

STATE OF NEW MEXICO  
SAN JUAN COUNTY  
THE ELEVENTH JUDICIAL DISTRICT COURT

STATE OF NEW MEXICO, *ex rel.* STATE ENGINEER,

Plaintiff,

vs.

THE UNITED STATES OF AMERICA, *et al.*,

Defendants,

THE JICARILLA APACHE TRIBE AND THE  
NAVAJO NATION,

Defendant-Intervenors.

CV-75-184

HON. JAMES J. WECHSLER  
Presiding Judge

SAN JUAN RIVER  
GENERAL STREAM  
ADJUDICATION

Claims of the Navajo Nation  
Case No. AB-07-1

**THE STATE OF NEW MEXICO'S ANSWERS TO INTERROGATORIES AND  
REQUESTS FOR PRODUCTION CONCERNING 2007 BOR HYDROLOGIC  
DETERMINATION**

The State of New Mexico ("the State") responds to the *Interrogatories and Requests For Production Concerning 2007 BOR Hydrologic Determination* served by Victor R. Marshall on behalf of the San Juan Agricultural Water Users Association and various other defendants as follows, and reserves and restates any objections not previously ruled upon by the Court:

**ANSWERS TO INTERROGATORIES**

1. In arriving at the 2007 determination, what changes were made to the 1988 hydrologic determination? Please identify and explain each change in the model, formula or method used, and in the data assumptions used, and the effect of each such change.

**Answer:** The US Bureau of Reclamation, not the State of New Mexico, prepared both the 1988 Hydrologic Determination and the 2007 Hydrologic Determination. The State, however, participated in the development of each determination and provides the following answer based on information available to the State. The methods and assumptions used by the 1988 Hydrologic Determination are described in: “Hydrologic Determination 1988, Water Availability from Navajo Reservoir and the Upper Colorado River Basin for Use in New Mexico,” approved by the Acting Secretary of the Interior on February 2, 1989. The methods and assumptions used by the 2007 Hydrologic Determination are described in: “Hydrologic Determination 2007, Water Availability from Navajo Reservoir and the Upper Colorado River Basin for Use in New Mexico,” dated April 2007 and approved by the Secretary of the Interior on May 23, 2007.

In summary, both determinations are based on Upper Basin water balance analyses that consider estimates of yearly natural flows of the Colorado River at Lee Ferry, future Upper Basin consumptive use demands, Upper Basin storage, releases from Glen Canyon Dam to the Lower Basin at Lee Ferry, and risks of shortages to the Upper Basin. The water budget analysis for the 2007 Hydrologic Determination used an annual water balance for the period of hydrologic record and year 2060 projected Upper Basin consumptive use demands to assess potential risks of shortages to the Upper Basin; whereas, the water budget analysis for the 1988 Hydrologic Determination used index sequential modeling (multiple traces of the hydrologic record starting in sequential years) and future Upper Basin consumptive use demands to assess potential risks of shortages to the Upper Basin. The data available for use in the 2007 Hydrologic Determination included about twenty additional years of hydrologic record as compared to the 1988 Hydrologic Determination. Both determinations assessed

risks of Upper Basin shortages for a range of delivery requirements to the Lower Basin that the Upper Basin may have pursuant to article III(c) of the Colorado River Compact, and with or without releasing water from storage in the minimum power pools at shared Colorado River Storage Project reservoirs to make deliveries to the Lower Basin. The accepted level of risk of shortage for both determinations is similar.

It was not necessary to perform analyses to determine the incremental effect of each change in methodology or assumption between the 1988 Hydrologic Determination and the 2007 Hydrologic Determination. The end result of both determinations was essentially the same: the 1988 Hydrologic Determination found that the annual yield available for development in the Upper Basin is about 6.0 million acre-feet per year of consumptive use, and the 2007 Hydrologic Determination found that the annual yield available for development in the Upper Basin is about 6.01 million acre-feet per year of consumptive use.

