

Mr. Bruce D. Ellis
April 23, 2002
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- T3-7 [7. **Impact on Cultural Resources.** The Tribe wants to be consulted under section 110 of the NHPA about how ongoing actions in the lower Colorado River are impacting cultural resources affiliated with the Tribe. The Tribe is concerned that BOR is deferring assessment of these impacts, particularly in light of the many projects impacting the lower Colorado River and its environs. What is the schedule for completing this assessment and report? How exactly will cultural resources affiliated with the Quechan Tribe be affected by this project?
- T3-8 [8. **Cumulative Impacts - Projects Considered.** The DEIR/DEIS's cumulative impacts analysis omits many projects and actions that directly affect the lower Colorado River. This was revealed by checking the DEIR/DEIS's list against the two other environmental analyses listed in no. 9 below. Please revise your analysis to include all required projects. Some missing projects include but are not limited to: (1) the Glamis mine; (2) BOR's consumptive use policy; (3) the International Agreement for Water Deliveries to Mexico; (4) operating criteria for Colorado River Reservoirs; and (5) BOR's rule for off-stream storage.
- T3-9 [9. **Compliance with NEPA.** Please explain why the federal and California governments have published three related NEPA/CEQA documents, rather than combining them into one readable document? The documents are: (1) PEIR for the Quantification Settlement Agreement, (2) this DEIS and (3) the Bureau of Reclamation's and Imperial Irrigation District's Draft EIS/EIR and Habitat Conservation Plan for IID's Water Conservation and Transfer Project? This approach appears to violate rules under both NEPA and CEQA that prohibit piecemealing projects and analyses when they are related, and for providing the public with readable, understandable impact analyses.
- T3-10 [10. **The IA.** How exactly does section B.3.f. of the Implementation Agreement protect the Quechan Tribe's rights to its PPRs and its potential senior water rights to an additional 9,000 acres of irrigable land? How does the same question apply to the entire IA? Please state, if true, that the QSA, Implementation Agreement and IID Transfer Agreements, together and separately, do not and will not interfere with these perfected and unperfected water rights held by the Quechan Tribe, at any point during the agreements' respective durations. This promise should be added to the IA.
- T3-11 [11. **The QSA.** How exactly do sections 2.1(2), 2.2(2), and 2.3(2) of the QSA protect the Quechan Tribe's rights to its PPRs and its potential senior water rights to an additional 9,000 acres of irrigable land? How does the same question apply to the entire QSA? The QSA does not seem to protect the Tribe's potential rights to 9000 irrigable acres, because it only covers "present perfected" rights.

Response to Comment T3-7

At this time, no impacts have been identified as potentially occurring to cultural resources affiliated with the Quechan Indian Tribe. After site-specific locations have been identified for implementing biological conservation measures, Reclamation will conduct additional cultural resource surveys to determine what, if any, cultural resources would be impacted by any on-the-ground activities that would occur. Should it be determined that cultural resources affiliated with the Quechan Indian Tribe might be affected by those activities, Reclamation will initiate consultation under Section 106 of the NHPA, as appropriate.

Response to Comment T3-8

NEPA and CEQA require an analysis of the incremental effects of a project that are cumulatively considerable when viewed in connection with closely related past, present, and reasonably foreseeable future projects. Generally, effects of a particular project or group of projects must meet the following criteria to be considered in the cumulative impacts analysis:

- Effects of an action occur in a common locale or region;
- Effects on a particular resource are similar in nature; and
- Effects are long term rather than short term (short-term effects dissipate and may not contribute to cumulative impacts).

The list of projects/actions addressed in the cumulative impacts of the EIR/EIS includes all projects identified by the Lead Agencies that could occur in the same region of influence, could affect the same resources, and could have long-term effects as the Proposed Project. However, it is true that this EIR/EIS, the IA EIS, and the QSA PEIR include different cumulative projects. This disparity is appropriate given the differing regions of influence and extent of the impacts of these projects. The region of influence for the IA and IOP is the LCR. The regions of influence for the Proposed Project and the QSA PEIR include the LCR as well as the Salton Sea, the IID water service area, the CVWD, MWD, and SDCWA service areas, and various conveyance/distribution facilities.

