# HYDROLOGIC DETERMINATION 2007

Water Availability from Navajo Reservoir and the Upper Colorado River Basin for Use in New Mexico

**April 2007** 

MAY 2 3 2007

Date

Secretary of the Interior

# I. <u>Executive Summary</u>

Determination as to the availability of water under long-term service contracts for uses from Navajo Reservoir involves a projection into the future of estimated water uses and water supplies. On the basis of this hydrologic investigation, water depletions by the Upper Basin states from the Upper Colorado River Basin can be reasonably allowed to rise to an annual average of 5.76 million acre-feet (maf) per year, exclusive of Colorado River Storage Project (CRSP) reservoir evaporation from Lake Powell, Flaming Gorge Reservoir, and the Aspinall Unit. This depletion level can be achieved under the same shortage criteria upon which the allowable Upper Basin yield was determined in the 1988 Hydrologic Determination.

This document determines the availability through at least 2060 of water 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 in the annual amount of 20,780 acre-feet (af) and the Navajo Indian Irrigation Project (NIIP) in the amount of 270,000 af per year on average over any period of ten consecutive years. It also is likely that sufficient water will be available from Navajo Reservoir to service the proposed contract after the 2060 planning horizon, depending upon future storage, hydrologic conditions, and other factors. This determination does not guarantee that the United States will be able to deliver water under the proposed contract without shortages in deliveries, and does not obligate the United States to maintain storage facilities beyond their useful lives. The proposed contract is part of a Navajo Nation water rights settlement in the Upper Basin in New Mexico, and the settlement provides that uses made pursuant to the contract will be subject to administration in accordance with the Upper Colorado River Basin Compact and New Mexico state law. Implementation of the Navajo-Gallup Water Supply Project and the NIIP is subject to compliance with federal environmental laws including the National Environmental Policy Act and the Endangered Species Act.

### II. Introduction

The State of New Mexico has proposed the Navajo-Gallup Water Supply Project to provide a renewable water supply from the San Juan River for municipal and domestic uses for Indian and non-Indian communities located within New Mexico. Uses under the project by the Jicarilla Apache Nation and the City of Gallup would be supplied through the Jicarilla Apache Nation's Navajo Reservoir water supply contract approved by Congress in 1992. Uses in New Mexico under the project by the Navajo Nation would be supplied through a proposed new Navajo Reservoir water supply contract that is a component of the San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement (hereinafter referred to as the Settlement Agreement) that the State of New Mexico and the Navajo Nation executed on April 19, 2005. The new contract also would supersede the existing Navajo Reservoir water supply contract for the NIIP.

On June 19, 2003, the Upper Colorado River Commission resolved that the States of the Upper Division consent to the Navajo-Gallup Water Supply Project, provided that water diverted by the project for use in New Mexico shall be a part of the consumptive use apportionment made to the State of New Mexico by Article III(a) of the Upper Colorado River Basin Compact. The maximum amount of consumptive use through the project by the Navajo Nation in New Mexico that would be permitted in any one year under the Settlement Agreement and the proposed contract is 20,780 acre-feet.

Public Law 87-483 at section 11(a) requires that no long-term contract, except contracts for the NIIP and the San Juan-Chama Project, shall be entered into for the delivery of water stored in Navajo Reservoir, or any other waters of the San Juan River and its tributaries to which the United States is entitled, until the Secretary of the Interior has determined by hydrologic investigation that sufficient water to fulfill such contract is reasonably likely to be available for use in the State of New Mexico under the allocations made in Articles III and XIV of the Upper Colorado River Basin Compact, has submitted such determination to Congress, and Congress has approved the contract. The last such hydrologic determination was approved by the Secretary on February 2, 1989 (Hydrologic Determination, 1988, Water Availability from Navajo Reservoir and the Upper Colorado River Basin for Use in New Mexico, hereinafter referred to as the 1988 Hydrologic Determination). The 1988 Hydrologic Determination evaluated the availability of water from the Navajo Reservoir water supply for the Jicarilla Apache Nation's Navajo Reservoir water supply contract. The State of New Mexico, by letter dated May 3, 2005, requested that the 1988 Hydrologic Determination be updated to evaluate the availability of water to service the proposed Navajo-Gallup Water Supply Project.

This hydrologic investigation is made for the purpose of contracting for water from the Navajo Reservoir water supply for the Navajo Nation's uses in New Mexico under the Navajo-Gallup Water Supply Project. The Bureau of Reclamation prepared this hydrologic investigation in consultation with the Upper Colorado River Commission because of the critical nature of this determination of the Upper Basin water supply. The Upper Colorado River Basin Compact created and defined several areas of responsibility for the Commission that directly and indirectly relate to this investigation.

# III. Upper Basin Yield

# A. <u>General Upper Basin Hydrology</u>

Based on the Bureau of Reclamation's Colorado River Simulation System (CRSS), natural flows for the period 1906-2000, the natural runoff from the Upper Colorado River Basin averages about 15. The af per year at Lee Ferry. Of this amount, approximately 2 maf per year originates in the San Juan River Basin above Bluff, Utah. New Mexico can only develop its Upper Basin allocation from the San Juan River and its tributaries. The Bureau of Reclamation's Colorado River System Consumptive Uses and Losses Report for 1996-2000 indicates that current consumptive uses from the San Juan River Basin

average about 382,400 af per year in New Mexico and about 192,500 af per year in Colorado. Only minor amounts of depletions are made in the San Juan River Basin in Utah and Arizona.

