin States and Conservation Before Shortage alternatives or the Reservoir Storage alternative be implemented.

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Storage and Delivery of Conserved System or Non-System Water

We support the concept of Intentionally Created Surplus (ICS) mechanism for storage and delivery of conserved water. The increase storage in Lake Mead resulting from the ICS would provide positive impacts to many of the affected resources including power production. We support the higher maximum levels of ICS in the Reservoir Storage alternative.

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We strenuously oppose the proposal in the Conservation Before Shortage alternative that would be funded in part by a surcharge assessed on the power rates for the Hoover electrical service contractors and a Federal government contribution. As noted in the Draft EIS, this funding proposal would be contrary to existing federal legislation and outside of the authority of Reclamation.

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Interim Surplus Guidelines (ISG)

We feel that it is counterproductive to provide for surplus deliveries not necessitated by the potential of flood control releases when we are entering a period of time where the probability of shortages is greatly increasing. While eliminating the Domestic Surplus provisions of the ISG would only have a small effect on water storage, we still believe that this justifies elimination of these surpluses. We support the Reservoir Storage proposal to eliminate the ISG Domestic Surplus releases and make surplus releases only during Quantified and Flood Control conditions.

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Environmental Consequences

Methodology and Hydrologic Resources

The first two stated purposes of the Draft EIS are to: 1) improve management of the Colorado River considering the tradeoffs between the frequency and magnitude of reductions of water deliveries and the effects on water storage, water supply, power production, recreation, and environmental resources; 2) provide Colorado River water users with a greater degree of predictability with respect to the amount of annual water deliveries in future years, particularly under drought and low reservoir conditions. The most critical factor affecting the analysis of the alternatives in regards to these purposes is the water supply model. The reductions in water deliveries and uncertainty in water deliveries are issues only as the reservoirs reach low levels due to water deliveries that exceed the water supply over a period of years.

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In the Draft EIS, Reclamation modeled the future inflows to the Colorado River Basin using 99 years of recorded data from 1906 through 2004 (Direct Natural Flow Record) and applying these years of inflows (or traces) and the projected initial conditions to models of the alternatives. The use of historical recorded inflows for projection of future inflows has been used by Reclamation in previous environmental impact studies and other analysis, however we believe that it is very ill suited for the current Draft EIS.

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As noted above, the primary purpose of the Draft EIS is to determine guidelines for operating at low reservoir levels. We feel the use of this 99 year historical record of inflow data significantly

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overstates the probable future inflows and therefore calls into question the validity of the analysis of the alternatives. There are two factors that cause us to believe this use of recorded data would overstate the probable future flows. First, the historical period includes the early 20th century, a time of extraordinarily high inflows. All reconstructions of earlier inflows (through tree ring analysis) have determined this to be the period of highest sustained inflows in the past 500 years. By including and not adjusting for these abnormally high inflows results in an over-projection of the probable inflows based on the full picture of historical inflows. Comprehensive analysis of tree rings in the Colorado River Basin have shown average inflows over the past 500 years are 0.5 MAF to over 1.0 MAF less than the average inflows used in the Draft EIS. There is a sensitivity analysis in Appendix A which did include one analysis (Direct Paleo) which used such reconstructed water inflow data. The result was that at the 10th percentile in 2026, Lake Powell elevation was about 50 feet lower for most alternatives and Lake Mead was about 20 feet lower for the action alternatives when compared to the Direct Natural Flow Record used in the body of the Draft EIS.

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The second factor is the effects of climate change on the future inflows. There is almost complete consensus in the scientific community in regards to increasing temperatures in the Colorado River Basin as evidenced by the National Research Council report earlier this year. Average temperatures in the Colorado River Basin have already increased over the last century and higher average temperatures in the future will result in increased evaporative losses and earlier snowmelts, reducing the future inflow. We have experienced this situation several years in the current drought, where precipitation and snowpack levels were near average until about March at which time warm, dry conditions ensued and resulted in runoff levels far below average.

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In addition, the current state of hydrologic conditions has changed substantially since the August 2006 data used in the analysis. Due to another poor snowpack in the Colorado River Basin, the inflow for the current year will be far below the previous projections. This change would significantly reduce the initial reservoir levels used in the Draft EIS.

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In summary, we do not believe that the water supply model in the Draft EIS accurately portrays the probabilities of future conditions due to overestimation of inflows and initial reservoir conditions. It does not seem reasonable to us to analyze alternatives for creating guidelines to address primarily the river operation during drought and low reservoir conditions using data that would likely overestimate the available water supply. We suggest that the alternatives should be re-analyzed using more conservative projected water inflows that would result from incorporation of the information from recent scientific studies in this area, not solely the recycling the limited period of recorded inflows.

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Water Deliveries

Figure 4.4-6 demonstrates the impact on future deliveries that will likely occur because of inadequate reductions of deliveries under all alternatives except for Reservoir Storage. Very large shortages may be required immediately after the interim period in all the other alternatives when the demands for water are only going to be greater. There does appear to be discrepancies

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between Figure 4.4-6 and Table 4.4-10. The data points in the table do not match the corresponding data points in the figure.

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Electrical Power Resources

The analysis in the Draft EIS presents a comparison of the impacts on power generation on an average basis and at various ranges of hydrologic conditions. The total economic values of the electrical power generation presented are greatly understated due to use of outdated (2004) data for the underlying prices and application of a net discount rate that reduced the value of generation in later years. The comparison of impacts for each of the alternatives appears reasonable in terms of the change in electrical power production. This comparison shows that Hoover is the most impacted of the Federal generation facilities. The Reservoir Storage alternative provides for significantly higher power production at Hoover than the others alternatives as well as higher overall power production from the Colorado River generation facilities in total.

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Recreation

We would just note that the Reservoir Storage clearly is the most beneficial alternative in terms of recreation at both Lake Powell and Lake Mead. Each of the other alternatives has a negative impact on Lake Powell recreation compared to No Action.

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Recommendation

In our review of the Draft EIS, we find that each of the alternatives, except Reservoir Storage, do not provide for adequate water storage on the Colorado River and therefore have negative impacts on resources, such as power and recreation, and leave future water deliveries vulnerable. We believe these alternatives are likely to result in drastic reductions in water deliveries during or immediately after the interim period and/or result in the need to reconsider or modify the guidelines during the interim period. Therefore, Western recommends that Reclamation selects Reservoir Storage as the preferred alternative in the Final Environmental Impact Statement based upon its most favorable impact to the resources and environment effected by the adoption of interim guidelines.

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We thank you for this opportunity to comment on the Draft EIS. For any questions on this matter, please contact Mr. Brian Young at (602) 605-2594 or byoung@wapa.gov.

Sincerely,

Deborah K. Emler
Assistant Regional Manager
for Federal Power Programs

F-1

bcc:
G0000 (Carlson)
G1580 (CF)
G0200 (Casey)
G6001 (RF)
G6300 (Ramsey)

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F-1

Reponses to Comment Letter F-1

F-1-1

Your comment is noted. No change to the Final EIS was necessary.

F-1-2

Your comment is noted. No change to the Final EIS was necessary.

F-1-3

Reclamation does not concur with this comment. The action alternatives were formulated to permit an evaluation of a wide range of operating conditions and to permit an evaluation of several trade-offs, including the trade-offs between water deliveries and retaining water in storage for future use.

F-1-4 and F-1-5

Reclamation does not concur with these comments. The Basin States Alternative and the Preferred Alternative include provisions for stepped water delivery reductions associated with specific Lake Mead elevations that begin at elevation 1,075 feet msl and continue down to elevation 1,025 feet msl. The re-consultation that would occur under these alternatives when the Lake Mead water level falls below elevation 1,025 feet msl is expected to consider among other factors, projected inflow conditions, the need for and magnitude of additional shortages, and the ability of water users to manage additional delivery reductions at that point in time. Therefore, the shortage guidelines provided in the Basin States Alternative and the Preferred Alternative meet the purpose and need of the proposed federal action.

F-1-6

Your comment is noted. No change to the Final EIS was necessary. The trade-offs between reducing water deliveries and retaining water in storage for future use is clearly demonstrated in the analysis of the alternatives.

F-1-7

Your comment is noted. No change to the Final EIS was necessary.

F-1-8

Your comment is noted. No change to the Final EIS was necessary.

F-1-9

Your comment is noted. No change to the Final EIS was necessary.

F-1-10

Your comment is noted. No change to the Final EIS was necessary.

F-1-11

Your comment is noted. No change to the Final EIS was necessary.

F-1-12

Your comment is noted. No change to the Final EIS was necessary.

F-1-13

Your comment is noted. No change to the Final EIS was necessary.

F-1-14

Your comment is noted. No change to the Final EIS was necessary.

F-1-15

Your comment is noted. No change to the Final EIS was necessary.

F-1-16 through F-1-18

Reclamation does not concur with this comment. Consistent with the purpose and need of the proposed federal action, Reclamation believes that it is important to provide operational guidelines that address the operation of the reservoirs throughout the full range of water levels. This includes the availability of surplus water when water levels in the reservoirs are in the upper range.

F-1-19

Your comment is noted. No change to the Final EIS was necessary.

F-1-20

Your comment is noted. No change to the Final EIS was necessary.

F-1-21

Reclamation does not concur with this comment. The foundation of the analysis in the EIS is a relative comparison between alternatives. Use of the historical record, tree-ring reconstructions and other techniques to project future inflows (Section 4.2 and Appendix N) provides a valid relative comparison of the alternatives.

F-1-22

See response to Comment No. F-1-21.

F-1-23

Your comment is noted. No change to the Final EIS was necessary.

F-1-24

Your comment is addressed in the general response pertaining to climate changes and hydrologic variability in the introduction to Volume IV of the Final EIS. Section 4.2 of the Final EIS has been enhanced and two new appendices (Appendix T and Appendix U) have been added to provide additional information regarding the potential impacts of climate change and hydrologic variability.

F-1-25

Reclamation concurs with this comment. Actual inflow from August 2006 through May 2007 was substantially lower than the projected inflow that was used in the hydrologic modeling that was conducted in the fall of 2006 for the Draft EIS. The modeling for the Final EIS was updated in June 2007 and incorporated the most current conditions and inflow projection information at that time. The different initial conditions that were used in the modeling for the Draft EIS and Final EIS are presented in Appendix A.

F-1-26 through F-1-28

See response to Comment No. F-1-21.

F-1-29

In the modeling of the alternatives, all action alternatives are assumed to revert back to the assumptions used to represent the No Action Alternative after in 2026. Figure 4.4-6 shows the maximum modeled shortage amounts in each year for all alternatives and the large maximum shortages occurring after 2026 are primarily the result of this assumption.

F-1-30

Reclamation concurs with this comment. The referenced table and figure have been revised in the Final EIS.

F-1-31

Reclamation concurs not concur with this comment. As noted in Section 4.11.1.3, the underlying hourly prices used in the analysis of economic values were based on 2004 price data. However, these prices were escalated by 2.2 percent per year to estimate 2008 prices. This escalation method is commonly used in the industry, was determined to be appropriate for this

analysis, and provided results that could be used in the relative comparison of the action alternatives to the No Action Alternative.

F-1-32

Your comment is noted. No change to the Final EIS was necessary.

F-1-33

Your comment is noted. No change to the Final EIS was necessary.

F-1-34

Your comment is noted. No change to the Final EIS was necessary.

F-1-35

Your comment is noted. No change to the Final EIS was necessary.

