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Memo

To: Scope of Work Committee of the Brazos G Regional Water Planning Group	
From: David D. Dunn, P.E.	Project: Brazos G Regional Water Plan
CC: Teresa Clark, Brazos River Authority	
Date: September 9, 2004	Job No:

Document1

RE: Proposed Modifications to the Scope of Work to Evaluate Brazos River Authority System Operation

The Brazos River Authority (BRA) has requested that System Operation be considered as a water management strategy for the 2006 Brazos G Regional Water Plan. BRA proposes that water could be made available from the following sources:

1. System efficiencies gained from operating the 11 current BRA reservoirs[1] and one permitted but not built reservoir as a system to meet common downstream demands. Due to these operational efficiencies, the system yield of the BRA system as a whole is greater than the sum of the individual reservoir firm yields already permitted.
2. New appropriation of flows from the watershed entering streams below the BRA reservoirs that are not claimed by existing water rights. This new appropriation of flows would be "firmed up" during dry times with releases of stored water from the BRA reservoirs.
3. New appropriation of some current and future wastewater plant effluent discharged to streams and rivers in the Brazos Basin. These are also commonly called "return flows". The BRA proposes that current water rights will appropriate these flows on a priority basis, with the junior BRA appropriation receiving whatever return flows remain after senior rights are satisfied to the extent possible.
4. Potentially unpermitted firm yield remaining in one or more BRA reservoirs.
5. Interruptible supplies of which 75 percent or more of the authorized diversion could be diverted in 75 percent of the years.

The first four sources of additional supply would constitute a reliable, or firm additional supply that the BRA could make available by virtue of the operational flexibilities gained from owning water rights in the 12 system BRA reservoirs. This firm supply is maximized when all BRA reservoirs are operated jointly to meet a common downstream diversion. The fifth source, the interruptible water, is not firm and would not be fully available in every month or year. All supply in excess of that already permitted by existing rights held by the BRA would constitute a new appropriation of water.

The BRA has requested that the Brazos G Regional Water Planning Group (BGRWPG) consider the additional supply from the above sources that would be made available by system operation. This additional supply would constitute portions of water management strategies to meet future needs identified for many of the 187 Water User Groups (WUGs) in the Brazos G area.

An analysis of such a complex water management strategy was not considered when the original scope of work was formulated for developing the 2006 Brazos G Regional Water Plan. Use of this water management strategy could have an effect upon water management strategies under consideration for the 2006 Plan, and such effects need to be quantified in accordance with Texas Water Development Board (TWDB) rules for regional water plans.

[1] For purposes of discussion, all reservoirs at which the BRA currently holds water rights granted by the State of Texas will be referred to as "BRA reservoirs", regardless of whether the BRA or the U.S. Army Corps of Engineers owns the facility.

In addition to quantifying the effects of BRA System Operation on other water management strategies, other issues that need to be addressed for the BGRWPG to fully consider this strategy include:

1. Exactly how much water would BRA System Operation make available considering the current contractual commitments of the BRA? The full amount of water which the BRA has estimated is available to appropriate is only available if each of the BRA reservoirs is operated in conjunction with the other BRA reservoirs to meet a common downstream diversion. As much of the firm supply from the BRA reservoirs is currently allocated to contracts for local use proximate to the reservoirs, not all BRA reservoirs can contribute fully to system operation. This reduces the supply that can be obtained from the system.
2. How much water could BRA System Operation make available at various locations in the Brazos Basin? The WUGs with needs in the Brazos G area are not located at the same three locations for which the BRA has presented estimates of additional water available due to system operation. Water available from the system at locations proximate to WUGs with needs should be determined.
3. How much water would BRA System Operation make available under the future (Year 2060) reservoir sedimentation conditions and return flows assumed by the BGRWPG?
4. How would the additional water that would be appropriated through BRA System Operation effect other potential water management strategies being considered by the BGRWPG and could those strategies be enhanced by inclusion in the BRA system?
    a. Reservoir projects such as Millican, Little River, Breckenridge and Double Mountain Fork.
    b. Water management strategies that involve direct or indirect reuse of wastewater treatment plant effluent. The water made available through BRA System Operation is based partially on return flows.
    c. Off-channel reservoir projects such as Little River or Peach Creek.
5. How should/can the additional water made available by BRA System Operation be allocated between needs in Region G and adjacent regions such as Region H (Houston area) and Region C (Dallas-Fort Worth Metroplex area)?

The attached document describes additional work items and budgets recommended to provide the information necessary for the BGRWPG to fully evaluate BRA System Operation as a water management strategy. HDR has met with BRA staff considering this proposed amendment, and both HDR and BRA staff are in agreement concerning these modifications to the scope of work.