# B. Approach

This hydrologic investigation considers and uses many of the same basic assumptions as the 1988 Hydrologic Determination. Both investigations assume use of the CRSS natural flows at Lee Ferry, minimum releases from Lake Powell of between 7.48 maf and 8.23 maf annually, an allowable overall shortage of no more than 6 percent for a critical period, either maintenance or use of the minimum power pools at CRSP units, reduced storage capacity in Lake Powell due to sedimentation, and inclusion of bank storage. The CRSS natural flows at Lee Ferry for the period 1971-1980 were increased to reflect recalculation of historic irrigation depletions in the Upper Basin using the Soil Conservation Service (SCS) modified Blaney-Criddle method with SCS effective precipitation. The revised CRSS natural flows for 1971-1980 are consistent with the CRSS natural flows at Lee Ferry determined for the remainder of the 1906-2000 period of record. Also, sedimentation in Lake Powell was adjusted to reflect a 2060 planning horizon, and a 4 percent bank storage factor was used in this investigation consistent with Reclamation's current CRSS model.

Neither the Lower Division states nor the Upper Colorado River Commission agree with the modeling assumption for the objective minimum release used in this report. At the request of the Commission, this hydrologic investigation considers for planning purposes both the objective minimum release of 8.23 maf and a minimum release from Lake Powell of 7.48 maf annually. However, this hydrologic determination does not quantify the Colorado River Compact Article III(c) requirement or make or rely on a critical compact interpretation regarding Article III(c). The 1988 Hydrologic Determination also showed the Upper Basin yields under these minimum release scenarios.

Mass balance analyses were used to analyze potential water use by the Upper Basin under 2060 conditions. The mass balance considers Upper Basin reservoir storage, natural flows at Lee Ferry, deliveries to the Lower Basin, consumptive use demands in the Upper Basin, and CRSP evaporation as a function of storage volume. All existing Upper Basin storage capacity was included in the analysis because all storage supports water use in the Upper Basin and impacts stream flows. The CRSP and non-CRSP reservoirs as groups were assumed to be the same percent full each year, and CRSP storage was assumed to be distributed between units in accordance with the average historic storage distribution. The CRSP reservoir evaporation that is used in the mass balance analyses includes evaporation from Lake Powell, Flaming Gorge Reservoir, and the Aspinall Unit that is shared among the Upper Division States, but excludes evaporation from Navajo Reservoir which is chargeable to the states based on use. Shared CRSP reservoir evaporation is modeled using a regression equation relating historic shared CRSP reservoir evaporation from Lake Powell, Flaming Gorge Reservoir, and the Aspinall Unit to the aggregate historic storage volume in these reservoirs plus Navajo Reservoir. Evaporation equations were developed for both active and live storage, and were applied

to estimate annual shared CRSP evaporation based upon yearly reservoir storage volume (surface area). The 1988 Hydrologic Determination considered variations in shared CRSP reservoir evaporation with storage for conducting statistical trace analyses to evaluate possible frequencies and magnitudes of shortages; however, it deducted a long-term average shared CRSP reservoir evaporation of 0.52 maf per year from the critical-period Upper Basin yield of at least 6.0 maf/yr to determine the amount of water available for Upper Basin uses through the critical period.

# C. Results

Mass balance analyses were performed for various combinations of storage, Lower Basin deliveries, and overall shortages to evaluate the allocation of water to the Upper Basin (see mass balance analyses provided in Appendix A). The following is a summary of the results of the analyses:

Storage Assumption	Minimum Lower Basin Delivery (maf)	Yield without Shortages (maf)	Yield with 6% Overall Shortages (maf)	
Maintain minimum power pools	8.25 7.50	5.55 6.30	5.79 6.57	F
Use minimum power pools	8.25 7.50	5.72 6.47	5.98 6.76	

The yield for this analysis is defined as the amount of water available at Lee Ferry for use, on average, by the Upper Basin, exclusive of shared CRSP reservoir evaporation. Shortages in the above table are defined as 6 percent or less overall computed shortage for any period of 25 consecutive years consistent with the 1988 Hydrologic Determination. Results are shown for minimum Lower Basin deliveries of 8.25 maf and 7.50 maf as was done in the 1988 Hydrologic Determination. The analyses in this investigation should not be construed to prejudice the positions of either the Upper Colorado River Commission or the States of the Lower Division as to the interpretation or administration of Article III of the Colorado River Compact.

For those analyses that use an allowable or tolerable overall shortage of 6 percent or less of the use over any period of 25 consecutive years, the results indicate that there would be 5 years of shortage to meet all demands on the Upper Basin out of 95 years of record used in this investigation. However, the annual amounts of computed shortages for those five years would not fully materialize because Upper Basin consumptive uses will be below average under critical period hydrology due to physical water supply shortages at the sites of use in the Upper Basin. For example, the natural flow at Lee Ferry for 1977 was only 5.55 maf, and severe water supply shortages occurred throughout the Upper Basin in that year. The computations of shortage in this analysis give conservatively large estimates of annual shortages at Lee Ferry and do not fully reflect all factors,

including physical shortages in the Upper Basin that might contribute or relate to a shortage condition at any given time. The computed shortages in this investigation do not equate to administrative calls to curtail Upper Basin uses.

# D. <u>Comparison to 1988 Hydrologic Determination</u>

The 1988 Hydrologic Determination concluded that the total Upper Basin yield, including CRSP reservoir evaporation, is at least 6.0 maf per year for the 1953-1977 critical period hydrology with a 6 percent allowable overall shortage for the period. Under the conditions assumed in the current investigation, the shared CRSP evaporation varies with CRSP storage assumptions and storage levels. Assuming an average annual Upper Basin use of 5.79 maf, an annual Lower Basin delivery of 8.25 maf, and maintenance of the power pools, the shared CRSP evaporation would range from an average of about 0.25 maf per year over the worst 25-year period of reservoir storage draw down (1953-1977) to an average of about 0.49 maf per year over the period of record used in the analysis (1906-2000). Thus, the total Upper Basin depletion, including both Upper Basin uses and CRSP reservoir evaporation, would average about 6.04 maf per year or more over any period of 25 consecutive years. The total Upper Basin depletion amount for this scenario for the 1953-1977 period is comparable to the total Upper Basin depletion of 6.0 maf per year determined to be available for the period by the 1988 Hydrologic Determination. The difference is due to the revisions made to the CRSS natural flows for 1971-1980. If the minimum power pools are used, the shared CRSP reservoir evaporation is reduced due to increased reservoir storage draw downs.