F-1-36

See response to Comment No. F-1-3.

F-1-37

Your comment is noted. No change to the Final EIS was necessary.



United States Department of the Interior

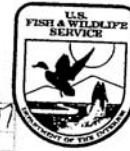
U.S. Fish and Wildlife Service

Arizona Ecological Services Field Office

2321 West Royal Palm Road, Suite 103

Phoenix, Arizona 85021-4951

Telephone: (602) 242-0210 Fax: (602) 242-2513



In Reply Refer to:
AESO/SE
22410-2007-TA-0224

4/27/07
4/3/07 88001000

April 24, 2007

Memorandum

To: Area Manager, Bureau of Reclamation, Boulder City, Nevada (Attn: Nan Yoder)
From: Field Supervisor
Subject: Draft Environmental Impact Statement (DEIS) on Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations of Lake Powell and Lake Mead – Comments

Thank you for the opportunity to assist as a Cooperating Agency in the development of this important DEIS. The Fish and Wildlife Service (FWS) provides the following comments for your consideration on the subject DEIS. We are providing these comments in accordance with the Council of Environmental Quality regulations addressing cooperating agency status (40C.F.R. 1501.6 & 1508.5).

We note that the FWS provided comments as a Cooperating Agency by memorandum dated January 19, 2007, and discussed these further at your January 22, 2007, meeting of Cooperating Agencies. We do not see acknowledgement of the following comments, even though during discussion of our written comments you did not express any concerns indicating that you could not use them. We therefore assumed that they were acceptable for incorporation into the EIS. We reiterate these comments and offer to discuss them if that would be helpful.

- 1) Page 1-13: Add Minute 306, December 12, 2000 to the Minutes noted in Table 1.7-1 for United States-Mexico Water Treaty of 1944, since it refers to collaborative efforts between the U.S. and Mexico to ensure use of water, i.e. quantity as noted for the 1944 Treaty on Page 1-12, lines 15 and 16, for ecological purposes in Reach 9. 1
- 2) Page 4-170, lines 10-29: The NIB-to-SIB, which is shared by the U.S. and Mexico, represents an important wildlife area, especially for migratory neotropical songbirds and waterfowl and other wetland birds. Also, various native and non-native fish species exist in the upper portion of the river that is maintained by sources including leakage at Morelos Dam, agricultural return drain flows, subsurface sources, and occasional releases. We continue to believe that effects to fish and wildlife resources should be addressed by this document in the NIB to SIB reach. 2
- 3) 3
- 4) 4

F-2

- 3) Page 6-5, lines 20-22: The FWS requests, pursuant to Executive Order 12114 as applied to the National Environmental Policy Act and development of this EIS, that our agency be included in investigations of the effects of this Federal action in the Colorado River delta area of Mexico due to our migratory bird and endangered species responsibilities. 5

The following are general comments as well as specific comments addressing specific sections, pages, and line numbers in the text.

Chapter 1

Page 1-3, lines 32-35: Reclamation should discuss what some of the anticipated future demands might be that could result in low reservoir elevations. Increased water use in the Upper Colorado River Basin is one likely cause. The reference to Colorado River Compact Article III(d) on page 1-15, lines 3-4 may also be appropriate to include. 6
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Page 1-26, lines 22-26: While the LCR MSCP does provide “mitigation” for fish and wildlife species in the LCR corridor that are not included as covered species, it is inaccurate to state that effects to these un-covered species are fully mitigated. There are several land cover types that provide habitat for these un-covered species that are affected by LCR operations, but are not included in the conservation program. 8
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Chapter 2

Page 2-2, lines 15-16: A definition of “system water” and “non-system water” would be appropriately referenced here. Also, in lines 20-22, is it Reclamation’s intent to have the regulations part of the proposed action detailed in the FEIS, or will the regulations be published separately? 10
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Page 2-13, lines 12-13: Define “bypass flow”. 12

Chapter 3

Page 3-29, lines 15-21: We understand that Reclamation cannot predict how shortage would be managed by the water users in Arizona; although Arizona has provided some details in their Drought Preparedness Plan. However, since an obvious method would be to temporarily lease water from agricultural users in the Yuma area for delivery to Phoenix and Tucson, that would result in a decrease in the application of water to fields in the Yuma area. With less water on the fields, the amount of groundwater flowing into the river might be reduced. We suggest an explanation here (or reference to one in an Appendix) of why groundwater amounts are not likely to change due to the Federal action. 13
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Page 3-71, Table 3.8-7: Bluehead suckers are probably not found in or below Lake Mead. The correct spelling of the species name for Yuma clapper rail is *Longirostris yumanensis*. 16
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Chapter 4

Page 4-4, lines 35-40: Most available climate models project that the southwestern United States will experience a significantly more arid period in the 21st century, with a transition, which is now underway, to a more arid climate, dominated by a pattern similar to the current drought. We recommend that Reclamation add a section discussing this information and its implications in the context of Reclamation’s analysis of future hydrology. 18

Page 4-7, lines 1-5: The LCR MSCP includes provision for the transfer of up to 1.574 maf from downriver agricultural users to more upriver urban users. This concept is not included within the common assumptions. We understand that a portion of the intent of the modeling is to show effects of the shortage alternatives and that those effects can be incorporated within the change in 1.574 maf, but this may not be clear to other readers. This is especially important when discussing the groundwater changes later in the section. 19
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Page 4-8, lines 24-26: We believe it is important to include the rationale for the Drop 2 structure to be in place and operating. If the environmental compliance has been completed for this project, inclusion may be appropriate. If not, please explain why Reclamation believes this project has certainty. 21
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Page 4-58, lines 6-10: This paragraph is an example of where a discussion of what is meant by “non-system water” would be helpful in understanding the closing statement. How would SNWA development of non-system supplies affect the releases from Hoover Dam? 23
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Page 4-65, lines 8-13: In the introduction to this section (4.3.7), it might be worthwhile noting that in the event of a Phase 1 or Phase 2 shortage, the two major entities that would receive less water are CAP and MWD. Given that fact, flows entering and leaving Lake Havasu under shortage conditions would be largely the same (allowing for some minor depletions). Perhaps some explanation here on that subject would be useful. Also, flows below Parker Dam may, over the course of the 50-year life of the LCR MSCP, be reduced as much as 1.574 maf due to water transfers from agricultural users to the urban areas. How is that factored into the modeling? 25
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Page 4-68, lines 7-15: Perhaps it would have been better to use the flows below Headgate Rock Dam (which would reflect diversions to CRIT) than to use those above which don’t show any real difference from the Parker Dam releases. Unless the major water users below Parker Dam provide leased water for use by CAP and MWD during times of shortage, one would not expect these high-priority users to change their water use. Differences between the alternatives, particularly in terms of groundwater levels, are related to this. 28
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Page 4-79, lines 6-13: Although this begins the discussion of SNWA’s creation of new sources, it still does not relate how those sources would provide existing users with alternative water so that SNWA could take more river water. For example, desalinization plants would have to be operated near a source of non-Colorado River water in order to later affect an exchange. 30
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Page 4-79, lines 30-40: Please explain the statement that the change in point of diversion effects under the LCR MSCP are not additive to the changes due to shortage. 32

Page 4-94, lines 1-6: Since storage of water is a factor in reducing shortages through maintenance of lake elevations, perhaps a discussion of how that stored water being used during a potential shortage situation affects lake levels. Similarly, for the surplus discussion on page 4-99, lines 1-13. 33

Page 4-162, lines 11-15: Perhaps it should be noted here that the LCR MSCP provides coverage for changes in points of diversion up to 1.574 maf/year. The amount of potential shortage is higher than that figure. It should be explained how the conservation for the LCR MSCP relates to the shortage amounts, particularly in light of the increase in amount of water that had a change in point of diversion over the 50-year life of the LCR MSCP. 34
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Page 4-163, line 14: The summary in this section should focus on the changes in median flows and the relationship to groundwater levels. The amount of vegetation affected is directly related to those groundwater changes. The discussion should also address the frequency and multi-year potential for these reduced flows. This should be included in the discussions in subsections 4.8.3.4 and 4.8.3.5. It is the changes in groundwater that may be most relevant to an effects analysis since those changes can alter the vegetation structure and wildlife use. 36
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Page 4-182, line 38- Page 4-185, line 35: This analysis would be more clear if it were organized either by alternative, or by percentile elevations. Based on figure P-81 (on page P-88) it appears that, at the 50th percentile, Glen Canyon Dam release temperatures would generally be colder for all alternatives compared to the no action , but the effects of this are not considered in the analysis. 39

Page 4-189, lines 33-34: If MacNeils sooty-wing skipper can be considered present in the lower Grand Canyon due to known records at the Muddy River, it seems inappropriate to state that this species does not occur at Lake Mead. Please review this information. 40

Page 4-192, lines 8-9: The woundfin is also not known from Lake Mead. 41

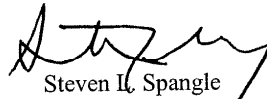
Page 4-194, lines 11-12 and page 4-197, lines 21-28: The Colorado River cotton rat is found from the vicinity of Needles south to at least Ehrenburg. Please examine the data on this species locations and revise these sections. 42

Page 5-11, lines 21-25: The Long-Term Experimental Plan for the Operation of Glen Canyon Dam will further modify the proposed action of the DEIS by potentially altering the daily and seasonal pattern of dam releases at Glen Canyon Dam which could have cumulative effects relative to the proposed action of the DEIS. 43

We look forward to continuing to work with you on this important effort. Our contacts are as follows: Sam Spiller (Lower Colorado River Coordinator, Tel: 602/841-5329, Email: sam_spiller@fws.gov) as the primary contact and for National Wildlife Refuge and Mexico delta resources; Glen Knowles (Biologist, Tel: 602/242-0210 x233, Email: glen_knowles@fws.gov) for Glen Canyon Dam and associated operations (generally downriver from Glen Canyon Dam to upper Lake Mead); and Lesley Fitzpatrick (Biologist, Tel: 602/242-0210 x236, Email: Lesley_fitzpatrick@fws.gov) for the Lower Colorado River Multi-Species Conservation

F-2

Program and associated operations (generally from upper Lake Mead downriver to the Southerly International Boundary).



Steven L. Spangle

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES, FR, RC (NWRS)
Lower Colorado River Coordinator, Fish and Wildlife Service, Phoenix, AZ
Director, Arizona Game and Fish Department, Phoenix, AZ
Director, California Department of Fish and Game, Sacramento, CA
Director, Nevada Department of Wildlife, Reno, NV

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Reponses to Comment Letter F-2

F-2-1

Reclamation reviewed the comments submitted in January 2007 and as appropriate, modified the Draft EIS that was published in February 2007.

F-2-2

Reclamation concurs with this comment. A citation of Minute 306 has been added to Table 1.7-1.

F-2-3 and F-2-4

Your comments are noted. Potential impacts of the proposed federal action to fish and wildlife resources in the NIB to SIB reach are analyzed (Section 4.8).

F-2-5

Reclamation has complied with Executive Order No. 12114 and Public Law 109-432 by informing the Department of State of the proposed federal action and by providing technical support to the United States Section of the International Boundary and Water Commission (USIBWC) for its consultation with Mexico. The Final EIS incorporates appropriate information regarding potential hydrologic and water quality impacts to Mexico (at the appropriate Treaty delivery point) that have been prepared after coordination with the USIBWC, as well as with representatives of the Department of State.