The most significant difference between the 1988 Hydrologic Determination and the 2007 Hydrologic Determination is how shared Colorado River Storage Project evaporation was treated for determining the amount of the Upper Basin yield that was considered available for the State of New Mexico to use. The 1988 Hydrologic Determination assumed that of the Upper Basin yield, a long-term average evaporation of about 0.52 million acre-feet from Lake Powell, Flaming Gorge Reservoir and the Aspinall Unit reservoirs would not be available for the Upper Basin states to develop. The 2007 Hydrologic Determination assumed that of the Upper Basin yield, the critical-period average evaporation of about 0.25 million acre-feet from these reservoirs would not be available for the Upper Basin states to develop. Thus, the 2007 Hydrologic Determination subtracted critical-period evaporation from critical-period yield to determine the amount of yield available for use by the Upper Basin states

during the critical period. That resulted in an amount of water available for use from the Upper Basin in New Mexico of about 642,400 acre-feet per year for the critical period of hydrology, excluding New Mexico's share of evaporation from Colorado River Storage Project reservoirs other than Navajo Reservoir, as compared to about 611,000 acre-feet per year found by the 1988 Hydrologic Determination, excluding New Mexico's share of evaporation from Colorado River Storage Project reservoirs other than Navajo Reservoir (see "Summary of the 2007 Hydrologic Determination Relating to the Navajo Settlement," prepared by the Office of the State Engineer/Interstate Stream Commission and dated November 5, 2007). Under the 2007 Hydrologic Determination, the amount of consumptive use or depletion available to be made by the State of New Mexico from the San Juan River Basin is about 31,000 acre-feet per year greater than under the 1988 Hydrologic Determination.

The depletion schedule which provides itemized projections of anticipated depletions from the Upper Basin in the State of New Mexico and that was used in the 2007 Hydrologic Determination differs in several respects from that used in the 1988 Hydrologic Determination, both in terms of level of detail in identifying specific water uses and the amounts of anticipated future uses. The bases for each depletion identified in the "State of New Mexico Schedule of Anticipated Upper Basin Depletions," dated May 2006, used in the 2007 Hydrologic Determination is described in "Colorado River Basin Study, Water Demands Assessment Questionnaire, State of New Mexico," prepared by John Whipple, New Mexico Interstate Stream Commission Staff, and dated July 23, 2010. The depletion schedule used in the 2007 Hydrologic Determination differs mainly in the following ways from the depletion schedule used in the 1988 Hydrologic Determination:

(1) it incorporates a perpetual contract for the Navajo Nation's uses in New Mexico under the Navajo-Gallup Water Supply Project as described by the "Technical Memorandum, The Navajo-Gallup Water Supply Project," prepared by the Navajo Nation Department of Water Resources and others, and dated March 2001;

(2) it includes updated depletion amounts for the Navajo Indian Irrigation Project, the Hogback-Cudei Irrigation Project and the Fruitland-Cambridge Irrigation Project as reflected by the water rights for these projects described in the proposed Partial Final Judgment and Decree of the Water Rights for the Navajo Nation;

(3) it incorporates the Jicarilla Apache Nation's Settlement Contract for water from the Navajo Reservoir supply approved by the Jicarilla Apache Tribe Water Rights Settlement Act which was passed by Congress in 1992;

(4) it reflects updated Animas-La Plata Project depletion allocations as made by the Colorado Ute Settlement Act Amendments of 2000 (Public Law 106-554, Appendix D, Title III);

(5) it reflects an update to the anticipated long-term average annual diversion for the San Juan-Chama Project based on years of additional hydrologic data;

(6) it assumes higher amounts of non-Navajo irrigation depletions based on consumptive irrigation requirements computed using the modified Blaney-Criddle method with current cropping patterns, as opposed to the original Blaney-Criddle method with cropping patterns as of the 1960s that was used for the "Adjusted Comprehensive Framework Study" depletions that were included in the 1988 Hydrologic Determination, and without considering the substantial reductions in acreage being irrigated under non-Indian ditches in 2006 as compared to during the 1950s or earlier;

(7) it includes an updated estimate of the long-term average annual evaporation from Navajo Reservoir based on additional years of hydrology and operation of the reservoir to meet the San Juan River Basin Recovery Implementation Program's flow recommendations for the San Juan River (see "Final Environmental Impact Statement, Navajo Reservoir Operations, Navajo Unit-San Juan River, New Mexico, Colorado, Utah," prepared by the US Bureau of Reclamation and dated April 2006); and

(8) it excludes temporary Navajo Reservoir water supply contracts for Utah International (now BHP-Navajo Coal Company) and unidentified uses that were never executed or have expired.