# IV. Water Use Projections

### A. Upper Basin

The Upper Colorado River Commission last approved depletions schedules for the Upper Division States for planning purposes in 1999. The depletions schedules, dated January 2000, project that the total Upper Basin use exclusive of shared CRSP reservoir evaporation will average about 5.37 maf per year under 2060 development conditions. Unless additional Upper Basin water development occurs by 2060 as compared to the January 2000 depletions schedules, the Upper Basin use may average less than about 5.40 maf per year from now through 2060. The time required to develop the Upper Basin allocation reduces risk of shortage within the 2060 planning horizon.

### B. State of New Mexico

For use in this investigation, the New Mexico Interstate Stream Commission provided the Bureau of Reclamation with a preliminary revised schedule of anticipated depletions through 2060 from the Upper Basin in New Mexico dated May 2006 (see Appendix B). The revised depletions schedule includes irrigation depletions calculated using the SCS modified Blaney-Criddle method with SCS effective precipitation so that demands and supply for this hydrologic investigation are evaluated using consistent methodologies.

The irrigation depletions for the Navajo Nation's irrigation projects are water right depletion amounts provided by the Settlement Agreement. Both this hydrologic investigation and the 1988 Hydrologic Determination assume use of the full depletion amount for the NIIP. This is a conservative assumption because the total NIIP depletion right is not expected to be fully utilized under normal farm management practices. The revised depletions schedule does not include New Mexico's allocation of shared CRSP reservoir evaporation. The revised New Mexico depletions schedule shows a total anticipated depletion of 642,000 af per year, on average, for uses in New Mexico under 2060 development conditions. This represents an increase in New Mexico's total Upper Basin depletion, excluding shared CRSP reservoir evaporation, of 23,000 af per year, or about 0.02 maf per year, as compared to the January 2000 depletions schedules.

# V. Probabilities of Calls to Curtail Upper Basin Uses

The 1988 Hydrologic Determination included a probabilistic risk analysis of administrative calls to curtail Upper Basin uses that indicated that: (1) such calls would occur rarely at an Upper Basin demand level of 6.1 maf per year, though their effects could have significant impact to the Upper Basin; and (2) the frequency and magnitude of such calls would diminish rapidly below this demand level. The risk analysis was made using the CRSS model. It is not necessary for this investigation to duplicate such a risk analysis.

The computations of shortage in this current investigation give conservatively large estimates of annual shortages at Lee Ferry and do not fully reflect all factors, including physical shortages in the Upper Basin that might contribute or relate to a shortage condition at any given time. While this investigation uses a 2060 reservoir storage sedimentation condition for Lake Powell, a risk analysis should vary the storage development and sedimentation conditions over time. In addition, it will take decades to develop the Upper Basin allocation. Therefore, risk of shortage is reduced within a 2060 planning horizon. Even using the CRSS model, computed shortages would not necessarily equate to administrative calls to curtail Upper Basin uses.

# VI. Physical Availability of Water from Navajo Reservoir

The Bureau of Reclamation, using a detailed hydrologic model for the San Juan River Basin, has evaluated the physical availability of water from Navajo Reservoir and the San Juan River for the Navajo-Gallup Water Supply Project, taking into account, among other things, the habitat needs of San Juan River populations of fish species listed as endangered under the Endangered Species Act. The physical water supply analysis contained in the Biological Assessment, Navajo-Gallup Water Supply Project, dated August 16, 2005, indicates that sufficient water is likely to be available from the Navajo Reservoir water supply for the Navajo Nation's uses under the project. Although the depletions for individual uses in New Mexico that were used in the Biological Assessment differ slightly from those in New Mexico's May 2006 revised depletions

schedule, the physical water supply analysis in the Biological Assessment assumes up to about 640,500 af per year of depletion, on average, in New Mexico from the San Juan River. This amount of total average depletion in New Mexico is not significantly different than the amount of total average depletion in New Mexico shown in the May 2006 revised New Mexico depletions schedule under 2060 development conditions.

### VII. Conclusions

It is concluded that based on the analysis performed by Reclamation in consultation with the Upper Colorado River Commission, the Upper Basin yield and New Mexico water allocation needed to support New Mexico's revised Upper Basin depletions schedule are reasonably likely to be available. The mass balance analyses results are sufficient to conclude that: (1) the Upper Basin yield is at least 5.76 maf per year, on average, excluding shared CRSP reservoir evaporation; (2) New Mexico's Upper Basin allocation is at least 642,400 af per year, excluding shared CRSP reservoir evaporation; and (3) the total anticipated average annual consumptive use in New Mexico from the Upper Basin, including Navajo Reservoir evaporation of 642,000 af per year as shown in the revised New Mexico depletions schedule is not likely to exceed New Mexico's Upper Basin allocation. This conclusion is reached assuming full use of the Navajo Nation's proposed depletion rights under the Settlement Agreement for both the Navajo-Gallup Water Supply Project and the NIIP.

Based upon this hydrologic investigation for a planning horizon through 2060, the May 2006 revised New Mexico depletions schedule, and the Biological Assessment for the Navajo-Gallup Water Supply Project, sufficient water is reasonably likely to be available from the Navajo Reservoir water supply through at least 2060 to fulfill the contract that is proposed by the Settlement Agreement to provide water for the Navajo Nation's uses in New Mexico under the Navajo-Gallup Water Supply Project and the NIIP. If the term of the contract extends beyond 2060, or is perpetual as proposed by the Settlement Agreement, the risk of shortages in deliveries under the contract may increase after 2060 depending upon future storage, hydrologic conditions, and other factors. Section 11(a) of Public Law 87-483 allows for contracting of water from Navajo Reservoir up to a total amount that, in the event of shortage, still results in a reasonable amount of water being available for the diversion requirements of the NIIP and the San Juan-Chama Project.