F-2-6

The information requested is provided in the EIS. Reclamation's modeling of the alternatives considered various factors that could affect future reservoir water levels. These factors include future water demands, hydrologic variability, the coordinated operation for Lake Powell and Lake Mead, and the storage and delivery of conserved water via the proposed Lake Mead storage and delivery mechanism.

F-2-7

Your comment is noted. No change to the Final EIS was necessary.

F-2-8 and F-2-9

Reclamation concurs with these comments. The referenced statement in Section 1.8.5 regarding mitigation for un-covered species has been modified.

F-2-10

Reclamation concurs with this comment. The terms “system water” and “non-system water” have been defined in the glossary of the Final EIS.

F-2-11

Reclamation has included draft operational guidelines in the Final EIS (Appendix S).

F-2-12

The term “bypass flows” has been defined in the glossary of the Final EIS.

F-2-13 through F-2-15

Your comments are noted. Any presumption of temporary or long-term water transfers between specific agricultural and municipal interests is speculative since it is unknown which entities might participate and at what level of participation. Given the speculative nature of agricultural to urban transfers, it is not possible to make a quantitative assessment of the potential impacts of these types of actions on groundwater or other resources.

F-2-16

Reclamation concurs with this comment. Table 3.8-7 has been corrected in the Final EIS.

F-2-17

Reclamation concurs with this comment. Table 3.8-7 has been corrected in the Final EIS.

F-2-18

Your comment is addressed in the general response pertaining to climate changes and hydrologic variability in the introduction to Volume IV of the Final EIS. Section 4.2 of the Final EIS has been enhanced and two new appendices (Appendix T and Appendix U) have been added to provide additional information regarding the potential impacts of climate change and hydrologic variability.

F-2-19 and F-2-20

Potential flow reductions resulting from shortages and changes to points of diversion (e.g. due to existing or planned water transfers, conservation activities postulated for the storage and delivery mechanism, etc.) were modeled for each alternative and the modeling assumptions are detailed in Section 4.2, Appendix A, Appendix D, and Appendix M. The groundwater analysis in the Davis Dam to Parker Dam and Parker Dam to Imperial Dam reaches was based on a relative comparison of the median flows for each alternative, including potential flow reductions as modeled.

Consistency of the Preferred Alternative with the LCR MSCP will be analyzed and submitted separately to the Fish and Wildlife Service.

F-2-21 and F-2-22

Legislation passed by Congress in late 2006 (Public Law 109-432) requires that the Secretary proceed “without delay” with the “construction, operation and maintenance” of the Drop 2 Storage Reservoir. Reclamation published a Final EA on the Drop 2 Storage Reservoir project on June 20, 2007 (http://www.usbr.gov/lc/yuma/environmental_docs/environ_docs.html). Construction is scheduled to begin in 2008 and is expected to be operational by 2010. Therefore, the inclusion of this project as part of the No Action Alternative and the action alternatives is consistent with NEPA guidelines.

F-2-23

See response to Comment No. F-2-10.

F-2-24

The effect that individual future SNWA non-system water projects will have on Hoover Dam releases will vary depending on whether the source of supply for the individual projects is located upstream or downstream of Hoover Dam. Since SNWA’s intakes are in Lake Mead, non-system water projects originating upstream of Hoover Dam would have no effect on Hoover Dam releases. SNWA non-system water projects originating downstream of Hoover Dam, however, could potentially result in a reduction in Hoover Dam releases. Such projects would likely involve a water “exchange” with another agency where the other agency would take possession of the new non-system water supply developed by SNWA in exchange for an equivalent portion of the other agency's Colorado River water supply yet to be released from Lake Mead. The analysis of the storage and delivery mechanism in the EIS considered non-system water projects originating upstream and downstream of Hoover Dam.

F-2-25

Your comment is noted. No change to the Final EIS was necessary.

F-2-26

The analysis of the potential changes in flows in each reach is detailed in Section 4.3.

F-2-27

See responses to Comment Nos. F-2-19 and F-2-20.

F-2-28

Your comment is noted. No change in the Final EIS was necessary.

F-2-29

See responses to Comments Nos. F-2-13 through F-2-15.

F-2-30 and F-2-31

Conservation projects (including canal lining, desalination, etc.) would result in additional water supplies. Those projects would not necessarily need to be near a source of Colorado River water to affect an exchange.

F-2-32

This comment does not accurately reflect the information published by Reclamation in the Draft EIS. The referenced section on Page 4-79 of the Draft EIS states “The river flow reductions that were observed for the river reaches downstream of Hoover Dam under the action alternatives were similar to those previously analyzed in the LCRMSCP Final EIS and LCR MSCP BA/BO”.

Also see responses to Comment Nos. F-2-19 and F-2-20.

F-2-33

Reclamation has included draft operational guidelines in the Final EIS (Appendix S) that discuss the creation and delivery of Intentionally Created Surplus (ICS) for all Lower Basin water supply conditions (including during a Shortage Condition and a Surplus Condition).

F-2-34

Reclamation concurs with this comment. The text in Section 1.8.5 and Section 4.8.1.2 has been modified.

F-2-35

See responses to Comment Nos. F-2-19 and F-2-20.

F-2-36 through F-2-38

The discussion of the potential impacts on vegetation has been expanded in the Final EIS to more directly address the connection between changes in annual median flows, groundwater levels, and riparian and marsh vegetation impacts. Sections 4.8.3.4 and 4.8.3.5 have also been modified in the Final EIS to include discussions of the magnitude, frequency, and duration of annual median flow differences under all alternatives and the anticipated effects on riparian groundwater levels and vegetation.

F-2-39

Information presented in the Draft EIS has been modified in the Final EIS to clarify this issue. Reclamation identified that the temperature graphs used in the Draft EIS (presented in Appendix P) could be clarified by establishing a single temperature output for each month at the three Lake

Powell elevation percentiles. Accordingly, for the Final EIS, the average monthly temperature for each month at the 10th, 50th and 90th percentile were used rather than the range provided in the Draft EIS. Based on this revision, the average temperature for some of the action alternatives does fall lower than the No Action Alternative. As a result, Reclamation added additional discussion on these potential impacts to fishery resources in the Final EIS. Please refer to Chapter 4.8 for discussion of the results of these analyses.

F-2-40

Information presented in the Draft EIS has been modified in the Final EIS (see Section 4.8.4.3 and Table 4.8-5) to clarify this issue. The FEIS includes a discussion and analysis of McNeill's sooty-winged skipper and its habitat at Lake Mead.

F-2-41

The discussion regarding woundfin at Lake Mead in the Draft EIS was related to those individuals that may move downstream from the Virgin River into Lake Mead as the lake level drops and more riverine habitat is exposed in the inflow area upstream of Lake Mead and is not intended to indicate that woundfin regularly inhabit Lake Mead under current conditions.

F-2-42

Reclamation concurs with this comment. A discussion on potential impacts to the Colorado River Cotton Rat has been added to the Special Status Species discussion in Chapter 4.8 of the Final EIS and addresses the area from Davis Dam to Lake Havasu.

F-2-43

It is anticipated that the ROD for this EIS will implement guidelines for the coordinated management of the Lake Powell and Lake Mead. These guidelines will be used in the AOP process to inform the Secretary's decisions with regard to the annual release from Lake Powell for each year. The Long-term Experimental Plan (LTEP) for the operation of Glen Canyon Dam is primarily focused on implementing a structured, long-term program of experimentation (including dam operations, as well as other potential management actions such as removal of non-native fish species). Dam operations considered by LTEP will not modify Lake Powell's annual release. Potential changes to daily and seasonal patterns of release relative to the assumptions in this EIS may occur due to LTEP; however, those changes anticipated to be addressed in the LTEP EIS or other appropriate decision making processes.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

Cross Media Division (CMD-2)
Federal Activities Office - 75 Hawthorne St., San Francisco, CA 94105

**FACSIMILE
TRANSMITTAL**



TO: Regional Director
Organization: Lower Colorado Region, Bureau of Reclamation, ATTN: BCOO-1000
Subject: Region 9 EPA comments on DEIS Lower Basin Shortage Guidelines

Ph #: 702-293-8500
Fax #: 702-293-8156

FROM: Laura Fujii, Environmental Review Office, Region 9 US EPA

Ph #: 415-972-3852
Fax #: 415-947-8026

E-Mail Address: Fujii.laura@epa.gov

Date Sent: April 30, 2007

Number of pages including cover sheet: 10

Comments: The original signed letter is being sent to you in the mail.

F-3

P. 01

FAX NO. 4159478026

MAY 01 2007 12:11 PM U.S.E.P.A.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901
April 30, 2007

Robert W. Johnson
Regional Director
Lower Colorado Region
Bureau of Reclamation
Attn: BC00-1000
P.O. Box 61470
Boulder City, NV 89006-1470

Subject: Draft Environmental Impact Statement for Lower Basin Shortage Guidelines and Coordinated Management Strategies for Lake Powell and Lake Mead Under Low Reservoir Conditions, Lower Colorado River Basin

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. Our detailed comments are enclosed.

EPA supports the development of shortage guidelines which will provide specific criteria for reductions in annual water deliveries during low reservoir conditions. The beneficial uses of the Lower Colorado River are diverse, providing vital environmental, economic, and public health benefits for Arizona, California and Nevada (Lower Basin States). Unpredictable, large disruptions in water deliveries or sudden changes in Lake Mead and Lake Powell operations could have significant adverse impacts on these beneficial uses. The draft environmental impact statement (DEIS) makes clear that action is required to address future shortages. All of the action alternatives would reduce the probability of shortages and increase the flexibility to operate the Colorado River water supply system for multiple purposes.

We commend the Bureau of Reclamation (Reclamation) and cooperating agencies for evaluating a range of alternatives that define the trade-offs between different users and benefits, such as water supply, hydropower generation, and recreation. We recognize that Reclamation is convening a workgroup of climate change experts to evaluate the water supply implications of climate change, and we support the consideration of this information in your final decision-making on this project. EPA supports the overall approach as proposed in the Conservation Before Shortage and Basin States alternatives, in particular the concepts of voluntary shortages prior to involuntary shortages and the storage and delivery of conserved system and non-system water (water banking).

F-3

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P. 02

FAX NO. 4159478026

APR-30-2007 MON 12:12 PM U.S.E.P.A.

Based upon our review, we have rated this DEIS, and the proposed action alternatives, Environmental Concerns - Insufficient Information (EC-2) (A Summary of EPA Rating Definitions is enclosed) due to concerns with potential adverse effects to beneficial uses and the need for additional information regarding the effects of climate change, banking of conserved water, and monitoring. EPA is concerned that long-term reduction of water quantities and availability due to drought, shortage declarations, climate change, and increasing growth and water demand will result in adverse impacts to in-stream resources (riparian habitat, fish and wildlife), water quality, water supply management flexibility and associated cumulative impacts. Additional information on changing climatic conditions and water management mechanisms will contribute to more systematic water resources planning and further explain key components of proposed actions.

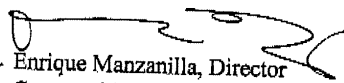
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We recommend Reclamation develop a comprehensive, annotated list of water management tools available to Colorado River users to further enhance the Colorado River system flexibility and the benefits of the proposed approach. In that regard, we recommend the final environmental impact statement (FEIS) include a description of, and commitment to, a detailed monitoring, adaptive management, and water banking accounting plan. The shortage guidelines should be based upon the principles of: 1) collaboration, partnerships, and a transparent public involvement process; 2) protection of the environment, human health, and beneficial uses of the Colorado River; 3) minimization of involuntary reductions; and 4) mitigation of direct, indirect, and cumulative impacts. EPA supports system management for small, predictable reductions in annual water use versus large, involuntary disruptions in water supply service and Colorado River flows.