The water rights of the Navajo Nation described in paragraphs 3 and 7 of the proposed Partial Final Judgment and Decree of the Water Rights of the Navajo Nation are included in full in the 2006 depletion schedule for the purpose of the 2007 Hydrologic Determination, which was to determine whether it is reasonably likely that sufficient water will be available to supply a contract for water from Navajo Reservoir for the Navajo Nation's uses in New Mexico under the Navajo-Gallup Water Supply Project. The depletions schedule was prepared for planning purposes, and was not intended to be a tabulation or determination of water rights or actual uses. Further, the depletions schedule, as noted therein, should not be construed as an acceptance of any assumption that limits the Upper Colorado River Basin's depletion or the State of New Mexico's depletion. Also, neither the interstate compacts nor the depletion schedules limit the amount of water rights within a state. Pursuant to section 11 of the Act of June 13, 1962 (Public Law 87-483), which authorized the Navajo Indian Irrigation Project and the San Juan-Chama Project, the Secretary of the Interior prepares such hydrologic determinations only for evaluating whether it is reasonably likely that sufficient

water to fulfill a new long-term Navajo Reservoir supply contract is reasonably likely to be available for use within New Mexico.

2. What was the scientific basis for each change?

**Answer:** See the State of New Mexico's answer to Interrogatory No. 1 above. When performing a water budget analysis of the Upper Basin supply, the water budget items, including reservoir evaporation, should be based upon the same period of time. The yield available for the Upper Basin states to consumptively use is at a minimum during the critical period.

For the "State of New Mexico Schedule of Anticipated Upper Basin Depletions," dated May 2006, the following conservative assumptions were used for the purpose of the 2007 Hydrologic Determination: (1) it included long-term average annual depletions for San Juan-Chama Project diversions and Navajo Reservoir evaporation even though the average depletions for both items may be significantly lower than the long-term average during extended periods of drought; (2) it included full use of the proposed water rights for the Navajo Nation even though it is likely that full use of the proposed water rights will not be exercised each year due to normal farm management practices or other reasons; and (3) it included non-Indian irrigation depletion amounts that are likely to overstate actual annual irrigation depletions under non-Indian ditches in the San Juan River Basin in New Mexico because a substantial amount of irrigation rights have not been used for decades.

3. Identify each person in your agency who was involved in the 2007 hydrologic determination, and each person outside your agency of whom you are aware, and explain the involvement of each. Please include persons who made comments, questions, communications, or suggestions about the 2007 hydrologic determination, whether formal or

informal, whether written or not (including but not limited to, the United States Fish and Wildlife Service).

**Answer.** On behalf of the State of New Mexico, the following persons participated in the drafting, review or approval of the 2007 Hydrologic Determination: John Whipple, Philip B. Mutz, Estevan Lopez, Tanya Trujillo, and John D'Antonio, Jr..

At the US Bureau of Reclamation, the State of New Mexico is aware of the following persons as having direct participation: Dave Trueman, and Rick Gold, as Regional Director for Reclamation.

On behalf of the Upper Colorado River Commission, the State of New Mexico is aware of the following persons as having direct participation: Don Ostler and Jane Bird.

On behalf of the State of California, the State of New Mexico is aware of the following persons as having direct participation: Jerry Zimmerman.

On behalf of the State of Arizona, the State of New Mexico is aware of the following persons as having direct participation: Gregg Houtz and Tom Carr.