# VIII. <u>Disclaimers</u>

# A. <u>Interstate Compacts and Federal Laws</u>

Nothing in this report is intended to interpret the provisions of the Colorado River Compact (45 Stat. 1057), the Upper Colorado River Basin Compact (63 Stat. 31), the Water Treaty of 1944 between the United States of America and the United Mexican States (59 Stat. 1219), the decree entered by the Supreme Court of the United States in *Arizona v. California, et al.* (376 U.S. 340), the Boulder Canyon Project Act (45 Stat.

1057), the Boulder Canyon Project Adjustment Act (54 Stat. 774), the Colorado River Storage Project Act (70 Stat. 105), or the Colorado River Basin Project Act (82 Stat. 885). Implementation of the Navajo-Gallup Water Supply Project and the NIIP is subject to compliance with federal environmental laws including the National Environmental Policy Act and the Endangered Species Act.

# B. Proposed Navajo Reservoir Water Contract

This determination is not to be construed as acceptance by the Department of the Interior of the terms of the Settlement Agreement, including the terms of the proposed contract. This determination also does not guarantee that the United States would be able to deliver water under the proposed contract without shortages in deliveries on account of drought or other causes outside the control of the Secretary. Nothing in this determination shall be construed to impose on the United States any obligation to maintain CRSP storage facilities, including Navajo Dam and Reservoir, or NIIP or Navajo-Gallup Water Supply Project facilities beyond their useful lives or to take extraordinary measures to keep these facilities operating.

# **List of Appendices**

APPENDIX A - Mass Balance Analysis

APPENDIX B - Reservoir Storage

APPENDIX C - CRSP Evaporation Analysis

APPENDIX D - New Mexico Depletion Schedule

APPENDIX E - Upper Colorado River Commission Resolution

# **APPENDIX A - Mass Balance Analysis**

Run 1 - Maintain CRSP Minimum Power Pools, 8.25 maf Lower Basin Delivery, No Shortage