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We appreciate Reclamation's February 5, 2007 presentation to EPA on this project and the opportunity to provide comments on the DEIS. We would be glad to set up a conference call to discuss the enclosed recommendations. We look forward to continued participation in this process as more information becomes available. When the FEIS is released for public review, please send two copies to the address above (mail code: CED-2). If you have any questions, please contact me or Laura Fujii, the lead reviewer for this project. Laura can be reached at 415-972-3852 or fujii.laura@epa.gov.

Sincerely,


Enrique Manzanilla, Director
Communities and Ecosystems Division

Enclosure:
Summary of EPA Rating Definitions
Detailed Comments

cc: Jayne Harkins, Assistant Regional Director, Lower Colorado Region, BOR
Rick L. Gold, Regional Director, Upper Colorado Region, BOR
Terrance J. Fulp, Area Manager, Boulder Canyon Operations Office, BOR
Nan Yoder, Project Manager, Boulder Canyon Operations Office, BOR
Randall Peterson, Salt Lake Office, Upper Colorado Region, BOR
California State Water Resources Control Board
US Fish and Wildlife Service
Western Area Power Administration
Regional Tribal Operations Committee

**U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action***

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

EPA DETAILED DEIS COMMENTS LOWER BASIN SHORTAGE GUIDELINES AND COORDINATED MANAGEMENT STRATEGIES FOR LAKE POWELL AND LAKE MEAD UNDER LOW RESERVOIR CONDITIONS, LOWER COLORADO RIVER BASIN, CA, AZ, NV, APRIL 30, 2007

Conservation and Water Use Efficiency

The Basin States and Conservation Before Shortage alternatives include water management tools which would enhance the management flexibility of the Colorado River system. EPA strongly supports the implementation of these tools to maximize water conservation and water use efficiencies – key components of supply and demand management – if adverse effects on third parties (e.g., downstream users, in-stream beneficial uses) are minor. Innovative and aggressive supply and demand management is essential in assuring a long-term, sustainable balance between available water supplies, demand, and ecosystem and public health. Efforts to improve system flexibility, conservation, and water use efficiencies are even more urgent given the projected growth in the Lower Colorado River Basin, the adverse effects of the multi-year drought, and the potential adverse effects of climate change on scarce water supplies.

Recommendations:

We urge the Bureau of Reclamation (Reclamation) to include a detailed tool kit of supply and demand management measures in an appendix in the Final Environmental Impact Statement (FEIS). This appendix could serve as an extension of any of the action alternatives; further enhancing Colorado River system flexibility and the benefits of the proposed management approach. The list of tools could also serve as a resource for Colorado River water providers (e.g., water districts, irrigation districts) who wish to maximize the effective use of their water supplies. The appendix should describe the full range of tools available to users to improve water quality and reuse, maximize water use efficiencies, balance supply and demand, and avoid and minimize adverse effects to third parties. The description of these tools should include a report of each tool’s potential adverse third party effects, its ability to enhance water management flexibility, mitigation opportunities, and the most appropriate entities to use the tool.

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As recommended by the Water Science and Technology Board (National Academy of Sciences)¹, we urge Reclamation to work with Colorado River users to conduct a comprehensive, action-oriented study of Colorado River region urban and agricultural water practices and changing patterns of demand. If integrated with the proposed shortage guidelines, this study could provide a more systematic basis for water resources planning across the region. We recommend the FEIS address the need for this study and how and when the study could be conducted.

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¹ Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability (2007), p. 9. Water Science and Technology Board, National Academy of Sciences, 500 Fifth St. N.W., Washington, D.C. 20001.

Efficient water use can be influenced by development, infrastructure, and drinking water policies. We recommend the FEIS explore the linkages between these different factors and describe potential mechanisms to align them in order to better protect water resources. We recommend the FEIS provide a short discussion of who could best implement the identified mechanisms. The following reports may be of assistance as a starting point for your evaluation:

- Growing Toward More Efficient Water Use: Linking Development, Infrastructure, and Drinking Water Policies. EPA Publication 230-R-06-001, EPA National Service Center for Environmental Publications, (800) 490-9198 or nscep@bps-lmit.com.
- Protecting Water Resources with Higher-Density Development. EPA publication 231-R-06-001. EPA National Service Center for Environmental Publications, (800) 490-9198 or nscep@bps-lmit.com.

We recommend the Affected Environment chapter of the FEIS describe the current efforts to increase conservation, water use efficiencies, water supplies, and management flexibility for the Colorado River system. For instance, provide a summary of Arizona's Drought Management Plan, efforts by California to ensure adequate water supplies for southern California, and the conservation and use measures being taken by the Southern Nevada Water Authority (SNWA).

13

Storage and Delivery of Conserved Water (Water Banking in Lake Mead)

The DEIS analysis clearly demonstrates the benefits of the storage and delivery of conserved water (water banking). These benefits include the reduced probability of shortages, increased Colorado River management flexibility, and increased probability for flows below Morelos Diversion Dam, under some alternatives, that could benefit the complex riparian ecosystem of the Limitrophe Reach (Northern International Boundary to the Southern International Boundary) (p. ES-14, p. 4-76) and Colorado River Delta.

Recommendations:

The Basin States alternative limits the use of water banking in Lake Mead to the Lower Basin States while the Conservation Before Shortage alternative allows other entities, including Mexico, to utilize this water bank. The allowable total amount of stored conserved water also varies between alternatives. In order to fully realize management flexibility through water banking, EPA recommends the selected alternative maximize the use of water banking by allowing a broad range of users and ample storage capacity for conserved water.

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The Conservation Before Shortage alternative includes the concept of compensated voluntary water reductions, triggered by specific Lake Mead elevations and financed through a compensation program. Under this concept willing Lower Basin users, including Mexico, would be paid to voluntarily and temporarily reduce their water use (p. 4-82). To facilitate regional efforts to optimize water use, we recommend the FEIS provide additional information on

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Lake Mead elevation triggers, funding mechanisms, and management of the compensated voluntary water reduction program. 15

We recommend the FEIS include a detailed description of the accounting procedures and conserved water validation process for the storage and delivery of conserved water in Lake Mead. 16

Monitoring and Adaptive Management Plan

The DEIS analysis depends heavily on probabilistic models based upon a number of assumptions regarding precipitation, climate, water supply depletion rates, water supply policy and trends, and conservation programs. We recommend that existing conditions be monitored and model assumptions validated.

Recommendation:

Given the assumptions and uncertainties surrounding probabilistic models, we recommend Reclamation develop and commit to a detailed monitoring and adaptive management plan as part of the FEIS. We recommend the plan include details on what, who, and when to monitor; the process used to ensure monitoring results feed into the management decision process, and how monitoring can be used to help verify model assumptions. 17

The ability to monitor the hydrology of the Colorado River is provided by the U.S. Geological Survey's Colorado River Streamflow Gaging Network. As stated by the Water Science and Technology Board,² financial support for these stream gaging stations has been inconsistent and limited in recent years. The loss of stations with long periods of record (greater than 30 years) is of concern because they provide key data for understanding Colorado River hydrology and water quality (e.g., downstream perchlorate contamination, temperatures, sedimentation) and thus for Colorado River water management.

Recommendation:

We recommend the FEIS describe how Reclamation and other users of the Colorado River can ensure resources are available to maintain and expand the Colorado River Streamflow Gaging Network. 18

Climate Change

A number of studies specific to the Colorado River Basin have indicated the potential for significant environmental impacts as a result of changing temperatures and precipitation.³ While we commend the inclusion of the hydrologic sensitivity analysis to determine model results with a wider range of hydrologic variability (Appendix N), we believe that

² Water Science and Technology Board, pps 4-5.

³ For example, Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability (2007); The Colorado River Basin and Climatic Change, Linda L. Nash & Peter H. Gleick (1993) (EPA Publication 230-R-93-009).

a more extensive discussion of climate change and its potential effects on the proposed action would better serve long-term, Basin-wide water management planning.

Recommendation:

We recommend the FEIS include a separate discussion of climate change and its potential effects on the proposed action and the action's impacts. We recommend this discussion provide a short summary of climate change studies specific to the Colorado River Basin, including their findings on potential environmental and water supply effects and their recommendations for addressing these effects. Potential effects to examine include the incremental effects on shortage allocations and land use. For example, if there is a projected 10-20% reduction in precipitation for the Colorado River⁴, we would recommend the FEIS describe the effect on potential shortages, whether California would experience a higher probability of shortages, and whether adverse land use effects, in addition to temporary agricultural fallowing, could occur under a shortage determination.

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Tribal Impacts

The DEIS provides a limited description of the Cocopah Indian Reservation (p. 3-84), the Limitrophe Reach, and potential cultural resources in this region. Twelve miles of the Limitrophe Reach lie within the Cocopah Indian Nation. This reach includes a complex riparian ecosystem that supports a wide variety of birds and wildlife. The multi-agency effort, in cooperation with the Cocopah Indian Nation, to restore 350 acres of this habitat signifies the ecological importance of the Limitrophe Reach. We also note that the Cocopah Indian Nation and their cultural interests extend down to the Colorado River Delta.

Recommendations:

We recommend the FEIS include a more detailed description of the ecological resources of the Limitrophe Reach and of cultural resources below Imperial Dam to the Southern International Boundary. Potential impacts to these resources should be fully evaluated and described in the FEIS. We recommend the FEIS include a description of the Cocopah Indian Nation, including a description of their tribal interests and concerns down to the Colorado River Delta and potential effects on these tribal interests.

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Power Generation

Although the action alternatives would have minor impacts on the economic value of electrical power generation at Glen Canyon and Hoover Dams, the total loss of electrical power generation capabilities would have a substantial effect on the Basin Power Funds which rely on power revenues (pps. 4-230, 4-241). These funds provide key support for Colorado River environmental programs, the Colorado River Salinity Control Program, and projects to address Tribal water right settlements.

⁴ Nash and Gleick, p. ix.

Recommendation:

EPA is concerned with the potential reduction of the Basin Power Funds. We recommend the FEIS describe potential mitigation measures that could be included in the selected alternative to offset or replace these revenue reductions.

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F-3

P. 10

FAX NO. 4159478026

APR-30-2007 MON 12:14 PM U.S.E.P.A.

Reponses to Comment Letter F-3

F-3-1

Your comment is addressed in the general response pertaining to climate changes and hydrologic variability in the introduction to Volume IV of the Final EIS. Section 4.2 of the Final EIS has been enhanced and two new appendices (Appendix T and Appendix U) have been added to provide additional information regarding the potential impacts of climate change and hydrologic variability.

F-3-2

Your comment is noted. No change to the Final EIS was necessary.

F-3-3 and F-3-4

Your comment is noted. The content of the Final EIS has been modified as appropriate.

F-3-5

Your comment is noted. The content of the Final EIS has been modified as appropriate.

F-3-6

Your comment is noted. The content of the Final EIS has been modified as appropriate.