On behalf of the State of Colorado, the State of New Mexico is aware of the following persons as having direct participation: Randy Seaholm, Jim Lockhead, Scott Balcomb, and Eric Kuhn.

On behalf of the State of Utah, the State of New Mexico is aware of the following persons as having direct participation: Dennis Strong, Larry Anderson, Robert King, and Norm Johnson.

On behalf of the State of Wyoming, the State of New Mexico is aware of the following persons as having direct participation: Pat Tyrrell, John Shields, and Ben Bracken.



Within the US Fish and Wildlife Service, the State of New Mexico is aware of the following persons having direct participation: David Campbell.

Within the Office of the US Secretary of the Interior, the State of New Mexico is aware of direct review and approval by Dirk Kempthorne, as Secretary of the Interior.

Randy Kirkpatrick of the San Juan Water Commission participated in the review of drafts of the depletion schedule.

**REQUESTS FOR PRODUCTION OF DOCUMENTS**

1. Please produce all documents relating to your answers to the foregoing interrogatories.


**Answer:** The State of New Mexico is producing all non-privileged documents within its custody or control that are responsive to this request.

2. Please produce all documents relating to the 2007 hydrologic determination.

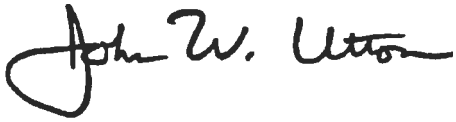
**Answer:** The State of New Mexico is producing all non-privileged documents within its custody or control that are responsive to this request.

Dated August 17, 2012

STATE OF NEW MEXICO



Arianne Singer  
Special Assistant Attorney General  
New Mexico Office of the State Engineer  
P.O. Box 25102  
Santa Fe, NM 87504-5102  
(505) 827-6150

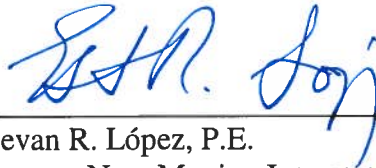
A handwritten signature in black ink that reads "John W. Utton". The signature is fluid and cursive, with the first letter of each name being capitalized and prominent.

John W. Utton  
Special Assistant Attorney General  
Sheehan & Sheehan, P.A  
Post Office Box 271  
Albuquerque, New Mexico 87103  
(505)247-0411

VERIFICATION BY CERTIFICATION

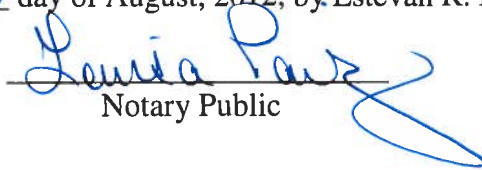
Estevan R. López, P.E. states that he is the Director of the New Mexico Interstate Stream Commission and Deputy State Engineer of the State of New Mexico, a named party in this action, and that he is the authorized agent for the purpose of executing this document on behalf of the State of New Mexico; that while he does not have personal knowledge of all facts recited in the *State of New Mexico's Answers to Interrogatories and Requests for Production Concerning 2007 BOR Hydrologic Determination*, the information contained therein has been collected and made available to him by counsel and employees of the Office of the State Engineer, and the *State of New Mexico's Answers to Interrogatories and Requests for Production Concerning 2007 BOR Hydrologic Determination* are true to the best of his knowledge and belief, based upon the information made available to him.

Accordingly, the undersigned, being first sworn upon oath, verifies on behalf of the State of New Mexico that the statements set forth in the *State of New Mexico's Answers to Interrogatories and Requests for Production Concerning 2007 BOR Hydrologic Determination* are true and correct, and hereby certifies the same, except as to matters stated to be on information and belief and as to such matters the undersigned certifies that he believes the same to be true.



\_\_\_\_\_  
Estevan R. López, P.E.  
Director, New Mexico Interstate Stream Commission  
Deputy New Mexico State Engineer

Subscribed and sworn to before me this 17 day of August, 2012, by Estevan R. López.



\_\_\_\_\_  
Notary Public