In response to the specific list of projects requested by the commenter to be included in the cumulative impact analysis, only the Glamis Mine project was found to be appropriate to include. The previous Draft

Response to Comment T3-8 (continued)

EIR/EIS has been revised to include the Glamis Mine project in the cumulative impact analysis. This change is indicated in this Final EIR/EIS in subsections 5.1.1 and 5.1.2.5 under Section 4.2, Text Revisions. The other projects mentioned in the comment are not appropriate to include for the following reasons:

- **Consumptive Use Policy:** This policy has not been adopted by Reclamation. Its effect, if any, is too speculative to consider for the cumulative impact analysis.
- **International Agreement for Water Deliveries to Mexico:** The Project will not result in impacts to Mexico. Therefore, no cumulative effects to Mexico could occur with implementation of another project or agreement.
- **LROC for Colorado River:** This is not a project. Rather, it is a regulatory process that has been in effect since 1970. Its effect on the River, if any, is reflected in the Baseline.
- **Rule for Offstream Storage:** This rule would affect Colorado River flows outside of the Project's region of influence. Nevertheless, its effect on the Colorado River is too speculative to consider for the cumulative impact analysis.

Response to Comment T3-9

Please refer to the Master Response for *Other—Relationship Between the Proposed Project, QSA, IA, IOP, and CVWD Groundwater Management Plan* in Section 3 of this Final EIR/EIS.

Response to Comment T3-10

The QSA, IA, and IID/SDCWA Transfer Agreement will not interfere with the federal reserved right PPRs or with additional PPR rights that may be granted to the Tribes in future supplemental decrees. The Tribes are entitled to use their full entitlements for reasonable beneficial use. Sections B.3.f., B.4.d., and B.5.c. of the IA were not drafted to address the rights of the Quechan Indian Tribe or other Tribes, nor do they impact such rights. Those provisions prorate the individual forbearance in consumptive use by IID, CVWD, and MWD when California water districts are required to reduce use to prevent California's consumptive use from exceeding the amount of Colorado River water available to California that year. For scheduling purposes only, the California water districts will assume that water use by the higher-priority California water users, such as the Quechan Indian Tribe, will be the same as their historic average use. This scheduling presumption is made only so the districts can schedule their water use with more certainty; it does not restrict the rights of the Quechan Indian Tribe or other Tribes. If the Tribes' use exceeds the amount of water the water districts projected, then IID, CVWD, and MWD will need to forbear some of their consumptive use to keep California's consumptive use from exceeding the amount that is available to California. The QSA is the agreement among IID, CVWD, and MWD as to how a required reduction will be prorated among them. In the absence of the QSA, MWD would need to bear the entire forbearance in water use as the junior user within the California priority system.

Response to Comment T3-11

The Tribe is entitled to use its full entitlement for reasonable beneficial use with or without the QSA. Likewise, sections 2.1(2), 2.2(2), and 2.3(2) of the QSA are not designed to protect the rights of the Quechan Indian Tribe to water rights for an additional 9,000 acres of additional lands if that claim is upheld in the Supreme Court. As noted in the response to QT-1, the Court may uphold the Tribe's claim to additional land, enter a supplemental decree, and increase the Tribe's federal reserved right PPR. In that event, the Tribe will be entitled to use its full increased entitlement for reasonable beneficial use. If IID, CVWD, and MWD do not modify their prorata shares of the responsibility for bearing any reduction to keep California's use within 7.5 MAFY in a normal year, the entire reduction for water used on the additional 9,000 acres would be borne by MWD as the junior priority user in California.

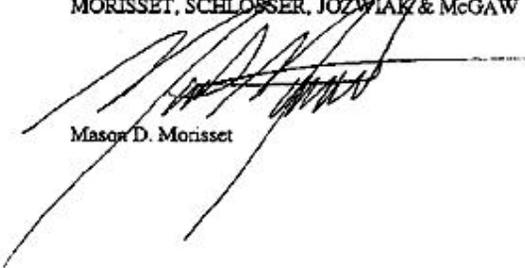
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Response to Comment T3-12
Comment acknowledged. No response required.

T3-12 [Thank you for your consideration. The Tribe urges BOR and IID to carefully consider these comments, and to respond in a detailed, readable manner, given the Tribe's status, the 75-year, irreversible nature of this project, and the many other projects affecting the lower Colorado River.