		Total Carry-	ODOD 0	Lower		Shared	Net			UC Basin			
	Flow at Lee Ferry	Storage	Over		Upper Basin Use	Evap	Available to Store	Spill to LC	Shortage	Year-end Storage	CRSP Year-	Variables	
CY 1906	(plus) 18,550,021	(plus) 29,530,030	Storage 24,847,704	(minus) 8,250,000	(minus) 5,550,000	(minus) 749,290	(subtotal) 33,530,761	(minus) 4,000,731	(plus)	(equals) 29,530,030	24,847,704	Variables Storage	30,167,576 af
1907	21,201,694	29,530,030	24,847,704	8,250,000	5,550,000	749,290	36,182,434	6,652,404	0	29,530,030	24,847,704	Sedimentation Rate (Active)	24,292 af/yr
1908 1909	12,218,817 22,356,301	29,530,030 27,223,629	24,847,704 22,907,009	8,250,000 8,250,000	5,550,000 5,550,000	725,218 725,218	27,223,629 35,054,712	0 5,524,682	0	27,223,629 29,530,030	22,907,009 24,847,704	Bank Storage Adjusted Storage (2060)	4% 29,530,030 af
1910	14,650,616	29,530,030	24,847,704	8,250,000	5,550,000	749,290	29,631,356	101,326	0	29,530,030	24,847,704	UB Demand Level	5,550,000 af/yr
1911 1912	15,499,729 18,623,410	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,550,000 5,550,000	749,290 749,290	30,480,469 33,604,150	950,439 4,074,120	0	29,530,030 29,530,030	24,847,704 24,847,704	LB Delivery	8,250,000 af/yr
1913	14,536,373	29,530,030	24,847,704	8,250,000	5,550,000	749,157	29,517,247	0	0	29,517,247	24,836,947		
1914 1915	21,354,814 13,623,277	29,517,247 29,530,030	24,836,947 24,847,704	8,250,000 8,250,000	5,550,000 5,550,000	749,157 739,725	36,322,904 28,613,582	6,792,873 0	0	29,530,030 28,613,582	24,847,704 24,076,569	Results	
1916	20,142,892	28,613,582	24,076,569	8,250,000	5,550,000	739,725	34,216,749	4,686,719	0	29,530,030	24,847,704	Average CRSP Evap	527,920 af/yr
1917 1918	22,942,804 15,865,939	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,550,000 5,550,000	749,290 749,290	37,923,544 30,846,679	8,393,514 1,316,649	0	29,530,030 29,530,030	24,847,704 24,847,704	Total Yield w/ CRSP evap	6,077,920 af/yr
1919	12,651,369	29,530,030	24,847,704	8,250,000	5,550,000	729,686	27,651,713	0	0	27,651,713	23,267,216	Shortage Years	<u>Shortage</u>
1920 1921	22,287,632 22,526,781	27,651,713 29,530,030	23,267,216 24,847,704	8,250,000 8,250,000	5,550,000 5,550,000	729,686 749,290	35,409,659 37,507,521	5,879,629 7,977,491	0	29,530,030 29,530,030	24,847,704 24,847,704	1963	0 af
1922	18,447,198	29,530,030	24,847,704	8,250,000	5,550,000	749,290	33,427,938	3,897,908	0	29,530,030	24,847,704	1964	0 af
1923 1924	19,024,046 13,877,798	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,550,000 5,550,000	749,290 742,354	34,004,786 28,865,474	4,474,756 0	0	29,530,030 28,865,474	24,847,704 24,288,521	1967 1968	0 af 0 af
1925	14,430,701	28,865,474	24,288,521	8,250,000	5,550,000	734,337	28,761,839	0	0	28,761,839	24,201,318	1977	0 af
1926 1927	15,213,731 19,539,212	28,761,839 29,435,286	24,201,318 24,767,982	8,250,000 8,250,000	5,550,000 5,550,000	740,284 748,301		0 4,896,166	0	29,435,286 29,530,030	24,767,982 24,847,704	NM allocation(w/o evap)	618,750 af/yr
1928	16,954,334	29,530,030	24,847,704	8,250,000	5,550,000	749,290	31,935,074	2,405,044	0	29,530,030	24,847,704		•
1929 1930	21,829,585 14,621,041	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,550,000 5,550,000	749,290 749,290	36,810,325 29,601,781	7,280,295 71,751	0	29,530,030 29,530,030	24,847,704 24,847,704	Note: NM allocation is exclusi CRSP evaporation. Navajo ev	
1931	8,474,134	29,530,030	24,847,704	8,250,000	5,550,000	686,538	23,517,626	0	0	23,517,626	19,788,636	primarily charged against NM's	allocation. Shared
1932 1933	17,422,187 12,183,500	23,517,626 26,485,055	19,788,636 22,285,545	8,250,000 8,250,000	5,550,000 5,550,000	654,758 661,949	26,485,055 24,206,607	0	0	26,485,055 24,206,607	22,285,545 20,368,371	CRSP evaporation is already r demands.	emoved from UC
1934	6,178,192	24,206,607	20,368,371	8,250,000	5,550,000	552,849	16,031,950	0	0	16,031,950	13,489,900	demands.	
1935 1936	12,630,349 14,648,873	16,031,950 14,411,681	13,489,900 12,126,543	8,250,000 8,250,000	5,550,000 5,550,000	450,618 437,996	14,411,681 14,822,558	0	0	14,411,681 14,822,558	12,126,543 12,472,271	Total Upper Basin depletion, ir 1953-1977	nc. CRSP evap: 5,870,057 af/yr
1937	14,306,056	14,822,558	12,472,271	8,250,000	5,550,000	442,943	14,885,671	0	0	14,885,671	12,525,376	1931-1977	5,971,255 af/yr
1938 1939	18,148,319 11,164,059	14,885,671 18,750,055	12,525,376 15,777,018	8,250,000 8,250,000	5,550,000 5,550,000	483,935 491,625	18,750,055 15,622,489	0	0	18,750,055 15,622,489	15,777,018 13,145,364	1906-2000	6,077,920 af/yr
1940	9,931,657	15,622,489	13,145,364	8,250,000	5,550,000	414,284	11,339,862	0	0	11,339,862	9,541,797		
1941 1942	20,116,678 17,225,136	11,339,862 17,225,525	9,541,797 14,494,220	8,250,000 8,250,000	5,550,000 5,550,000		17,225,525 20,127,925	0	0	17,225,525 20,127,925	14,494,220 16,936,410	Flow Adjustments: 1971	203,226 af
1943	13,731,401	20,127,925	16,936,410	8,250,000	5,550,000	546,608	19,512,717	0	0	19,512,717	16,418,751	1972	226,985 af
1944 1945	15,369,422 14,140,528	19,512,717 20,531,321	16,418,751 17,275,843	8,250,000 8,250,000	5,550,000 5,550,000		20,531,321 20,312,681	0	0	20,531,321 20,312,681	17,275,843 17,091,871	1973 1974	252,377 af 196,384 af
1946	11,095,453	20,331,321	17,275,643	8,250,000	5,550,000	523,198	17,084,936	0	0	17,084,936	14,375,923	1975	246,665 af
1947	16,439,486 15,139,294	17,084,936 19,212,705	14,375,923 16,166,309	8,250,000 8,250,000	5,550,000 5,550,000	511,717 542,244	19,212,705 20,009,755	0	0	19,212,705 20,009,755	16,166,309 16,836,978	1976	173,250 af 112,291 af
