MEMORANDUM  
June 28, 2006

To: File  
From: John Whipple, Interstate Stream Commission Staff  
Subject: Revised Upper Colorado River Basin Depletion Schedule for New Mexico

The New Mexico State Engineer via letter dated May 3, 2005, to the Bureau of Reclamation’s Upper Colorado Regional Director requested the Secretary of the Interior to complete the hydrologic determination required by section 11(a) of Public Law 87-483 of whether sufficient water is reasonably likely to be available within the State of New Mexico’s Upper Colorado River Basin Compact allocation for serving Navajo-Gallup Water Supply Project uses in New Mexico. In contemplation that the 1988 Hydrologic Determination could be extended to the year 2060 for this purpose, the letter transmitted to Reclamation an updated schedule of depletions in the Upper Colorado River Basin in New Mexico dated April 2005 that reflects the San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement (Settlement Agreement) executed by the State of New Mexico and the Navajo Nation on April 19, 2005.

In furtherance of satisfying New Mexico’s request, the Bureau of Reclamation has prepared a Draft Hydrologic Determination dated May 2006 that would determine that it is reasonably likely that sufficient water will be available through at least 2060 from New Mexico’s Upper Basin allocation and Navajo Reservoir to service a proposed contract for the Navajo Nation’s consumptive uses in New Mexico under the Navajo-Gallup Water Supply Project, and also that it is likely that sufficient water will be available from the reservoir to service the contract after the 2060 planning horizon depending upon future


storage, hydrologic conditions and other factors. The Upper Colorado River Commission on June 5, 2006, approved a resolution that supports the conclusions of the May 2006 Draft Hydrologic Determination.

During the preparation of the May 2006 Draft Hydrologic Determination, Reclamation revised a portion of its Colorado River Simulation System natural flows at Lee Ferry to reflect the consistent application of the Soil Conservation Service (SCS) modified Blaney-Criddle method with SCS effective precipitation for computing historic irrigation depletions in the Upper Basin for the period of hydrologic record used by the determination. The Interstate Stream Commission for use in the determination provided to Reclamation a preliminary revised schedule of anticipated depletions through 2060 from the Upper Basin in New Mexico dated May 2006 that includes irrigation depletions calculated using the same method so that demands and supply would be evaluated using consistent methodologies.

Attached is a copy of the preliminary revised May 2006 New Mexico Upper Basin depletion schedule used for the Draft Hydrologic Determination that is modified to include extended explanatory footnotes. It is anticipated that the preliminary May 2006 depletion schedule will be considered final once the Secretary of the Interior approves the 2006 Hydrologic Determination. The preliminary May 2006 New Mexico Upper Basin depletion schedule differs from the April 2005 New Mexico Upper Basin depletion schedule in the following respects:

(a) Non-Indian Irrigation – The depletions for non-Indian irrigation uses in the May 2006 schedule were recalculated using the modified Blaney-Criddle method with SCS effective precipitation, current average cropping patterns and
irrigation methods for each area determined by Interstate Stream Commission field surveys of irrigation in the San Juan River Basin conducted annually during 2003-2005, and revised incidental depletion factors reflecting changes in crop consumptive use estimates and irrigation methods. No changes were made to the base irrigated acreages assumed for each area. An average annual physical water supply shortage of 45 percent was assumed for irrigation uses from the La Plata River.

(b) **Navajo Nation Mainstream Irrigation** – The depletions for Navajo Nation irrigation projects supplied from the San Juan River mainstream in the May 2006 schedule were changed to reflect full use of the water right depletion amounts for the projects provided by the Settlement Agreement. Use of the full depletion amount for the Navajo Indian Irrigation Project is consistent with the hydrologic investigation contained in the 1988 Hydrologic Determination, and is a conservative assumption because the total project depletion right is not expected to be fully utilized under normal farm management practices.

(c) **Jicarilla Apache Nation Irrigation** – The depletions for irrigation above Navajo Dam include irrigation depletions on Jicarilla Apache Nation lands that might be anticipated after consideration of normal land fallowing, physical water supply shortages and salvage of ephemeral tributary losses outside the Navajo River drainage. The irrigation depletions above Navajo Dam also were recalculated using the modified Blaney-Criddle method with SCS effective precipitation.
(d) **Chaco River Drainage Irrigation** – Irrigation depletions within the Chaco River drainage were recalculated using the modified Blaney-Criddle method with SCS effective precipitation, and also were revised to reflect salvage of ephemeral tributary losses and some non-tributary area uses in addition to normal fallowing and physical water supply shortages.