Sincerely yours,

MORISSET, SCHLOSSER, JOZWIAK & McGAW



Mason D. Morisset

cc: Mike Jackson Sr., President
Quechan Indian Tribe

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4/23/02



COLORADO RIVER INDIAN TRIBES
OFFICE OF THE ATTORNEY GENERAL

**Letter - T4. Colorado River Indian Tribes Office of the
Attorney General. Signatory - Eric N. Shepard.**

April 28, 2002

VIA FACSIMILE

Mr. Bruce D. Ellis
Bureau of Reclamation
Phoenix Area Office
P.O. Box 81169
Phoenix, AZ 85069

Mr. Elliston Grubaugh
Manager of Resources, Management,
and Planning Department
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Re: Supplement to Comments on Draft EIR/EIS for the Imperial Irrigation District
Water Conservation Plan and Transfer Project and Draft Habitat Conservation
Plan

Dear Mr. Ellis and Mr. Grubaugh:

Attached please find a copy of comments regarding the Draft EIR/EIS prepared by AQUA
TERRA Consultants on behalf of the Colorado River Indian Tribes (CRIT). These comments are
intended to supplement our comment letter of April 26, 2002. If you have any questions, please
do not hesitate to call me at (928) 669-4560 or (928) 669-1271.

Sincerely,

Eric N. Shepard
Assistant Tribal Attorney

Enc.





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April 10, 2002

Letter - T4
 Page 2

Mr. Eric Shepard
 Office of the Attorney General
 Colorado River Indian Tribes
 Route 1, Box 23-B
 Parker, AZ 98344

SUBJECT: Review of Bureau of Reclamations Draft EIS report - Implementation Agreement, Inadvertent Overrun and Payback Policy, and Related Federal Actions - as they relate to the Colorado River Indian Tribes. ATC Project No 20220-01

Dear Mr. Shepard:

After reviewing the dEIS and materials and considering our discussions with you, we have provided the following comments as commissioned by our Professional Services Agreement with CRIT dated 8 February 2002:

Hydrologic and Hydraulic methodology:

The dEIS has used a generalized computer tool "Riverware" for modeling the complex interaction between stream flow and reservoir operation under a variety of water demands and constraints. The model can be operated on a daily time interval, (Journal of The AWRA, August 2001), although it used a monthly timestep for the dEIS. To evaluate the impact of the proposed changes in system operations, the historic stream flow from 1906 to 1980, a 75-year period, was used as input to the model. This 75 year historic period was then expected to repeat in the future. An additional historic period of 1981 to 1990 was also used. To examine the impact of flow variability on system operation, the historic record was shifted by one year, for the second historic record the period would be from 1907 to 1981. This proceeded until 1990 was reached then, the last year became the first year. The process continued until 85 separate historic data series, or "traces" were created. Each one of these historic sequences was used as input to the model and the model was operated for a 75-year period. The system characteristics for each year were recorded and frequency tabulations were made for the 10, 50 and 90 percentile.

Comments:

There are usually several steps necessary for the use of any system model, including (1) Calibration, (2) Verification, and (3) Application.

- (1) **Calibration.** Calibration is the process of using historic input data and running the model to produce simulated output. This simulated output can be reservoir elevations or volumes or stream flow releases both controlled and uncontrolled. The simulated data is compared to the historic data and the model parameters are adjusted until an adequate fit is achieved. With reservoirs, there can be uncertainty in the total reservoir evaporation, total rainfall on the reservoir and reservoir bank storage. With flow in natural or man made streams there is uncertainty in the roughness of the stream that is used in the Manning's equation to determine water level elevations given the flows. To assure that the model can simulate both very wet and very dry conditions, the historic data used in the calibration process should contain these very extreme conditions.
- (2) **Verification.** The verification process requires that the parameters developed in the calibration step be used in the system model together with a separate set of historic input data not used for the calibration process. The simulated data is again compared to the historic data. The variability

Response to Comment T4-1

Reclamation's Colorado River Simulation System (CRSS) model was implemented in the RiverWare modeling system and uses the same methodologies as the previous version of CRSS. See Appendix G of the Implementation Agreement, Inadvertent Overrun and Payback Policy, and Related Federal Actions EIS (IA EIS). These methodologies include the Index Sequential Method (ISM) for modeling future hydrologic inflows. As noted in several publications (USBR 1985; Kendall and Dracup 1991; and Ouarda et al. 1997), ISM has been shown to be an acceptable technique for representing future hydrologic sequences on the Colorado River. Reclamation is currently involved in research with regard to extending the current natural flow hydrology database, as well as generating alternative flow sequences using stochastic methods. However, at this time, the ISM remains the standard technique used for CRSS studies. The following response to a comment on the IA EIS is included here for additional information:

The current 1906 to 1990 natural flow data are the best data available. Reclamation has an ongoing project to reconcile and re-compute the natural flow data from 1906 through 1995. This data verification is needed to assure consistency of the data that have been collected and compiled from different sources over this long period of time. Until this project is completed, Reclamation will continue to use current 1906 to 1990 natural flow data for modeling purposes.