F-3-7

Water supply planning and water supply management occurs at the federal, state, regional and local levels. Most states, regional agencies, local agencies, and communities already have or are in the process of preparing water resources management plans and/or drought management plans that address varying water demand and water supply management issues. The proposed guidelines are intended to, among other benefits, provide mainstream United States users of Colorado River water, particularly those in the Lower Division states, a greater degree of certainty with respect to the amount of annual water deliveries in future years, particularly under drought and low reservoir conditions and provide additional mechanisms for the storage and delivery of water supplies in Lake Mead. Additionally, the proposed water storage and delivery mechanism is expected to be used by agencies to increase their flexibility in meeting water use needs from Lake Mead. Implementation of these guidelines will be highly beneficial to water supply planners and will provide added water supply management options that can be used by agencies to develop more comprehensive plans to meet their water use needs, particularly during drought or low reservoir conditions.

F-3-8

Your comment is noted. Reclamation has included draft operational guidelines in the Final EIS (Appendix S) that address the administration of the ICS mechanism.

F-3-9 and F-3-10

Reclamation concurs with these comments. No change to the Final EIS was necessary.

F-3-11

See response to Comment No. F-3-7.

F-3-12

Your comment is noted. No change to the Final EIS was necessary.

F-3-13

Your comment is noted. Additional information with respect to the drought response and water supply management plans of Arizona, MWD, and SNWA have been included in Section 4.14 in the Final EIS.

F-3-14

Your comment is noted. The environmental impacts of a mechanism allowing ICS of up to 4.2 maf have been analyzed for the Preferred Alternative identified in the Final EIS.

F-3-15

Information presented in the Draft EIS has been modified in the Final EIS pursuant to this specific comment, as well as other public comments. Section H.6. of the Final EIS includes an additional assessment that considers the impacts of a compensated voluntary conservation program. Additionally as noted in Section 2.4.5 of the EIS, the Conservation Before Shortage proposal postulated several potential funding sources which the Department currently does not have the authority to implement in their entirety absent additional legislation. The viability of this funding proposal is not known at this time and therefore there is some uncertainty as to whether all of the elements of the Conservation Before Shortage proposal can be implemented.

F-3-16

See response to Comment No. F-3-8.

F-3-17

Your comment is noted. No change to the Final EIS was necessary.

F-3-18

The United States Geological Survey (USGS), in cooperation with Reclamation and other regional and local agencies, maintains a stream flow gaging system throughout the Colorado

River Basin. Reclamation also maintains additional gages in the Lower Basin. The data from these systems is used to monitor and record flows throughout the mainstream and tributaries of the Colorado River. Although Reclamation is committed to maintaining its gaging network in addition to assisting the USGS, ensuring that resources are available to expand and maintain these networks is beyond the scope of this EIS.

F-3-19 and F-3-20

Your comment is addressed in the general response pertaining to climate changes and hydrologic variability in the introduction to Volume IV of the Final EIS. Section 4.2 of the Final EIS has been enhanced and two new appendices (Appendix T and Appendix U) have been added to provide additional information regarding the potential impacts of climate change and hydrologic variability.

F-3-21 and F-3-22

The information requested regarding ecological resources in the NIB to SIB reach (limitrophe) is provided in the Draft and Final EIS. Section 3.8 provides a discussion of the vegetation and wildlife species present in the study area by river reach, including the NIB to SIB reach. Additional information on the existing endangered and listed species that are found in the NIB to SIB reach can be found in the LCR MSCP EIS (Reclamation 2004). Section 4.8 describes the potential effects of the proposed action, again by river reach including the NIB to SIB reach.

As noted in Section 3.9, there is little to no data relative to the existence of historic properties within the river channel for the river reach that extends from Imperial Dam to the SIB. Nevertheless, any known or as yet undiscovered cultural resources within this reach of the River will not be affected by the No Action Alternative or action alternatives because the current river operations will continue into the future

F-3-23

Section 3.10 provides a description of Indian Trust Assets (ITA), including those of the Cocopah Indian Reservation. Potential impacts to ITAs as a result of the proposed federal action are discussed in Section 4.10.

F-3-24 and F-3-25

Section 4.11 provides a description of electrical power resources, including the Basin Funds. Potential impacts to the Basin Funds as a result of the proposed federal action are discussed in Section 4.11.

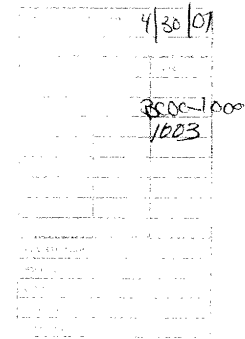
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OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

APR 27 2007



Bureau of Reclamation
Attention: BC00-1000
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Bureau Staff:

Thank you for providing the opportunity to review the Draft Environmental Impact Statement, titled *Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead* (DEIS). The United States Section, International Boundary and Water Commission (USIBWC) is charged through various treaties and international agreements to evaluate the relationship of projects to international obligations of the United States. The following and attached review comments are for your consideration and use.

The International Boundary and Water Commission (IBWC) is responsible for applying the boundary and water treaties between the two countries and settling differences that arise in the application of the treaties. The United States Section carries out the activities in the United States resulting from obligations and rights assumed with the Government of Mexico in accordance with these treaties and related agreements. The USIBWC duties include review of projects on resources in the United States and effects potentially crossing into Mexico.

The IBWC has agreements that pertain to issues within the Colorado River watershed, the Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, and supplementary protocol, November 1, 1944 United States-Mexico (1944 Water Treaty), the Treaty to Resolve Pending Differences and Maintain the Rio Grande and Colorado River as the International Boundary Between the United States and Mexico, signed at Mexico November 23, 1970 (1970 Boundary Treaty), and several related agreements that merit consideration.

In accordance with the 1944 Water Treaty, the United States delivers 1.5 million acre-feet of Colorado River water annually to Mexico. The treaty also states that when there is water surplus to United States uses, an additional volume of up to 200,000 acre-feet/year may be delivered. The two Governments entrusted the IBWC to give attention to salinity control. Minute No. 242, a binding agreement of the United States and Mexican Governments, controls the salinity of Colorado River water delivered to Mexico. The Minute also provides for limits on groundwater pumping within five miles of the international boundary near San Luis, Arizona, and for consultations between the two countries prior to undertaking any new development of the surface or groundwater resources, or undertaking substantial modifications of present developments in the border area, that might adversely impact the other country. Commission Minute No. 306 provides for cooperation between the two countries in the development of studies and recommendations regarding the ecology of the Colorado River limitrophe and delta. The 1970

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F-4

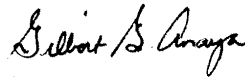
Boundary Treaty includes providing for the preservation of the Colorado River as the international boundary.

These agreements are all available on the USIBWC web page at www.ibwc.state.gov.

The USIBWC is the primary federal agency responsible for promoting the identification, investigation, and resolution of transboundary and boundary water and border technical issues along the United States and Mexico boundary region. The USIBWC carries out its statutory responsibilities through binational cooperation and in partnership with other entities. The United States Government gives limited technical investigative authority to the USIBWC.

Thank you again for the opportunity to review and comment on the DEIS. If you have any questions regarding these comments, please call me at (915) 832-4702 or contact R. Steve Fox, Environmental Protection Specialist, at (915) 832-4736.

Sincerely,



Gilbert G. Anaya
Supervisory Environmental Protection Specialist
Environmental Management Division

DRAFT Review Comments, United States Section, International Boundary and Water Commission, April 2007, on the *Draft Environmental Impact Statement Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead*, February 2007, Bureau of Reclamation

General Comment.

The Draft Environmental Impact Statement (Draft EIS) seems to be on water management and deliveries.

Specific Comments.

Page TOC-viii, Section 6.8. Revise to “Consultation with Government of Mexico Agencies” or “Consultation with Agencies of Mexico.” 1

Page 1-3, line 34, delete “drought and” 2

Page 2-4, line 34. Revise to “In addition, the determination of shortages to Mexico does not fall under the authority of the Secretary, and therefore is not a part of the proposed federal action. Such determination would be made in accordance with the 1944 Treaty” (Section 1.7). Page 2-4, line 36. Specify the Subsection of the stated “(Section 1.7),” as the Section is broad. 3
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Page 2-15. Line 22. Add a sentence or footnote to indicate that potential future Mexican participation in a storage and delivery mechanism is assumed to be included within the range for the “Unassigned” category in Table 2.6-1. 5

Page 3-3, Section 3.2. Please comment on the following. Based on the Section and Chapter 4, there could be effects to the services of MWD. MWD provides assistance to the IBWC on the “emergency transfer of a part of Mexico’s Colorado River water through the Southern California aqueduct system to the emergency water connection at Otay Mesa for deliveries to Tijuana, Baja California, Mexico.” Minute 310 was signed in 2003. The USIBWC FONSI notes that the agreement is for five year. 6

Page 3-46, line 1. Specify the Subsection of the stated “(Section 3.4).” Section 3.4 is referenced in line 1 of the Draft EIS in the context of salinity yet the Section is on water quantity, not quality. Recommended is stating such. 7

Page 4-8, lines 31-37 and Page 4-9, lines 1-2. This paragraph is confusing. It should be rewritten for clarification. The statement “replacement of bypassed water is not assumed to occur in the future” is particularly confusing. What does this mean in terms of modeling deliveries to Mexico or why was that assumption made? 8
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Page 4-119, lines 1-3. The sentence: “The occurrences of deliveries greater than 1.5 mafy reflect both times when additional water up to 200 kafy is made available during Flood Control conditions.” After the word “available” insert the word “and.” 10

F-4

Page 4-119, Figure 4.4-32 and others. The Figure and other charts in this Section label the y-axis as “Annual Depletions.” Recommended is changing those labels to “Annual Deliveries,” though they <u>are</u> depletions from the system.	11
Page 4-131, Section 4.5. Subsections 4.5.2.1 and 4.5.3 are on salinity. It is suggested that the Draft EIS describe the Minute 242 requirements regarding the applicable salinity differential for water deliveries to Mexico, and reference Section 3.5.1, page 3-46, on salinity. It is also suggested that the Draft EIS state what the alternatives’ effect would be on the salinity of waters delivered to Mexico and Minute 242 compliance.	12 13
Page 6-5, line 16. The Draft EIS states “IBWC and Mexico National Water Commission Meetings with representatives of Mexico...” Revise to “IBWC, the Mexico National Water Commission, and Mexico Secretariat of Foreign Relations meetings with agencies of Mexico ...”	14
Page 6-8. Delete “ United Mexican States Agencies ” and insert “ Government of Mexico Agencies. ”	15
Page B-32, line 2. Delete “... approximately 25 miles ...” and insert “... 23.7 miles ...”	16
Page B-32, line 11. Insert “The current design flood flow in the limitrophe is 140,000 cfs.”	17
Page B-32, line 26. Insert after the words “The reach of” the word “the.”	18
Page B-32, line 33, after “up to” insert “an additional.” With this change, it would read, “Mexico is allowed to schedule up to an additional 200 kaf pursuant to the 1944 Treaty during flood control years....”	19
Page I-1, Table I-1, U.S. Department of State. Insert after the stated “Various planning meetings” the punctuation and date “; 6/23/06.”	20
Page I-2. Delete “ United Mexican States Agencies ” and insert either “ Government of Mexico Agencies, ” or “ Agencies of Mexico. ”	21
Page I-2, Table I-1, International Boundary and Water Commission, Mexican Section. Insert after the stated date “2/8/06,” the words and punctuation “including the shortage issues and EIS,”. Also, insert after the stated “9/25-29/06” the words and punctuation “; including Upper Basin Tour.” Finally, insert, in bold in column one, another category at the end of the table, and title it “International Boundary and Water Commission (IBWC).” In column two of the same new entry, insert the words and meeting date “IBWC and Reclamation, meetings, including 6/23/06.”	22 23 24
Page I-2. Table I-1. It is recommended to add additional meeting dates that occurred in February and March 2007 with the Mexican representatives.	25
Page M-8, lines 10-18. This paragraph is confusing, especially the last sentence on lines 16-18. It is suggested that this concept be clarified. If the storage credits were assumed to be generated	26

via extraordinary conservation within Mexico, then how could they be used by the United States to be counted toward replacement of the bypass flows to the Cienega de Santa Clara in Mexico? Does this assume that U.S. entities would pay to acquire some of Mexico's water? If so, then it raises significant treaty compliance issues.

