18

C. Reduced Spills

Relative to the Flood Control Alternative, each of the other alternatives results in less excess flows to Mexico. This reduction in spills from Lake Mead is the third largest source of surplus water to the Lower Basin.

19

D. Reduced Evaporation

With the accelerated drawdown of Lakes Powell and Mead the mean reservoir surface area is reduced with a consequential reduction in evaporation loss. This is the smallest source of surplus water to the Lower Basin. It is calculated relative to the evaporation occurring under the Flood Control Alternative, which has the largest mean reservoir storage and, accordingly, the largest mean annual evaporation loss.

20 cont'd below

**II. LOWER BASIN TRIBAL ACCOUNTING POOL**

The Lower Basin presently exceeds its compact apportionment, even though the Lower Basin Tribes have not fully developed their perfected water rights. This undeveloped portion of the Lower Basin Tribal depletion right is represented in all analyses as its proportionate share of the Lower Basin use, indicating that other users in the Lower Basin are presently consuming these depletion rights. In addition, this undeveloped portion of Lower Basin Partnership water could be tracked by in-reservoir accounting in Lake Mead explained in more detail below.

Because the undeveloped Five Lower Basin Tribes' water assets are an implicit component of the Lower Basin consumptive use they should be treated differently than the undeveloped Upper Basin water when analyzing the potential effects of the various surplus criteria.

Since the Lower Colorado River Basin States presently receive more than their 7.5 million acre-feet (MAF) apportionment, even though the Five Lower Basin Tribes have not fully developed their decreed right, the Lower Basin is implicitly using and relying on Tribal water. The consequence of undeveloped Lower Basin Tribal water could be tracked as the difference between model runs with and without full development as for the Upper Basin Tribal water. While tracking the Lower Basin Tribal rights on this annual basis is instructive and important to the Partnership, it is not a meaningful accounting method that reflects the true value of this trust asset. Impacts accounted for in this manner do not clearly reflect the value of the Tribal water thus used by others. For example, in wet periods when excess water is available, there would be no use of this water by others, yet in dry years its use becomes very important in off-setting shortages that would exist otherwise. Another accounting instrument is required that better represents this differential use. Accordingly, Partnership proposes to represent their unused Lower Basin water with in-reservoir accounting in Lake Mead. In addition to better assessing the use of Lower Basin Tribal water, this accounting method allows differential assessment of impacts among the alternatives. Such an accounting method



18: Comment noted.

19: Comment noted.

20: The Department declines the request to adopt a Lower Basin Tribal Accounting Pool.

provides the best tool for Reclamation, on behalf of the Secretary, to meet its trust responsibility to the Partnership.

In-reservoir accounting of the undeveloped Five Lower Basin Tribes' water will not conceptually change the surplus declaration alternatives or the simulated releases from Lake Mead. Rather, it is simply a bookkeeping process that determines the portion of surplus, normal, and shortage water delivered to other non-Partnership Lower Basin users as a result of undeveloped Ten Tribes' water in the Lower Basin. Because the Tribal Accounting Pool ("TAP") does not affect simulated releases from Hoover Dam, TAP accounting can be done as a post-modeling process provided all trigger elevations for Lake Mead surplus and shortage are output. However, the Partnership promotes having TAP explicitly incorporated into the simulation model as this will expedite the analysis and will better assist the Secretary in assessing the importance and significance of undeveloped Tribal waters in the Lower Basin consumptive use allowed by the various surplus criteria.

20 cont'd below

Presently, the undeveloped Lower Basin Partnership water is approximately 185 KAF annually. This amount decreases during the interim period due to development of Tribal Rights as represented in Appendix O of the DEIS, with an average of 155 KAF over the interim period. Thus, each year 155 KAF will be added to TAP. If excess flow is released to Mexico then TAP would be reduced by the lesser of the amount of excess flow and the volume in TAP. If top water banks maintained by others are operating, the reduction due to spill would be shared in proportion to the water in each bank and TAP. Evaporation would be charged to TAP according to its portion of the total Lake Mead surface area (difference between the surface area with and without TAP water).

Figure 1 shows various storage conditions in Lake Mead relative to surplus (+) and shortage (-) trigger elevations.

a) Under the condition shown in Figure 1a excess water would be delivered to Mexico and TAP would be reduced by the amount of excess. If the excess to Mexico exceeds the amount in TAP, TAP contents would be zeroed. The sharing of impact with top water banks discussed above would apply to this condition.

b) The condition shown in Figure 1b would result in a surplus delivery with or without TAP and no water would be withdrawn from TAP.

c) Under the condition shown in Figure 1c a surplus would be declared. Without TAP a normal release (no surplus) would be declared. Because it is the contents of TAP that put the lake level above the surplus trigger elevation and allow a surplus to be declared, an amount equal to the lesser of the surplus and TAP contents would be added to the tally of surplus water resulting from the undeveloped Lower Basin Tribal water and withdrawn from TAP.