1948 1949	16,933,584	20,009,755	16,836,978	8,250,000	5,550,000	577,243	22,566,096	0	0	22,566,096	18,987,982	1977 1978	152,187 af
1950 1951	13,140,416 12,505,894	22,566,096 21,315,639	18,987,982 17,935,799	8,250,000 8,250,000	5,550,000 5,550,000	590,873 558,486	21,315,639 19,463,047	0	0	21,315,639 19,463,047	17,935,799	1979 1980	153,559 af 161,893 af
1952	20,805,422	19,463,047	16,376,957	8,250,000	5,550,000	605,942		0	0	25,862,527	16,376,957 21,761,725	1900	161,093 ai
1953 1954	11,165,419 8,496,102	25,862,527 22,589,374	21,761,725	8,250,000 8,250,000	5,550,000 5,550,000	638,572 543,381	22,589,374 16,742,094	0	0	22,589,374 16,742,094	19,007,568 14,087,442		
1955	9,413,908	16,742,094	19,007,568 14,087,442	8,250,000	5,550,000	432,065	11,923,937	0	0	11,923,937	10,033,259		
1956 1957	11,426,874 21,500,963	11,923,937 9,197,489	10,033,259 7,739,121	8,250,000 8,250,000	5,550,000 5,550,000	353,322 401,055	9,197,489 16,497,397	0	0	9,197,489 16,497,397	7,739,121 13,881,544		
1958	15,862,511	16,497,397	13,881,544	8,250,000	5,550,000	493,620	18,066,288	0	0	18,066,288	15,201,670		
1959 1960	9,598,169 11,524,160	18,066,288 13,403,132	15,201,670 11,277,911	8,250,000 8,250,000	5,550,000 5,550,000	461,325 384,885	13,403,132 10,742,407	0	0	13,403,132 10,742,407	11,277,911 9,039,075		
1961	10,010,259	10,742,407	9,039,075	8,250,000	5,550,000	314,281	6,638,386	0	0	6,638,386	5,585,793		
1962 1963	17,377,609 8,840,900	6,638,386 9,910,398	5,585,793 8,338,990	8,250,000 8,250,000	5,550,000 5,550,000	305,597 285,014	9,910,398 4,666,284	0	0	9,910,398 4,666,284	8,338,990 3,926,391		
1964	10,863,586	4,666,284	3,926,391	8,250,000	5,550,000	197,571	1,532,299	0	0	1,532,299	1,289,335		
1965 1966	19,875,027 10,679,844	1,532,299 7,381,417	1,289,335 6,211,008	8,250,000 8,250,000	5,550,000 5,550,000	225,909 251,764	7,381,417 4,009,497	0	0	7,381,417 4,009,497	6,211,008 3,373,745		
1967	11,670,830	4,009,497	3,373,745	8,250,000	5,550,000	192,341	1,687,986	0	0	1,687,986	1,420,336		
1968 1969	13,739,932 15,272,159	1,687,986 1,462,164	1,420,336 1,230,321	8,250,000 8,250,000	5,550,000 5,550,000	165,754 176,916	1,462,164 2,757,407	0	0	1,462,164 2,757,407	1,230,321 2,320,188		
1970	15,344,136	2,757,407	2,320,188	8,250,000	5,550,000	204,417	4,097,125	0	0	4,097,125	3,447,479		
1971 1972	15,493,659 13,186,637	4,097,125 5,557,146	3,447,479 4,675,996	8,250,000 8,250,000	5,550,000 5,550,000	233,638 239,970	5,557,146 4,703,812	0	0	5,557,146 4,703,812	4,675,996 3,957,968		
1973	18,650,193	4,703,812	3,957,968	8,250,000	5,550,000	278,776	9,275,229	0	0	9,275,229	7,804,534		
1974 1975	13,285,426 17,072,661	9,275,229 8,442,854	7,804,534 7,104,142	8,250,000 8,250,000	5,550,000 5,550,000	317,801 339,725	8,442,854 11,375,790	0	0	8,442,854 11,375,790	7,104,142 9,572,028		
1976	11,313,561	11,375,790	9,572,028	8,250,000	5,550,000	340,828	8,548,524	0	0	8,548,524	7,193,057		
1977 1978	5,551,188 15,335,909	8,548,524 76,813	7,193,057 64,633	8,250,000 8,250,000	5,550,000 5,550,000	222,899 148,955	76,813 1,463,766	0	0	76,813 1,463,766	64,633 1,231,669		
1979	17,825,429	1,463,766	1,231,669	8,250,000	5,550,000	203,322	5,285,872	0	0	5,285,872	4,447,736		
1980 1981	17,927,076 9,015,200	5,285,872 9,129,617	4,447,736 7,682,011	8,250,000 8,250,000	5,550,000 5,550,000	283,332 270,684	9,129,617 4,074,132	0	0	9,129,617 4,074,132	7,682,011 3,428,132		
1982	17,489,400	4,074,132	3,428,132	8,250,000	5,550,000	253,778	7,509,754	0	0	7,509,754	6,318,996		
1983 1984	24,361,989 25,359,376	7,509,754 17,676,001	6,318,996 14,873,268	8,250,000 8,250,000	5,550,000 5,550,000	395,742 616,064		0	0	17,676,001 28,619,314	14,873,268 24,081,392		
1985	21,246,109	28,619,314	24,081,392	8,250,000	5,550,000	739,785	35,325,638	5,795,607	0	29,530,030	24,847,704		
1986 1987	23,013,446 15,640,478	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,550,000 5,550,000		37,994,186 30,621,219	8,464,156 1,091,188	0	29,530,030 29,530,030	24,847,704 24,847,704		
1988	11,456,357	29,530,030	24,847,704	8,250,000	5,550,000	717,342	26,469,044	0	Ö	26,469,044	22,272,073		
1989 1990	9,921,847 9,639,803	26,469,044 21,952,634	22,272,073 18,471,791	8,250,000 8,250,000	5,550,000 5,550,000		21,952,634 17,250,397	0	0	21,952,634 17,250,397	18,471,791 14,515,148		
1991	12,170,021	17,250,397	14,515,148	8,250,000	5,550,000	471,035	15,149,382	0	0	15,149,382	12,747,273		
1992 1993	10,895,580 18.160.118	15,149,382 11,830,495	12,747,273 9,954,634	8,250,000 8,250,000	5,550,000 5,550,000		11,830,495 15,769,672	0	0	11,830,495 15,769,672	9,954,634 13,269,209		
1994	11,125,503	15,769,672	13,269,209	8,250,000	5,550,000	429,656	12,665,519	0	0	12,665,519	10,657,255		
1995 1996	20,047,166 14,502,293	12,665,519 18,455,001	10,657,255 15,528,748	8,250,000 8,250,000	5,550,000 5,550,000		18,455,001 18,637,284	0	0	18,455,001 18,637,284	15,528,748 15,682,128		
1997	21,622,438	18,637,284	15,682,128	8,250,000	5,550,000	597,322	25,862,399	0	0	25,862,399	21,761,618		
1998 1999	16,798,378 15,934,210	25,862,399 28,164,023	21,761,618 23,698,293	8,250,000 8,250,000	5,550,000 5,550,000		28,164,023 29,563,200	0 33,170	0	28,164,023 29,530,030	23,698,293 24,847,704		
	10,646,526	29,530,030	24,847,704	8,250,000			25,667,579	0	0	25,667,579	21,597,689		
Total									0				
Averages:	19.000.000			0.050.000	E EFO 000	200 0==		-	-	0 454 445	7 444 040	Percentage shortage =	
1953-1977 1931-1977	13,088,628 13,594,590			8,250,000 8,250,000	5,550,000 5,550,000	320,057 421,255		0	0	8,451,410 13,501,780	7,111,342 11,360,918	0.00% 0.00%	
1906-2000	15,284,742			8,250,000	5,550,000	527,920		997,480	0	18,904,684	15,907,129	0.00%	