Response to Comment T4-2

Reclamation is certainly aware of the standard steps of model calibration, verification, and application. During the late 1970s and early 1980s, the original CRSS model was developed, calibrated, and verified (Reclamation 1985). Throughout the 1980s and early 1990s, the model was applied extensively for policy studies on the Colorado River. The current CRSS model, as implemented in RiverWare, was verified through an extensive process to reproduce the results of its predecessor (Fulp et al. 1996, Fulp et al. 1999). The verification process for the current CRSS model was reviewed by the Colorado River Modeling User Group, which is composed of members from all Basin States, as well as other interested parties. This group was formed in early 1994 and met quarterly through 1996 to review and discuss the efforts to replace CRSS. Invitation to participate in the CRSS replacement process was issued to the Colorado River Management Work Group (and all interested parties in attendance) at the initial Annual Operating Plan (AOP) meeting in 1994.

T4-1

T4-2

observed in the calibration step should be similar to that observed in the verification step. Attention should be paid to how well the model simulates the high and low flow conditions.

- (3) **Application.** Once it has been determined that the model does produce an adequate representation of the system operation under a variety of hydrologic conditions, then the operation parameters and characteristics can be modified to determine the impact of those changes on system performance.

T4-2

Calibration and verification data for the "Riverware" program was not evident in the EIS report. However, if the "Riverware" program has been used to operate the reservoirs from Glen Canyon dam to Morelos Dam and is currently being used, it may have been calibrated and verified in a previous study. No such citation was noted in the dEIS or other material. If it has not been calibrated and verified on a wide range of hydrologic conditions, it should be. The determination of water level elevations below Headgate Rock Dam and above Palo Verde diversion dam, the general region of the CRIT lands, were determined by a version of the Corps of Engineers Standard Step Method for backwater computations. This analysis uses the physical cross section elevations of the river at selected points, an estimate of the river channel roughness and the flow. The channel cross sections and stream flow can be measured directly; however the roughness of the channel can not be directly measured. An estimate of the channel roughness can be calculated from knowing the river cross section and the flow and then calculating the roughness. There are different channel roughness values for different flows of the river. As in the simulation model, several historic high and low river flow conditions should be evaluated to determine the magnitude and range of roughness. This step may have been completed but was not evident in the dEIS report.

T4-3

The use of historic stream flow data and the shifting of the data to develop separate "traces" that pretend to represent separate independent future sequences may provide an indication of how the system will operate around the median hydrologic conditions, but may not provide a good representation of the impact of the system operation on the extremes, both high and low. William Lane at Bureau of Reclamations has developed a stochastic program to produce stochastic monthly stream flow at a number of sites within a watershed. This program could be used to develop sequences of stochastic monthly stream flow at the input points to the "Riverware" model that would be equally likely. Several hundred "traces" could be developed and used with the model. The output would provide for a more realistic representation of the impact of hydrologic extremes on the proposed changes.

T4-4

The calibration, verification and analysis of the "Riverware" and backwater elevation computation become critical to the CRIT because of the relative impact on predicted river water level elevations and adjacent groundwater levels. The dEIS indicates the relative impact of the movement of 400 kaf from Imperial Dam to Parker Dam and the change in various components of system operation from Lake Powell to below Morelos Dam. The changes at the 10, 50 and 90 percentiles are presented as representative of the system changes. Appendix D notes that the total expected flows to be transferred from Imperial Dam to Parker Dam can be as high as 1,574 maf in drought conditions. However, the "Riverware" program was not run using these higher flows. It appears that the remaining system would function the same with or without this additional 1,174 maf transfer. However, for the CRIT lands, this analysis is inadequate to evaluate the relative impact of the total proposed diversion change of 1,574 maf. The CRIT lands along the Colorado River support considerable natural and restored cottonwood and willow habitat. This habitat is sensitive to changes in water levels and the duration of low water levels. The river habitat may withstand short duration water level decreased, but may be adversely impacted by extended reductions in flow.

