

MEMORANDUM

October 22, 2007

To: Pat Page, Bureau of Reclamation
From: John Whipple, New Mexico Interstate Stream Commission
Subject: San Juan-Chama Project Water Supply Analysis

The Bureau of Reclamation in 2006 presented to the San Juan River Basin Recovery Implementation Program's Hydrology Committee its draft Generation 3 version of the San Juan River Basin hydrology model. The draft Generation 3 model has been proposed to update and replace the Generation 2 version of the model that is currently used for environmental compliance activities for the development and operation of Reclamation water projects in the basin. The two versions of the model contain significantly different historic and baseline hydrology relating to the water supply available for diversion from the San Juan River Basin by the San Juan-Chama Project. As compared to the Generation 2 model, the proposed Generation 3 model includes substantial reductions in estimates of anticipated San Juan-Chama Project diversions that would indicate also a reduction in the yield of the project available at Heron Dam. Reclamation previously determined by hydrologic investigation that the firm yield of the project at Heron Dam is 96,200 acre-feet per year based on historic hydrology, and the project supply has been allocated for contract for uses in New Mexico based on this determination.

The Interstate Stream Commission staff on several occasions expressed concerns regarding the merit of the hydrologic analysis in the proposed Generation 3 model for the drainages affecting the San Juan-Chama Project supply, the potential for inconsistencies within Reclamation between the proposed Generation 3 model and its other studies and project management activities, and the possible misuse of the proposed Generation 3 model hydrology to make revised conclusions regarding the water supply available for or from the project. As per our previous discussions regarding the project diversion data, Reclamation has agreed to make certain corrections to the Generation 3 model hydrology at the project diversion sites to reflect adjustments to gage records of project diversions in Colorado for errors in the diversion database and for Azotea Tunnel measured outflows. Reclamation also previously had requested that the Commission provide its estimates of project diversions.

The Commission staff prepared a comprehensive evaluation of the San Juan-Chama Project water supply that includes analyses of historic project diversions from the San Juan River Basin, environmental baseline diversions from the basin by the project, and the annual project yield at Heron Dam that can be reasonably anticipated in the future. The Commission staff's water supply evaluation for the project was provided to Reclamation in July 2007 as a draft for review and discussion. The evaluation supports Reclamation's previous determination that the firm yield of the project at Heron Dam is 96,200 acre-feet per year, and also supports the use of a long-term average baseline depletion from the basin by the project of up to about 105,200 acre-feet per year consistent with the New Mexico schedule of anticipated future depletions that is appended to Reclamation's 2007 Hydrologic Determination, which was signed by the Secretary of the Interior on May 23, 2007. Reclamation's Upper Colorado Regional Office on October 11, 2007, informed the Commission staff that Reclamation would not be providing comments on the draft evaluation. Hence, the Commission staff's evaluation provided in July 2007 has been finalized without change. The Commission staff requests that the baseline modeling incorporate the monthly San Juan-Chama Project diversions indicated in the staff's

evaluation for water years 1936-2005. Although different sequences of monthly and annual project diversions for 1936-2005 could be generated by revising hydrologic study assumptions, use of an anticipated long-term average annual depletion of up to about 105,200 acre-feet per year for the project for water supply and hydrologic modeling studies in the basin is reasonable.

The Commission staff does not believe that sufficient data are available to determine San Juan-Chama Project diversions from the San Juan River Basin under pre-1936 hydrology with a reasonable degree of reliability. Nonetheless, a modeling period beginning with water year 1929 has continued to be used in the San Juan River Basin hydrology model for purposes of the Recovery Implementation Program and related Endangered Species Act compliance activities in the basin. However project diversions are estimated for the period 1929-1935, the Commission staff recommends that either: (1) the diversions be scaled to average 105,200 acre-feet for this seven year period if Heron Reservoir operations are not modeled; or (2) the initial storage condition in Heron Reservoir at the beginning of 1929 be set to result in an average annual diversion of 105,200 acre-feet for the 1929-2005 period, after reductions in potential diversions to avoid spills from Heron Reservoir, if the modeling includes Heron Reservoir operations studies. Under the latter scenario, the estimated project diversion in water year 1945 will be affected as compared to the Commission staff's evaluation, but the estimated project diversions in other years of the period 1936-2005 should not be affected. Either way, the long-term average annual diversion, and to a great extent the annual variability in diversions, estimated for the project by the Commission staff would be preserved. The 1936-2005 period monthly average Heron Reservoir net evaporation rates should be used for each year of the period 1929-1935 in any reservoir operations study conducted to extend the record back to 1929. These recommendations should not be construed as New Mexico's agreement with any estimates of divertible flows for the project that might be developed by Reclamation.

The Commission staff's evaluation reflects the assumptions for water planning purposes that: (1) the water supply available to the San Juan-Chama Project for a reasonable planning horizon is likely to be similar to the supply available historically under recent physical conditions in the basin; and (2) project operations criteria will not materially change. Inclusion of the results of the Commission staff's analysis in the Generation 3 model and the modeled baseline through adjustments to the computed monthly Navajo Reservoir inflows would reflect the amounts of water that New Mexico at this time anticipates will be available to the project in the future. The Commission staff's evaluation, and the inclusion of the results of the evaluation in the model, should not be construed to limit or affect the rights of water users in Colorado to utilize the consumptive use apportioned to the State of Colorado by the Upper Colorado River Basin Compact, to affect the administration of water rights in Colorado, or to judge the appropriateness of the State of Colorado's stream flow analyses or baseline depletions used in StateMod for its water rights modeling purposes.

In addition, the Commission staff's San Juan-Chama Project water supply evaluation should not be construed to preclude the continuation of discussions between the states of Colorado and New Mexico regarding possible modifications to minimum diversion bypass requirements for the project, so long as the project yield is not adversely affected. If the states, in consultation with Reclamation and the project contractors, can agree to any modifications to the project bypass flow requirements, then a revised sequence of monthly project diversions for 1929-2005 may be prepared for purposes of modeling the hydrology in the San Juan River Basin. Congressional legislation to amend section 8(f) of Public Law 87-483 would be required to implement such revised project diversion bypass flow requirements.