Run 2 - Maintain CRSP Minimum Power Pools, 8.25 maf Lower Basin Delivery, 6% Overall Shortage

	CR Natural	Total Carry-		Lower	(O) WIIIIII	Shared	Net			UC Basin		in onortage		
	Flow at Lee	Over	CRSP Carry-	Basin	Upper	CRSP	Available to			Year-end				
CY	Ferry (plus)	Storage (plus)	Over Storage	Delivery (minus)	Basin Use (minus)	Evap (minus)	Store (subtotal)	Spill to LC (minus)	Shortage (plus)	Storage (equals)	CRSP Year- end Storage	Variables		
1906	18,550,021	29,530,030	24,847,704	8,250,000	5,790,000	749,290	33,290,761	3,760,731	0	29,530,030	24,847,704	Storage	30,167,576 af	
1907 1908	21,201,694 12,218,817	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,790,000 5,790,000	749,290 722,739	35,942,434 26,986,108	6,412,404	0	29,530,030 26,986,108	24,847,704 22,707,150	Sedimentation Rate (Active) Bank Storage	24,292 af/yr 4%	
1909	22,356,301	26,986,108	22,707,150	8,250,000	5,790,000	722,739	34,579,670	5,049,640	0	29,530,030	24,847,704	Adjusted Storage (2060)	29,530,030 af	
1910 1911	14,650,616 15,499,729	29,530,030 29,392,789	24,847,704 24,732,223	8,250,000 8,250,000	5,790,000 5,790,000	747,858 747,858	29,392,789 30,104,660	0 574,629	0	29,392,789 29,530,030	24,732,223 24,847,704	UB Demand Level LB Delivery	5,790,000 af/yr 8,250,000 af/yr	
1912	18,623,410	29,530,030	24,847,704	8,250,000	5,790,000	749,290	33,364,150	3,834,120	0	29,530,030	24,847,704	,		
1913 1914	14,536,373 21,354,814	29,530,030 29,279,726	24,847,704 24,637,088	8,250,000 8,250,000	5,790,000 5,790,000	746,678 746,678	29,279,726 35,847,862	0 6,317,832	0	29,279,726 29,530,030	24,637,088 24,847,704			
1915	13,623,277	29,530,030	24,847,704	8,250,000	5,790,000	737,246	28,376,061	0	0	28,376,061	23,876,710	Results Average CRCR Even	401 412 of hr	
1916 1917	20,142,892 22,942,804	28,376,061 29,530,030	23,876,710 24,847,704	8,250,000 8,250,000	5,790,000 5,790,000	737,246 749,290	33,741,707 37,683,544	4,211,677 8,153,514	0	29,530,030 29,530,030	24,847,704 24,847,704	Average CRSP Evap Total Yield w/ CRSP evap	491,413 af/yr 6,281,413 af/yr	
1918	15,865,939 12,651,369	29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,790,000 5,790,000	749,290 727,207	30,606,679	1,076,649	0	29,530,030	24,847,704 23,067,356	Chartage Veers	Chartona	
1919 1920	22,287,632	29,530,030 27,414,192	23,067,356	8,250,000	5,790,000	727,207	27,414,192 34,934,617	5,404,587	0	27,414,192 29,530,030	24,847,704	Shortage Years	<u>Shortage</u>	
1921 1922	22,526,781 18,447,198	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,790,000 5,790,000	749,290 749,290	37,267,521 33,187,938	7,737,491 3,657,908	0	29,530,030 29,530,030	24,847,704 24,847,704	1963 1964	1,153,349 af 3,309,290 af	
1923	19,024,046	29,530,030	24,847,704	8,250,000	5,790,000	749,290	33,764,786	4,234,756	0	29,530,030	24,847,704	1967	453,929 af	
1924 1925	13,877,798 14,430,701	29,530,030 28,627,953	24,847,704 24,088,662	8,250,000 8,250,000	5,790,000 5,790,000	739,875 726,951	28,627,953 28,291,704	0	0	28,627,953 28,291,704	24,088,662 23,805,728	1968 1977	432,944 af 3,136,608 af	
1926	15,213,731	28,291,704	23,805,728	8,250,000	5,790,000	728,092	28,737,342	0	0	28,737,342	24,180,706			
1927 1928	19,539,212 16,954,334	28,737,342 29,530,030	24,180,706 24,847,704	8,250,000 8,250,000	5,790,000 5,790,000	741,017 749,290	33,495,537 31,695,074	3,965,507 2,165,044	0	29,530,030 29,530,030	24,847,704 24,847,704	NM allocation(w/o evap)	645,750 af/yr	
1929	21,829,585	29,530,030	24,847,704	8,250,000	5,790,000	749,290	36,570,325	7,040,295	0	29,530,030	24,847,704	Note: NM allocation is exclusi		
1930 1931	14,621,041 8,474,134	29,530,030 29,363,519	24,847,704 24,707,595	8,250,000 8,250,000	5,790,000 5,790,000	747,552 680,619	29,363,519 23,117,034	0	0	29,363,519 23,117,034	24,707,595 19,451,562	CRSP evaporation. Navajo ev primarily charged against NM:		
1932	17,422,187	23,117,034	19,451,562	8,250,000	5,790,000	644,003	25,855,218	0	0	25,855,218	21,755,575	CRSP evaporation is already r		
1933 1934	12,183,500 6,178,192	25,855,218 23,352,260	21,755,575 19,649,490	8,250,000 8,250,000	5,790,000 5,790,000	646,458 532,720	23,352,260 14,957,731	0	0	23,352,260 14,957,731	19,649,490 12,586,011	demands.		