(e) **Stockpond Evaporation and Livestock Uses** – Stockpond and livestock depletions were rounded down to reflect a general reduction in grazing carrying capacity and some salvage of ephemeral tributary losses.

(f) **New Mexico Upper Basin Compact Allocation** – The New Mexico Upper Colorado River Basin Compact Article III(a) allocation was revised to reflect New Mexico’s compact share of the yield to the Upper Basin determined to be available by the May 2006 Draft Hydrologic Determination. The May 2006 Draft Hydrologic Determination concludes that at least 5.76 million acre-feet of water per year is available for development by the Upper Basin, excluding shared evaporation from Lake Powell, Flaming Gorge Reservoir and the Aspinall Unit. New Mexico’s share of the yield is about 642,400 acre-feet, excluding shared Colorado River Storage Project evaporation.

The State of New Mexico estimates that the total amount of salvage of ephemeral tributary losses and non-tributary losses within the boundaries of the San Juan River Basin in New Mexico averages approximately 2,000 acre-feet per year or more. The total amount of incidental losses from return flows to ephemeral tributaries from Four Corners Power Plant discharges at Morgan Lake also averages about 2,000 acre-feet per year, and incidental losses from Navajo Indian Irrigation Project return flows to ephemeral
tributaries will increase as the project area receiving water expands and as the ground-water levels rise beneath the project. While Article VI of the Upper Colorado River Basin Compact requires the determination of consumptive uses in terms of man-made depletions of the virgin flow at Lee Ferry, the Upper Colorado River Commission has not made any determinations of salvage by use or losses on ephemeral tributaries in the San Juan River Basin and does not necessarily endorse the specific depletion estimates provided in the May 2006 preliminary revised New Mexico Upper Basin depletion schedule.
Preliminary
STATE OF NEW MEXICO SCHEDULE OF ANTICIPATED UPPER BASIN DEPLETIONS
(Units: 1000 acre-feet per year)

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
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**IRRIGATION USES (1)**

- Navajo Nation Irrigation:
  - Navajo Indian Irrigation Project (2)
    - 190.0
  - Fruitland-Cambridge Irrigation Project (2)
    - 60.0
  - Hubble-Cutler Irrigation Project (2)
    - 13.5
  - Chaco River drainage irrigation
    - 3.1
  - Crystal area irrigation
    - 0.3
  - Navajo Irrigation Subtotal
    - 176.9

- Non-Navajo Irrigation:
  - Above Navajo Dam (including Juricula)
    - 1.9
  - Upper San Juan (excluding Hammond)
    - 103.4
  - Hammond Irrigation Project
    - 12.1
  - Animal River drainages
    - 40.7
  - La Plata River drainages
    - 5.9
  - Farmers Mutual Ditch
    - 11.2
  - Jemez Valley Ditch
    - 3.7
  - Chaco River drainage irrigation
    - 0.7

- Non-Navajo Irrigation Subtotal
  - 86.5

- Irrigation Total
  - 263.4

**STOCKPOND EVAPORATION AND STOCK USE**

- 4.0

**MUNICIPAL AND DOMESTIC USES (1)**

- Current Municipal and Industrial Uses (3)
  - 9.7

- Anasazi-La Plata Project:
  - San Juan Water Commission (4)
    - 1.0
  - Navajo Nation
    - 0.0
  - La Plata Conservation District
    - 0.0
  - Ridge Basin Reservoir Evaporation - NM share
    - 0.0
  - Anasazi-La Plata Project Subtotal
    - 1.0

- Navajo-Gallup Water Supply Project (5):
  - Navajo Nation
    - 0.0
  - Juricula Apache Nation
    - 0.0
  - Navajo-Gallup Project Subtotal (within Basin)
    - 0.0
  - Navajo Nation Municipal Use, Future (exc. NWGPS)
    - 0.0
  - Juricula Apache Nation Municipal Use (exc. NWGPS)
    - 0.0
  - San Juan Rural Domestic (including Juricula)
    - 1.0
  - Municipal and Domestic Total
    - 11.7

**POWER AND INDUSTRIAL USES**

- FMB - Navajo Reservoir contract (6)
  - 16.2
- BHP Billion (7)
  - 37.0
- Blossfield Industrial
  - 2.5
- Navajo Nation - Shiprock (8)
  - 0.3
- Navajo-Gallup Water Supply Project - NAPI (9)
  - 0.0
- Small Navajo Reservoir Contracts
  - 0.1