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Reponses to Comment Letter F-4

F-4-1

Your comment is noted. The TOC and Section 6.8 have been revised in the final EIS to reflect the suggested changes.

F-4-2

Reclamation does not concur with this comment. No change to the Final EIS was made.

F-4-3

Your comment is noted. No change to the Final EIS was necessary. The Draft EIS and the Final EIS include statements throughout clearly stating that determinations regarding water deliveries to Mexico would be made in accordance with the 1944 Treaty and are therefore not part of the proposed federal action.

F-4-4

Your comment is noted. The reference has been changed from Section 1.7 to Section 1.7.2.3.

F-4-5

Your comment is noted. No change to the Final EIS was necessary. As noted in Appendix M, at this time, it is unknown which entities might participate in a Lake Mead mechanism that allows the storage and delivery of conserved system and non-system water. However, modeling assumptions with respect to the entities that might participate and their respective level of participation were needed to enable the evaluation of the mechanism and its potential effects on environmental resources, particularly to reservoir storage and river flows below Lake Mead. Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico.

F-4-6

Under the current modeling assumptions, the probability of shortages to California and MWD is zero over the interim period for the Preferred Alternative (Section 4.4.7.2 of the Final EIS).

F-4-7

Your comment is noted. The reference has been changed from Section 3.4 to Section 3.4.5 in the Final EIS.

F-4-8

Your comment is noted. Information presented in the EIS in Section 4.2.7 accurately reflects the modeling assumptions that are common to the No Action Alternative and the action alternatives. No change to the Final EIS was necessary with regard to expanding or clarifying the paragraph referenced in the comment. However, although not part of the comment, there was an omission in the first sentence of this paragraph. The first sentence in this paragraph has been revised in the Final EIS.

F-4-9

As discussed in Section 4.2.7 of the Final EIS, the bypass of return flows from the Welton-Mohawk Irrigation and Drainage District to the Cienega de Santa Clara in Mexico is assumed to be 109 kafy (the historical average for the period 1990 through 2005). This water is not counted as part of the 1944 Treaty delivery.

Except under the Conservation Before Shortage and Reservoir Storage alternatives, replacement of the bypassed water is not assumed to occur in the future. Under those alternatives, replacement of the bypass flows was assumed to be part of activities related to the storage and delivery mechanism.

The United States recognizes that it has an obligation to replace, as appropriate, the bypass flows and the assumptions made herein, for modeling purposes; do not necessarily represent the policy that Reclamation will adopt for replacement of bypass flows. The assumptions made with respect to modeling the bypass flows are intended only to provide a thorough and comprehensive accounting of the Lower Basin water supply. The United States is exploring options for replacement of the bypass flows, including options that would not require operation of the Yuma Desalting Plant. For modeling purposes only, the Yuma Desalting Plant is not assumed to operate over the modeling period.

F-4-10

Your comment is noted. No change to the Final EIS was made.

F-4-11

Your comment is noted. No change to the Final EIS was made. The term “depletions” is used throughout the EIS and is defined in the Glossary.

F-4-12 and F-4-13

Your comment is noted. Additional language has been added to Section 3.5.1 and Section 4.5.3 in the Final EIS.

F-4-14

Your comment is noted. The referenced sentence in Section 6.8 has been modified in the Final EIS.

F-4-15

Your comment is noted. The referenced entry in Table 6.9-1 has been modified in the Final EIS.

F-4-16

Your comment is noted. The referenced sentence in Section B.2.8 has been modified in the Final EIS.

F-4-17

Your comment is noted. No change to the Final EIS was necessary. The design capacity of the limitrophe reach is already noted in the second paragraph in Section B.2.8.

F-4-18

Your comment is noted. The referenced sentence in Section B.2.8 has been modified in the Final EIS.

F-4-19

Your comment is noted. The referenced sentence in Section B.2.8 has been modified in the Final EIS.

F-4-20

Your comment is noted. No change to the Final EIS was made.

F-4-21

Your comment is noted. The referenced entry in Table I-1 has been modified in the Final EIS.

F-4-22 through F-4-24

Your comment is noted. No change to the Final EIS was made.

F-4-25

Your comment is noted. The appropriate information in Table I-1 has been updated in the Final EIS.

F-4-26 and F-4-27

See response to Comment No. F-4-5.

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APR-30-2007 MON 04:04 PM IBWC EL PASO

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P. 02/08



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
PO Box 61470
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.

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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.

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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.

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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.

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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.

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End of the Mexican Section's March 29 comments

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F-5

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).

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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%).

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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.

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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.

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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.

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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.

F-5

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. 17
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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 analyzes 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. 19
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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. 21

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. 22
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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. 24

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). 25

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. 26

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. 27

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 28

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

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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.

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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.

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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.

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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

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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.

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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.

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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.

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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.

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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. 44

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. 45
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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. 48

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. 49
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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. 52

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. 53

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. 54

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. 55

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 56

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.

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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.

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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.

62

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.

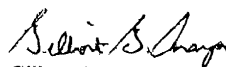
63

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
Supervisory Environmental Protection Specialist
Environmental Management Division

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Responses to Comment Letter F-5

Responses to Mexico's Comments:

Allotment of Colorado River water to Mexico is governed by the 1944 Treaty. The proposed federal action is a domestic action for the purpose of adopting additional operational guidelines to improve the Department's annual management and operation of key Colorado River reservoirs for an interim period through 2026. Certain modeling assumptions are used in this EIS in order to assess the potential effects to environmental resources of the proposed federal action. This assessment includes, but is not limited to, potential effects to water quantity, water quality, and fish and wildlife, particularly at the borders between the United States and Mexico.

Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico.

The United States has provided information to Mexico throughout the NEPA process through the United States and Mexican sections of the IBWC as detailed in Chapter 6. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Treaty with Mexico through the IBWC in consultation with the Department of State.

F-5-1

Comments transmitted in letters dated March 29, 2007 and April 25, 2007 have been addressed in this Final EIS.

F-5-2

Allotment of Colorado River water to Mexico is governed by the 1944 Treaty. The proposed federal action is a domestic action for the purpose of adopting additional operational guidelines to improve the Department's annual management and operation of key Colorado River reservoirs for an interim period through 2026. The proposed federal action is a domestic action. However, in order to assess the potential effects of the proposed federal action in this Final EIS, certain modeling assumptions (discussed in Section 2.2.1, Section 4.2, Appendix A, and Appendix M) are used that display projected water deliveries to Mexico. These modeling assumptions are common to all of the alternatives studied and are not intended to constitute an interpretation or application of the 1944 Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Treaty with Mexico through the IBWC in consultation with the Department of State.

F-5-3

As noted in Section 1.7.2.3, allotment of Colorado River water to Mexico is governed by the 1944 Treaty. Determination of deliveries to Mexico would be made in accordance with the 1944 Treaty. The United States will conduct all necessary and appropriate discussions regarding the

implementation of the 1944 Treaty with Mexico through the IBWC in consultation with the Department of State.

F-5-4

The modeling assumption used in this EIS assumes future water delivery reductions to Mexico are proportional to future reductions to United States users in the Lower Basin. Based upon comments provided by Mexico regarding this assumption, a sensitivity analysis was conducted and included as Appendix Q, Modeling Assumptions with Regard to Future Water Deliveries to Mexico, Sensitivity Analysis, of this Final EIS. This analysis examines the sensitivity of the hydrologic resources to a different modeling assumption that assumes future water reductions to Mexico are in the same proportion as water delivery reductions to all United States users, in both the Upper and Lower Basin.

F-5-5

The governments of Mexico and the United States expressed their intention to cooperate and collaborate on issues related to the lower Colorado River in a joint statement issued on August 13, 2007. In that statement, United States and Mexican authorities stated that cooperative, innovative and holistic measures should be considered to ensure that the Colorado River is able to continue to meet environmental, agricultural and urban demands of both nations. Opportunities for water conservation, storage and supply augmentation, and more efficient Colorado River water deliveries to Mexico are among the issues expected to be addressed in discussions held under the auspices of the IBWC.

F-5-6

The Colorado River Basin Salinity Control Act of 1974 authorized implementation of desalting and salinity control projects to improve river water quality. Salinity control projects have and continue to be implemented throughout the basin including projects to control irrigation seepage and reduce transport of salt loads to the Colorado River. As shown in Section 4.5 of the Final EIS, relative changes in salinity at Imperial Dam under all alternatives are expected to be minor (approximately one to three percent).

IBWC Minute 242 (Section 3.5) was developed in 1973. Minute 242 limits the differential in annual salinity between Imperial Dam and the NIB to 115 parts per million (ppm) \pm 30 ppm. The United States will continue to undertake activities to ensure compliance with the salinity provisions of Minute 242 and these activities will not be affected by the proposed federal action.

F-5-7

During flood control operations at Lake Mead, releases are made from Hoover Dam as specified by the flood control criteria established with the USACE (Section 3.3.4). Under current practice (Section 2.2.4.1), Mexico is allowed to schedule up to an additional 200 kaf pursuant to the 1944 Treaty during flood control years when water supplies exceed those required for use in the United States.

As described in Section 4.2.7, modeling assumptions common to all alternatives included deliveries to Mexico of up to 1.7 maf during flood control years. The probability of flood control surplus deliveries to the Lower Basin states for all alternatives is shown in Figure 4.4-16. Given the modeling assumption that deliveries to Mexico of up to 1.7 mafy would be made under these conditions, this figure also shows the likelihood of Mexico receiving surplus water under the 1944 Treaty. As shown in Figure 4.4-16, the likelihood of flood control releases under all alternatives is nearly the same (ranging from between zero and approximately 20 percent for all alternatives over the interim period), with the exception of the Reservoir Storage Alternative which is higher (up to a maximum of eight percent higher in 2015) over much of the interim period due to the larger volumes of shortages that are applied under that alternative which tend to keep the reservoir higher.

F-5-8

As discussed in Section 3.3.10, Mexico diverts the majority of its Colorado River water allotment at Morelos Diversion Dam resulting in limited volumes of water flowing in the NIB to SIB (limitrophe) reach and to the Colorado River Delta. The more frequent and smaller volumes of water (up to but typically less than 50,000 afy) are primarily the result of seepage from Morelos Diversion Dam, irrigation return flows and groundwater from Mexico and the United States, and water in excess of Mexico's scheduled delivery due to cancelled orders in the United States. The proposed federal action would not affect these smaller volumes of water.

Larger, less frequent volumes of water may occur below Morelos Diversion Dam as a result of flood control releases from Hoover Dam (Section 3.3.10) that are not diverted at Morelos Diversion Dam. As shown in Figure 4.3-44 (Section 4.3.9), the probability of larger flows under all alternatives during the interim period are approximately nine to ten percent, with the exception of the Reservoir Storage Alternative which shows probabilities of about twelve percent, as well as somewhat higher magnitudes when the flows occur. The somewhat higher frequencies and larger volumes under the Reservoir Storage Alternative are primarily due to the larger volumes of shortages that are applied which tend to keep the reservoir higher.