T4-5

T4-6

The changes in median river water levels was based on using the 1996 river data as a 'baseline condition', without any rationale or justification for selection of that particular year. As noted above, impacts need to be assessed on extreme conditions, and their frequency, in order to provide a reasonable basis for comparison of system changes. In addition, the predicted changes in groundwater levels near the river were derived from 'rules-of-thumb' indicating the groundwater level change would be equal to the river level change for non-irrigated lands, and 50% of the river level change for irrigated lands. This

Response to Comment T4-3

Reclamation has done extensive calibration work throughout the Parker to Imperial reach, and used a reasonable estimate of Manning's n (0.03) for the modeling done as part of the Biological Assessment for Proposed Interim Surplus Criteria, Secretarial Implementation Agreements for California Water Plan Components, and Conservation Measures (ISG-BA) presented in Appendix D of the IA EIS. Reclamation is currently researching methods for improving estimates of water surface elevations. Simply varying roughness coefficients is not adequate for developing reasonable estimates of water surface profiles. This assumes that once cross section data is obtained, the only unknown involved in developing water surface profiles is the roughness. However, for a 1-dimensional, steady state simulation, the channel geometry between measured cross sections would also be unknown. Therefore, matching data at the gages alone does not necessarily guarantee accurate water surface profiles between known points.

Response to Comment T4-4

Although the ISG-BA (Appendix D of the IA EIS) analyzed detailed effects between Parker and Imperial Dams of a range of possible flow reductions at Parker Dam (200 to 1,574 KAFY), the IA EIS provides the analyses in compliance with NEPA to allow the Secretary to make a determination of whether or not to approve the proposed action, which includes the transfer of between 183 and 388 KAFY from below to above Parker Dam. Therefore, there is no need to analyze additional flow reductions for the IA EIS.

Response to Comment T4-5

Comment noted. Rationale and justification of the selection of 1996 as the "baseline condition" for the detailed river analysis presented in the ISG-BA (Appendix D of the IA EIS) has been added in Appendix J of the IA EIS.

Response to Comment T4-6

The estimated relationship of river stage and groundwater levels as reported in the August 2000 Biological Assessment for Interim Surplus Guidelines and Implementation Agreement (Appendix D of the IA EIS) represent the best available data at this time.

T4-6 relationship was cited from a personal communication based on a 1970s study in the Yuma area (dEIS, pg3.1-3); further confirmation of this relationship is needed if it is to be considered

T4-7 To accurately account for the diversion changes and conditions, the "Riverware" program should be run on a daily time interval, not monthly, with the full 1,574 maf shifted from Imperial Dam to Parker dam. The daily stream flow data can be evaluated for the base case and the proposed changes to determine a flow-duration-frequency table. This information indicates the likelihood or frequency of specific low flow conditions of specific duration. A biologist or other plant professional can use these data to determine the critical stress conditions, in terms of both frequency and duration, for the cottonwood and willow habitat. The 10 percentile value addresses the conditions that would be expected to be exceeded 10% of the time, i.e. about 36 days in any one year. That would also be approximately once every ten years, for annual extremes. For the cottonwood willow habitat, it may not be reasonable to design for a 10 percentile level, with a significant habitat kill every 10 years. Depending upon the value of the habitat, a more realistic design level may be the 100 or 75 year low flow conditions. To facilitate the identification of the current conditions, a ground surface-groundwater elevation map along the river, also showing the cottonwood willow habitat would be helpful in identifying any impacts to the cottonwood willow habitat due to changes in system operation.

T4-8 The impact of the extremes of the "Inadvertent Overrun and Payback Policy" on daily water levels below Parker Dam and above Palo Verde Dam should be evaluated in conjunction with the above mentioned impacts. In addition, although the dEIS recognized that the extreme impacts of the IOP would occur if the maximum allowed overrun and payback occurred in consecutive years, this alternative was not evaluated. It should be.

T4-9 It appears that under no conditions will the CRIT water rights be impacted due to the proposed changes in system configuration. Is this understanding correct? Or are there conditions that would require a CRIT water right reduction?

Sincerely,



Brook A. Kraeger
President, Linsley, Kraeger Associates, Ltd.



Anthony S. Donigian, Jr.
President & Principal Engineer, AQUA TERRA Consultants

Response to Comment T4-7

As stated in response to comment IID-CRIT-AT-4, analysis of 1,574 KAFY flow reduction at Parker Dam is not required for the IA EIS. Using a daily model to predict daily river flows over 75 years is currently not possible, given the limitations in predicting critical variables on a daily basis (including water demands and hydrologic inflows throughout the system). However, Reclamation did analyze the hourly and daily effects on river flow and stage using two different techniques for disaggregation of the longer-term data. Further explanation of these techniques has been provided in Appendix J of the IA EIS.

Response to Comment T4-8

Since the IOP represents a variable year-to-year change in the river, sometimes increasing flow (i.e., during an overrun) and sometimes decreasing flow (i.e., during payback), both an average impact and a "worst-case" impact were in fact analyzed in the IA EIS.

Response to Comment T4-9

Under no circumstances will CRIT's water rights be impacted because of the Proposed Project.