- Power and Industrial Total
  - 56.1

**EXPORTS**

- San Juan-Chama Project (10)
  - 105.2
- Navajo-Gallup Water Supply Project (5)
  - Navajo Nation in New Mexico
    - 0.0
  - City of Gallup
    - 0.0
  - Navajo-Gallup Project Subtotal (Export)
    - 0.0

- Export Total
  - 105.2

**RESERVOIR EVAPORATION**

- Navajo Reservoir Evaporation (11)
  - 28.3
- Small Reservoir Evaporation
  - 1.2

- Reservoir Evaporation Total
  - 29.5

**TOTAL DEPLETIONS (12)**

- 469.9
- State Share of Upper Basin Yield (13)
  - 642.4

- Remaining Available (15, 16)
  - 172.5

- Percent of Share Remaining
  - 26.9%

**NOTES:**

(1) Does not reflect post-1965 transfers from irrigation to municipal and industrial uses. About 800 acre-feet of current non-indian depletions are supplied through short-term leases from the Juricula Apache Nation as of 2006.

(2) The depletions for the Navajo Indian Irrigation Project (NIP) and the Hubble and Pecos Irrigation projects assume full use of the depletion rights for the projects provided by the Settlement Agreements. A portion of the depletions on the Hubble and Pecos projects in dry years may be accounted for against the NIP depletion right pursuant to the alternate water sources provisions of subchapter 9.2 of the Settlement Agreement. Consumption of NIP is assumed to be completed by 2030, and rehabilitation of the Hubble Project is assumed to be completed by 2050.

(3) Based on 1990 uses and 30% mean flow from full diversion of Farmington's municipal water supply rights under the Echo Ditch Decree and License 1995. Does not reflect transfers of irrigation rights to municipal uses, and excludes the Anasazi-La Plata Project (ALP) and the Navajo-Gallup Water Supply Project (NWGPS).

(4) San Juan Water Commission member entities in 2000 used 1,000 acre-feet from the Anasim River under ALP permits.

(5) Proposed NWGPS depletions in New Mexico total 250,500 acre-feet per year, including all project uses in the Upper Basin and the Lower Basin by the Navajo Nation, the Juricula Apache Nation and the City of Gallup. The experts by the NWGPS to Gallup are anticipated to be supplied through a subcontract with Juricula. To the extent that Gallup's actual demand is less than 1,500 acre-feet, the Juricula Apache Nation could use its water through an exchange with the NWGPS for its Navajo Nation uses in Arizonas for which it is not assigned.

(6) The Public Service Company of New Mexico (PSEM) will subcontract with the Juricula Apache Nation to provide 16,200 acre-feet per year for use at the San Juan Generating Station through 2027, with a commitment to negotiate in 2022 for a subcontract extension. The Generating Station is a no-discharge facility.

(7) Includes uses under New Mexico State Engineer File 2583 at the Four Corners Power Plant, the San Juan Generating Station, and related mines.

(8) Industrial uses under Shiprock (diversions of about 300 acre-feet per year assumed fully depleted).

(9) Navajo Agricultural Products Industries's use of NWGPS water for food processing.

(10) Based on the hydrologic record for the period 1929-2000 (US Bureau of Reclamation).

(11) The NWGPS September 2005 Biological Assessment finds that future Navajo Reservoir evaporation will average 27,000 acre-feet per year with operation of the reservoir to meet the diversion demands of the full NIP and the NWGPS and to meet habitat needs of endangered fish species in the San Juan River. About 200 acre-feet of this amount could be chargeable to Arizona based on the proportion of use of Navajo Reservoir supply for NWGPS uses in Arizona.

(12) A schedule of anticipated depletions for planning purposes only. It is not a substitution or determination of water rights or actual uses. Total depletions exclude New Mexico's share of reservoir evaporation from the major reservoirs constructed under the Colorado River Storage Project (CRSP). As they are used principally to regulate compact power deliveries, they include Lake Powell, Flaming Gorge Reservoir and the Aspen Hall, but excludes Navajo Reservoir which is used principally to store water for consumptive uses.

(13) This depletion schedule does not attempt to interpret the Colorado River Compact, the Upper Colorado River Basin Compact, or any other element of the "law of the river." This schedule should not be construed as an acceptance by any assumption that limits the Upper Colorado River Basin's depletion or New Mexico's depletions. Of the water available to the Upper Basin at Lee Ferry, the allocation for use by New Mexico is listed in this schedule, for planning purposes, as 642,400 acre-feet. This amount does not include New Mexico's share of CRSP reservoir evaporation other than Navajo Reservoir evaporation.

(14) Reserved.