Although the Conservation Before Shortage Alternative and Reservoir Storage Alternative assumed that conserved water would be delivered on a periodic basis to Mexico through the NIB to the SIB reach, these modeling assumptions were used only to model the alternative proponent's recommendations and to analyze the potential impacts to resources of a larger storage and delivery mechanism. Use of these modeling assumptions does not represent any determination by Reclamation as to whether, or how, these releases could be made under current management of the Colorado River.

F-5-9

See response to Comment No. F-5-2.

F-5-10

See response to Comment No. F-5-3.

F-5-11 and F-5-12

See response to Comment No. F-5-2.

F-5-13

See response to Comment No. F-5-4.

F-5-14

See responses to Comment Nos. F-5-2 and F-5-4.

F-5-15

See response to Comment No. F-5-2.

F-5-16

See responses to Comment Nos. F-5-2 and F-5-4.

F-5-17

As discussed in Appendix M, the Conservation Before Shortage Alternative and the Reservoir Storage Alternative assumed that storage credits would be generated and used for environmental purposes. These and other modeling assumptions were utilized in the Final EIS in order to analyze the potential impacts to environmental resources of the storage and delivery mechanism, particularly with regard to reservoir elevations and river flow impacts.

The use of these modeling assumptions does not represent any determination by Reclamation as to whether, or how, these releases could be made under current administration of the river. Furthermore, notwithstanding the lack of an existing mechanism to implement such modeling assumptions, Reclamation utilized these assumptions for a number of reasons, including the following: (1) a larger volume of potential storage in Lake Mead is identified, (2) the maximum potential impacts on river flows below Hoover Dam are identified, (3) the Conservation Before Shortage Alternative proponent's recommendations as to participating entities and levels of participation are modeled, (4) the arbitrary assignment of water conservation amounts to entities in the Lower Basin states is avoided, and (5) modeling impacts of a program of potential future cooperation between the United States and Mexico are identified.

F-5-18

The proposed federal action only involves domestic determinations and actions and does not address prospective voluntary arrangements that may be agreed upon by the United States and Mexico. The governments of Mexico and the United States expressed their intention to cooperate and collaborate on issues related to the lower Colorado River in a joint statement issued on August 13, 2007. In that statement, United States and Mexican authorities stated that cooperative, innovative and holistic measures should be considered to ensure that the Colorado River is able to continue to meet environmental, agricultural and urban demands of both nations.

Opportunities for water conservation, storage and supply augmentation, and more efficient Colorado River water deliveries to Mexico are among the issues expected to be addressed in discussions held under the auspices of the IBWC. The inclusion of the modeled information is appropriate in Reclamation's view, because, at this time, it is unknown which entities might participate in a Lake Mead mechanism that allows the storage and delivery of conserved system and non-system water and the timing and magnitude of the storage and delivery of conserved water is unknown. Certain modeling assumptions with respect to the entities that might participate and their respective level of participation were needed to enable the evaluation of the mechanism and its potential effects on environmental resources, particularly to reservoir storage and river flows below Lake Mead.

See also response to Comment F-5-17.

F-5-19 through F-5-21

See response to Comment No. F-5-6.

F-5-22

The proposed federal action builds upon the prudent water management approaches contained in the Interim Surplus Guidelines adopted by the Secretary of the Interior in 2001. These Guidelines had the effect of reducing demand on limited Colorado River water supplies through efforts to allow (and require) California to reduce its reliance on Colorado River supplies in excess of 4.4 mafy. These Guidelines link availability to water supplies to the elevation of Lake Mead. The proposed federal action will adopt operational guidelines for the operation of Lake Mead for a full range of reservoir operations, including surplus, normal, and shortage conditions. This approach is integral to the prudent development of new low-reservoir operational guidelines, as the approach and management of these reservoirs at higher elevations has a direct impact on available storage, thereby affecting the likelihood and severity of potential future shortages.

F-5-23

Reclamation does not concur with Mexico's position as expressed in this comment. Under current practice (Section 3.3.4), Mexico can schedule up to an additional 200 kaf during flood control years when the water supply exceeds the needs of Colorado River water users in the United States. The modeling assumptions used in the EIS, particularly with regard to water reductions to Mexico, are common to all alternatives, are used only to display projected water deliveries to Mexico, and are not intended to constitute an interpretation or application of the 1944 Treaty.

See also response to Comments F-5-2 and F-5-7.

F-5-24

See responses to Comment Nos. F-5-7 and F-5-8.

F-5-25

Reclamation concurs with this comment. Table 3.8.7 identified 16 species of fish, primarily non-native, that may be found in NIB to SIB (limitrophe) reach. The analysis of potential impacts to vegetation and wildlife for this reach is presented in Section 4.8.3.7. It is also noted that an analysis of potential impacts to special status species for the NIB to SIB reach is also presented in Section 4.8.4.7.

F-5-26

As discussed in Section 4.2 and Section 4.16.2, the Drop 2 Storage Reservoir Project was included in the hydrologic modeling for all alternatives for Lake Mead and the Colorado River conducted for this EIS. Potential impacts are included in the analysis in Sections 4.3 and 4.4, particularly to larger flows in the NIB to SIB (limitrophe) reach resulting from flood control releases (see response to Comment No. F-5-8). The Lower Colorado River Drop 2 Storage Project Environmental Assessment analyzed the potential hydrologic impacts of the project on smaller (non-flood release) flows in the limitrophe reach.

F-5-27

The alternatives analyzed in the EIS considered a range of methodologies for determining surplus conditions in the United States. Specifically, the Basin States Alternative, the Conservation Before Shortage Alternative, and the Preferred Alternative assume that the more permissive provision of the Interim Surplus Guidelines (i.e., Partial Domestic Surplus) is eliminated in 2008. See also response to Comment No. F-5-7.

F-5-28

See responses to Comment Nos. F-5-2 and F-5-5.

F-5-29 through F-5-30

See response to Comment No. F-5-2.

F-5-31 and F-5-32

As noted in Section 2.2, a reasonable representation of future conditions under the No Action Alternative is needed for comparison to each action alternative. The modeling assumptions used for this representation are consistent with assumptions used in previous environmental compliance documents for the ISG, the Colorado River Water Delivery Agreement, and the LCR MSCP (Section 1.8). However, as noted in the response to Comment No. F-5-2, the assumptions used in the No Action Alternative are not intended to constitute an interpretation or application of the 1944 Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Treaty with Mexico through the IBWC in consultation with the Department of State.

F-5-33

Reclamation conducted a modeling workshop to facilitate an understanding of the technical details of the modeling conducted for the Draft EIS. This workshop was held in Henderson Nevada on March 6, 2007 for all interested parties, including Mexico. One participant from Mexico attended. In the spirit of comity, Reclamation offered to repeat the workshop in Juarez Mexico on March 14, 2007 for the convenience of other interested parties in Mexico. Additional information was requested by the Mexican participants at that time and Reclamation provided, through the USIBWC, all available information in the timeliest manner possible.

F-5-34

See response to Comment No. F-5-4.

F-5-35

As discussed in Section 4.2, modeling future Colorado River conditions requires the input of a large amount of information, including the future depletion (consumption) schedules for the Basin States and for Mexico. The depletion schedules for future use in the Upper Basin were provided by the Upper Colorado River Commission (Section 3.4 and Appendix C).

F-5-36

The United States does not concur with Mexico's statement that drought in the Upper Basin has been "not significant." Provisional calculations of natural flow for the Colorado River at Lees Ferry, Arizona, show that the average flow over the past eight years (2000 through 2007 inclusive) was the lowest eight-year average in 100 years of record-keeping. United States users throughout the Upper Basin have incurred shortages throughout this period.

With respect to the inclusion of the Upper Basin in calculations of modeled water reductions, see response to Comment F-5-4.

F-5-37

The modeling assumptions used in this EIS regarding shortage-sharing between the Lower Division states are consistent with the Consolidated Decree and federal law, in particular the 1968 Colorado River Basin Project Act (the CRBPA). Specifically, the CRBPA states that satisfaction of all PPRs and California's 4.4 maf apportionment would have priority over CAP and other post-1968 water delivery contracts (contracts with approval dates after September 30, 1968). It also states that Nevada shall not be required to bear shortages in any proportion greater than would have been imposed in the absence of the CRBPA (Section 3.4.3).

F-5-38

See responses to Comment Nos. F-5-2 and F-5-4.

F-5-39

Your comment is noted. Reclamation agrees that a complete understanding of the relationships between precipitation and runoff throughout the Basin would require a large amount of data and further study.

F-5-40

Your comment is noted. In addition, the Department concurs that recent hydrologic trends indicate a strong likelihood of ongoing and imminent periods of less runoff. These concerns are highlighted by inclusion of information in the Final EIS regarding considerations of paleohydrology and possible global climate change impacts. It is precisely these concerns and realities (along with precipitously decreasing reservoir levels) that informed the decision to proceed with this NEPA process. The uncertainty in future hydrologic conditions warrant more efficient use of the available water supply throughout the basin. This process to develop additional operational guidelines for Lake Powell and Lake Mead is being undertaken to address this concern.

F-5-41

If the reference is assumed to be Appendix N (as suggested by USIBWC), it should be noted that the elevations shown for example in Figure N-3, do not represent actual traces, but rather the ranking of each year's data from the 100 traces for the conditions modeled. Future reservoir levels would fluctuate from year to year and would depend on the future variation in basin runoff conditions. As noted in Section 4.3, these presentations are best used for comparing the relative differences in the general lake level trends that result from the simulation of the different alternatives. Under the No Action Alternative, the 50th percentile or median elevations at Lake Mead remain relatively stable over time primarily due to the increasing probability of shortage.

F-5-42

Your comment is noted; however, Reclamation notes that the Conservation Before Shortage Alternative would have users make efforts to maintain high levels in Lake Mead not Lake Powell as referenced in your comment.

F-5-43

See responses to Comment F-5-17 and Comment F-5-18.

F-5-44

Although it is unclear the specific table that is being referenced, the model assumes that conserved water can only be delivered if sufficient credits exist. The credits may be created in the same year or they may be available because they were created in previous years. The model performs an accounting of the credit balance in each year as detailed in Appendix M.

F-5-45

See responses to Comment Nos. F-5-17, F-5-18, and F-5-2.

F-5-46

See responses to Comment Nos. F-5-5, F-5-18, and F-5-2.

F-5-47

Your comment is noted. See also response to Comment F-5-18.

F-5-48

Your comment is noted.

F-5-49

Reclamation fully concurs with this comment. The example presented clearly shows that there are tradeoffs between incurring more manageable yet more frequent water delivery reductions versus incurring no water delivery reductions for some period of time resulting in an increased risk of incurring much larger, severe and less manageable water delivery reductions at a later date.

F-5-50

An analyses of the trade-offs between incurring more manageable yet more frequent water delivery reductions versus incurring no water delivery reductions for some period of time resulting in an increased risk of much larger, severe and less manageable water delivery reductions at a later date has been performed through the comparison of the alternatives that have been studied in the EIS. With respect to these trade-offs for purpose of this domestic action, Reclamation's determination is manifested through its identification of the Preferred Alternative, which selects more frequent, less severe reductions in water deliveries, potentially avoiding the need for larger more severe reductions (depending on hydrology). These analyses included the potential impacts to water deliveries to Mexico (Section 4.4.6). The sensitivity of the hydrologic resources to increased hydrologic variability has been analyzed in Appendix N.