d) The condition shown in Figure 1d would result in a normal delivery with or without TAP and no water would be withdrawn from TAP.

e) Under the condition shown in Figure 1e a normal delivery would be declared. Without TAP shortage would occur. Since it is the contents of TAP that put the lake level above the shortage trigger elevation and allow normal delivery rather than shortage, an amount equal to the lesser of TAP and the difference between normal and shortage deliveries would be added to the tally of normal water (shortage relief) resulting from the undeveloped Lower Basin Tribal water and withdrawn from TAP.

f) Under the condition shown in Figure 1f shortage occurs with or without TAP water; however, to the extent that releases are greater with TAP water than without, the difference would be added to the tally of shortage reduction attributed to the undeveloped Lower Basin Tribal water and withdrawn from TAP.

At the end of each model run, the tallies of surplus enabling, normal (shortage relief), and shortage reduction water withdrawn from TAP are averaged across all traces for each year of the simulation.

Combinations of these six conditions may also occur, and TAP accounting rules will likely evolve through application. However, the above provides a conceptual overview of how the Ten Tribes Partnership believes the undeveloped Tribal water in the Lower Colorado River Basin should be represented and tracked in order for the DEIS to contain a sufficient ITA analysis of the impacts on Partnership water rights.

20 cont'd at end

20: See response to Comment No. 71-16. See also Attachment Q which shows the Ten Tribe depletions and diversions that were used in the FEIS alternatives.

## III. ANALYSIS OF SURPLUS ALTERNATIVE USING ACCOUNTING CONCEPTS

The Ten Tribes Partnership applied the accounting procedures described above as part of its evaluation of the surplus criteria alternatives described in the DEIS.

The description of the model inputs and configuration details in the DEIS are insufficient to replicate Reclamation's results.[6] Since the proposed accounting procedures require the full detail of the model output, the Partnership made CRSS-ez model runs configured to closely approximate the RiverWare CRSS model results reported in the DEIS.

21 cont'd below

21: See response to Comment No. 71-16. See also Attachment Q which shows the Ten Tribe depletions and diversions that were used in the FEIS alternatives.

[6] This appears to be a violation of, among other things, NEPA's mandate that environmental impact statements be "supported by evidence that agencies have made the necessary environmental analyses." 40 C.F.R. § 1502.1.

An attempt was made to evaluate the Seven States Alternative, *see* 65 Fed.Reg. 42028 (2000), but due to inconsistencies between trigger elevations, demand schedules, post interim criterion (70R versus 75R), and modeling platforms (CRSS-ez versus RiverWare CRSS), results compatible with the DEIS model runs were not obtainable. However, it is believed that the Seven States Alternative would fall between the Six States and California Alternatives, and the Partnership evaluated it accordingly.

The relative magnitudes of the five sources of Lower Basin surplus (storage drawdown, undeveloped Upper Basin Indian and non-Indian water, reduced spills, and reduced evaporation) for each of the surplus alternatives in the DEIS are shown in stacked bar graphs in Figures 2a (annual averages for interim period, 2000-2015), 2b (annual averages for post interim period, 2016-2060), and 2c (annual averages for the entire model study period, 2000-2060).

21 cont'd below

Figure 2a shows that the storage drawdown in Lakes Powell and Mead is the largest source of surplus water to the Lower Basin for all surplus alternatives during the interim period (2000-2015). With the exception of the No Action Alternative, undeveloped water in the Upper Basin is the next largest source of Lower Basin surplus, followed by reduction in spills (excess to Mexico), and then reduced evaporation loss due to the lowering Lakes Powell and Mead.

For the post-interim period (2016-2060), Figure 2b, the average Lower Basin consumptive use is below 7.5 MAF and there is no surplus resulting from change in storage in Lakes Mead and Powell as these reservoirs were effectively drawn down during the interim period. The No Action Alternative produces the greatest Lower Basin consumptive use during the post-interim period and with less than half the dependency on undeveloped Upper Basin water as the other alternatives.

Figure 2c shows the annual averages over the entire 60-year modeling period. Because the change in storage over the entire modeling period is practically the same for all alternatives it does not figure in to a 60-year average comparison of the alternatives. Figure 2c as well demonstrates that the No Action Alternative has the least reliance on undeveloped Upper Basin water of all the alternatives.

Figures 3a-c provide an analysis, using a top-water accounting method in Lake Mead, of the implicit use of undeveloped Lower Basin Indian water rights by non-Partnership entities. As mentioned earlier, the Lower Basin currently exceeds its 7.5 MAF apportionment despite underdevelopment of Lower Basin Tribal waters rights. Thus the undeveloped Lower Basin Tribal water rights are a basic component of Lower Basin non-Indian use. The Partnership believes that the implicit use of its undeveloped Lower Basin water can best be analyzed through water accounting methods described earlier. For this analysis the Partnership assumed that on average 155 KAF was deposited in the Tribal Accounting Pool (TAP) each year. The 155 KAF is the average undeveloped