20Jun94

TO: Hal
Wayne

FROM: Alan

SUBJECT: Upper Snake Study, No Ground Water Withdrawal

We have now completed the aquifer simulation and re-run 1992 WD-1 accounting with the effects of the ground water users included as diversions. These were the remaining study elements which were scheduled for FY 94, and they represent the items of most interest to the Twin Falls canals. When we have drafted descriptions of these elements we will ask Chuck to call an ITCH meeting.

The aquifer simulation shows a much larger impact of the wells in WD-1 than I had anticipated. The attached graph shows flow increases in the American Falls and Thousand Springs reaches in the 26th year. In addition, a virtually flat reduction in loss of 162 cfs in the Henrys Fork area also occurs. The 26th year is shown because that is approximately the median age of rights on the plain. We have used the 26th year changes as diversions [Henrys Fork and American Falls] in WD-1 1992 accounting to illustrate the effect of the wells on water distribution if the wells had been included in WD-1 in 1992.

The simulation shows that withdrawals affect the American Falls reach more than the Thousand Springs reach. The attached map of ground water irrigated land with 1980 water table contours suggests why. Greater acreages occur in near proximity to the American Falls area than down gradient. Removal of withdrawals in the Mud Lake area also has substantial effect on American Falls even though the 1980 flow lines pass to the west of it.

The ground water simulation has quantified the effects of wells on the river. Those effects have been distributed based on surface water allocation procedures in WD-1 using 1992 as a dry year example. The accounting shows:

1. Reservoirs would have been credited with about 346 KAF more fill.
2. Within the context of diversions actually made in 1992 by TFCC and NSCC they would have diverted 216,553 AF less storage than they were charged with in 1992.
3. Virtually all other WD-1 diversions would also have been positively affected.
4. The ground water users diverted 732 KAF that would otherwise have been available to senior rights in WD-1. The accounting identifies it as stored water, the only alternative to natural flow. In more normal years it would be less because there would be significant periods when spills occur at Milner and their priorities could take water from the river without adversely impacting senior rights.

The ground water simulation has quantified the effects of wells on the river. The WD-1 1992 accounting re-run has distributed those effects based on surface water allocation procedures. No new water was created, obviously, but the process has displayed the issue in a numeric way. The ground water users cannot replace the water they have taken from river users. The effects shown for 1992 are the cumulative result of many years of withdrawals. Possibly the conjunctive use rules can be used to devise a form of mitigation.