F-5-51

Your comment is noted. See response to F-5-5.

F-5-52

Reclamation does not concur with this statement and does not believe it is an accurate description of the information presented in the Draft (and Final) EIS. The Basin States and Conservation Before Shortage Alternatives and the Preferred Alternative have a common coordinated operation element whereby the annual release from Lake Powell is determined by the storage in both Lake Powell and Lake Mead (Chapter 2 and Table 2.8-2). For example, under

these alternatives, if Lake Powell is below the Equalization Line and Lake Mead is below 1,075 feet msl, the Upper Level Balancing operation can result in annual releases from Lake Powell of up to 9.0 mafy.

F-5-53

The Consolidated Decree stipulates that the United States shall prepare and maintain complete, detailed, and accurate records of diversions, return flows and consumptive use throughout the Lower Basin on an annual or more frequent basis. The Lower Colorado Region has an on-going program to meet this stipulation and the annual reports are available at <http://www.usbr.gov/lc/region/g4000/wtracct.html>. These reports also include various supplemental information including water conservation and water transfers. Furthermore, Reclamation has expanded that program to provide, on a daily basis, estimates throughout the year of use-to-date and forecasted use through the end of the calendar year for all users throughout the Lower Basin that consume greater than 2,000 afy, totaling approximately 98 percent of all water used in the Lower Division states.

F-5-54

Reclamation does not concur with this comment. As described in the response to Comment No. F-5-7, Figure 4.4-16 presents the probability of flood control surplus conditions, and given the modeling assumption that deliveries to Mexico of up to 1.7 mafy would be made under these conditions. This figure also shows the likelihood of Mexico receiving surplus water under the 1944 Treaty. Although the likelihood of flood control releases under the all alternatives is nearly the same (with the exception of the Reservoir Storage Alternative), the probability of flood control releases under the No Action Alternative is not less than the probability under the Water Supply Alternative throughout the Interim Period.

F-5 55

Your comment is noted.

F-5-56

As discussed in the modeling workshop in Juarez Mexico held on March 14, 2007, certain Upper Basin reaches experience zero flow during simulation under the driest hydrologic sequences in the CRSS model. To prevent division by zero when performing salinity calculations, a minimum flow constraint of ten af per month is applied in each Upper Basin reach. This situation occurs infrequently.

F-5-57

Reclamation does not concur with this comment. Section 3.5 describes the water quality constituents that may be potentially affected by the proposed federal action and Section 4.5 describes those potential impacts. In particular, the potential impacts to salinity are considered in both sections (see response to Comment No. F-5-6).

F-5-58

The United States will continue to comply with the Minutes undertaken within the terms of the 1944 Water Treaty, including with regard to the salinity differential pursuant to Minute 242, described in Section 3.5 (see response to Comment No. F-5-6).

F-5-59

Your comment is noted. Reclamation welcomes the opportunity to meet with representatives from Mexico to discuss the various assumptions and considerations that are used in the CRSS salinity module.

F-5-60

See response to Comment No. F-5-58.

F-5-61

Your comment is noted.

F-5-62

Reclamation investigated this observation, but did not find negative storage or release values at any reservoir. Reclamation welcomes the opportunity to meet with representatives from Mexico to discuss modeling results from CRSS.

F-5-63

Groundwater aquifers in direct connection to the Colorado River could act as either water sources or sinks depending upon the hydraulic gradient. In many areas, the hydraulic gradients are quite variable and can change rapidly. As noted in the response to Comment No. F-5-39, the interactions between surface and groundwater are complex and require a large amount of site-specific data. The necessary data is not currently available throughout the Colorado River Basin.

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Oceanic and Atmospheric Research
Earth System Research Laboratory
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April 30, 2007

Dr. Terrance Fulp
Regional Director, Lower Colorado Region
Bureau of Reclamation
Attn: BCOO-1000
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Dr. Fulp

Thank you for the opportunity to comment on the recent Draft EIS on Proposed Guidelines for Managing the Colorado River During Drought Conditions.

We are pleased to see that Reclamation is taking steps to include the effects of climate variability in its evaluation of management strategies for low reservoir operations of Lake Mead and Powell. We encourage Reclamation to work further to consider how climate change may impact water availability and environmental conditions in the Basin. 1

As discussed in our scoping comments for this EIS, we recommended that management strategies for low reservoir operations of Lake Mead and Powell should include the effects of climate variability and long-term trends in climate. We suggested that Reclamation should consider including information on long-term climate variability (such as paleoreconstructions of flows from tree rings), potential climate change impacts the potential of ENSO-based seasonal forecasts and intraseasonal forecasts to contribute to reservoir management. Reclamation has made some effort to incorporate our scoping comments (e.g. Appendix N), but we believe more could be done. 2

Since the Scoping process, several studies have been released which can provide information to assist in incorporating the potential impacts of climate change in the evaluation of alternatives. These include the Summaries for Policymakers of the Intergovernmental Panel on Climate Change (IPCC 2007a,b), the IPCC Regional Climate Projections (Christensen et al., 2007) a National Academy of Sciences report, *Colorado River Basin water management: Evaluating and adjusting to hydroclimatic variability* (NAS, 2007), and several journal articles including, *Global pattern of trends in streamflow and water availability in a changing climate* (Milly et al., 2005), *Model projections of an imminent transition to a more arid climate in Southwestern North America: A multimodel ensemble approach to assessment of climate change impacts on the* 3

F-6



hydrology and water resources of the Colorado River basin (Christensen and Lettenmaier, 2007), and a special issue of *Southwest Hydrology* including an article by Hoerling and Eischeid (2007), *Past peak water in the southwest?*.

Some of the key findings are summarized below.

The IPCC international panel of experts finds observed changes in climate including:

- An increase in the rate of global average temperature rise to 0.74°C (1.3°F) [range 0.56 - 0.92°C, 1.08 - 1.6°F] for 1906-2005.
- Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns.
- Widespread changes in extreme temperatures have been observed, including less frequent cold days, cold nights and frost, and more frequent hot days, hot nights, and heat waves.

4

Future impacts relevant to the Western U.S. and the Colorado River Basin include:

- Over North America, annual mean warming is likely to exceed the global average. Over western North America, median temperatures are projected to increase by 3.5°C, 4°C, and 5°C by 2100 under the B1, A1B, and the A2 emissions scenarios, respectively.
- In the southwestern U.S., warming is likely to be the largest in summer
- Warmer and fewer cold days and nights are virtually certain as are warmer/more frequent hot days and nights over most land areas
- Warm spells and heat waves are very likely to increase over most land areas
- There is very high confidence that high elevation warming is projected to cause decreased snowpack, more winter flooding, and reduced summer flows
- Annual mean precipitation is likely to decrease in the southwestern U.S.
- The area affected by drought is likely to increase, with more widespread water stress and water shortages and reduced hydropower generation potential
- The global models likely underestimate the warming at high altitudes due to the snow-albedo feedback.
- Snow season length and snow depth are very likely to decrease over most of North America.

5

The NAS report notes that temperature records and climate model projections both suggest that temperatures across the Western U.S. will continue to rise in the foreseeable future. The NAS report, Hoerling and Eischeid (2007), and Christensen and Lettenmaier (2007) all point to the negative impacts of higher temperatures on water supply in the West. The IPCC 2007 findings also point to the impacts of rising temperature on water supplies in already arid areas, and note that areas like the U.S. West are particularly vulnerable because its economies are closely linked with climate-sensitive resources, its rising population, urbanization, and dependence on already highly utilized water resources.

It is noteworthy that the IPCC 2007 model runs consistently show a reduction in water supplies in the American Southwest even when precipitation stays approximately the same. This is due to temperature increases and the resultant widespread drying. The results in Milly et al (2005),

6

Hoerling and Eischeid (2006), Christensen and Lettenmaier (2007), and Seager and et al. (2007) all indicate a reduction in water supplies, albeit with some significant differences in magnitude. Models used in the IPCC Third Assessment Report in 2001 (IPCC 2001) and the National Assessment of the Potential Consequences of Climate Variability and Change in (USGCRP, 2000) showed no such consistency with some models indicating more precipitation and some less.

These and other recent studies are showing that the use of historical hydrology for the Colorado River cannot adequately capture the likely future variability of water supply. We strongly encourage Reclamation to consider ways to generate hydrology representative of likely future conditions and to continue to utilize the paleo record to investigate climate variability outside that of the historical period.

We have been pleased to participate in a panel of experts convened to consult with Reclamation and assist in addressing these questions. The NOAA and the NOAA-University of Colorado Western Water Assessment are happy to continue to work with Reclamation, to assess the potential effects of climate variability and change, as well as the opportunities for the use of seasonal climate forecasts, in studying how best to operate Lakes Powell and Mead during low reservoir conditions

Sincerely,



Andrea J. Ray, Ph.D.
NOAA Earth Systems Research Laboratory and
NOAA-University of Colorado Western Water Assessment



Brad Udall
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References:

Christensen, J.H., B. Hewitson, A. Busuioc, A. Chen, X. Gao, I. Held, R. Jones, R.K. Kolli, W.-T. Kwon, R. Laprise, V. Magaña Rueda, L. Mearns, C.G. Menéndez, J. Räisänen, A. Rinke, A. Sarr and P. Whetton, 2007: Regional Climate Projections. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, Eds., Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Christensen N. and D.P. Lettenmaier, 2007: A multimodel ensemble approach to assessment of climate change impacts on the hydrology and water resources of the Colorado River basin, *Hydrology and Earth System Sciences*, 3:1–44.

Hoerling, M.P., and J. K. Eischeid. 2007. Past peak water in the southwest. In the special issue *Inconvenient Hydrology?* in *Southwest Hydrology*, 6 (1) January/February, available at: <http://www.swhydro.arizona.edu/archive/>

IPCC, 2007a. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller, Eds. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

IPCC 2007b. *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Intergovernmental Panel on Climate Change, Fourth Assessment Report, Summary for Policymakers*. Available at: <http://www.ipcc.ch/SPM13apr07.pdf>.

IPCC, 2001. *Climate Change 2001: Third Assessment Report*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Milly, P. C. D., K. A. Dunne, et al. 2005. Global pattern of trends in streamflow and water availability in a changing climate. *Nature* 438(7066): 347-350.

National Academy of Sciences, 2007. *Colorado River Basin water management: Evaluating and adjusting to hydroclimatic variability*. National Academy of Sciences, Washington, DC. 218pp.

Seager, R., M. Ting, et al., 2007. Model projections of an imminent transition to a more arid climate in southwestern North America, *Science* DOI: 10.1126/science.1139601, published online April 5, 2007.

U.S. Global Change Research Program, National Assessment Synthesis Team, 2000. *Climate change impacts on the United States: The potential consequences of climate variability and change, Overview*. National Assessment Synthesis Team. Available at: <http://www.usgcrp.gov/usgcrp/Library/nationalassessment/>

Reponses to Comment Letter F-6

F-6-1 through F-6-10

Your comment is addressed in the general response pertaining to climate changes and hydrologic variability in the introduction to Volume IV of the Final EIS. Section 4.2 of the Final EIS has been enhanced and two new appendices (Appendix T and Appendix U) have been added to provide additional information regarding the potential impacts of climate change and hydrologic variability.

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