1935	12,630,349	14,957,731	12,586,011	8,250,000	5,790,000	425,948	13,122,133	0	0	13,122,133	11,041,468	Total Upper Basin depletion, in		
1936 1937	14,648,873 14,306,056	13,122,133 13,322,129	11,041,468 11,209,752	8,250,000 8,250,000	5,790,000 5,790,000	408,877 409,467	13,322,129 13,178,718	0	0	13,322,129 13,178,718	11,209,752 11,089,080	1953-1977 1931-1977	6,039,013 af/yr 6,149,902 af/yr	
1938	18,148,319	13,178,718	11,089,080	8,250,000	5,790,000	446,192	16,840,844	0	0	16,840,844	14,170,535	1906-2000	6,281,413 af/yr	
1939 1940	11,164,059 9,931,657	16,840,844 13,515,199	14,170,535 11,372,209	8,250,000 8,250,000	5,790,000 5,790,000	449,704 368,272	13,515,199 9,038,585	0	0	13,515,199 9,038,585	11,372,209 7,605,413			
1941 1942	20,116,678 17,225,136	9,038,585	7,605,413	8,250,000	5,790,000	380,995	14,734,268	0	0	14,734,268	12,397,980 14,683,616	Flow Adjustments: 1971	203,226 af	
1943	13,731,401	14,734,268 17,450,612	12,397,980 14,683,616	8,250,000 8,250,000	5,790,000 5,790,000	468,792 488,820	17,450,612 16,653,193	0	0	17,450,612 16,653,193	14,003,616	1972	226,985 af	
1944 1945	15,369,422 14,140,528	16,653,193 17,493,349	14,012,637 14,719,577	8,250,000 8,250,000	5,790,000 5,790,000	489,266 493,929	17,493,349 17,099,948	0	0	17,493,349 17,099,948	14,719,577 14.388.554	1973 1974	252,377 af 196,384 af	
1946	11,095,453	17,099,948	14,388,554	8,250,000	5,790,000	454,348	13,701,053	0	0	13,701,053	11,528,593	1975	246,665 af	
1947 1948	16,439,486 15,139,294	13,701,053 15,661,207	11,528,593 13,177,942	8,250,000 8,250,000	5,790,000 5,790,000	439,332 466,396	15,661,207 16,294,105	0	0	15,661,207 16,294,105	13,177,942 13,710,487	1976 1977	173,250 af 112,291 af	
1949	16,933,584	16,294,105	13,710,487	8,250,000	5,790,000	498,004	18,689,684	0	0	18,689,684	15,726,220	1978	152,187 af	
1950 1951	13,140,416 12,505,894	18,689,684 17,281,788	15,726,220 14,541,561	8,250,000 8,250,000	5,790,000 5,790,000	508,313 472,674	17,281,788 15,275,008	0	0	17,281,788 15,275,008	14,541,561 12,852,979	1979 1980	153,559 af 161,893 af	
1952	20,805,422	15,275,008	12,852,979	8,250,000	5,790,000	516,945	21,523,485	0	0	21,523,485	18,110,689	1000	101,000 =	
1953 1954	11,165,419 8,496,102	21,523,485 18,102,449	18,110,689 15,232,098	8,250,000 8,250,000	5,790,000 5,790,000	546,455 448,209	18,102,449 12,110,342	0	0	18,102,449 12,110,342	15,232,098 10,190,108			
1955	9,413,908	12,110,342	10,190,108	8,250,000	5,790,000	333,901	7,150,349	0	0	7,150,349	6,016,579			
1956 1957	11,426,874 21,500,963	7,150,349 4,284,996	6,016,579 3,605,560	8,250,000 8,250,000	5,790,000 5,790,000	252,228 297,091	4,284,996 11,448,867	0	0	4,284,996 11,448,867	3,605,560 9,633,517			
1958	15,862,511	11,448,867	9,633,517	8,250,000	5,790,000	386,845	12,884,533	0	0	12,884,533	10,841,542			
1959 1960	9,598,169 11,524,160	12,884,533 8,090,903	10,841,542 6,807,998	8,250,000 8,250,000	5,790,000 5,790,000	351,798 272,663	8,090,903 5,302,401	0	0	8,090,903 5,302,401	6,807,998 4,461,644			
1961 1962	10,010,259 17,377,609	5,302,401 1,073,241	4,461,644 903,066	8,250,000 8,250,000	5,790,000 5,790,000	199,419 188,150	1,073,241 4,222,699	0	0	1,073,241 4,222,699	903,066			
1963	8,840,900	4,222,699	3,553,142	8,250,000	5,790,000	176,949	-1,153,349	0	1,153,349	4,222,033	3,553,142 0			
1964 1965	10,863,586 19,875,027	0	0	8,250,000 8,250,000	5,790,000 5,790,000	132,876 191,775	-3,309,290 5,643,252	0	3,309,290 0	0 5,643,252	0 4,748,449			
1966	10,679,844	5,643,252	4,748,449	8,250,000	5,790,000	213,377	2,069,719	0	0	2,069,719	1,741,541			
1967 1968	11,670,830 13,739,932	2,069,719 0	1,741,541 0	8,250,000 8,250,000	5,790,000 5,790,000	154,478 132,876	-453,929 -432,944	0	453,929 432,944	0	0			
1969	15,272,159	0	0	8,250,000	5,790,000	144,231	1,087,928	0	0	1,087,928	915,425			
1970 1971	15,344,136 15,493,659	1,087,928 2,224,615	915,425 1,871,877	8,250,000 8,250,000	5,790,000 5,790,000	167,449 192,476	2,224,615 3,485,798	0	0	2,224,615 3,485,798	1,871,877 2,933,084			
1972	13,186,637	3,485,798	2,933,084	8,250,000	5,790,000	194,700	2,437,734	0	0	2,437,734	2,051,203			
1973 1974	18,650,193 13,285,426	2,437,734 6,818,443	2,051,203 5,737,301	8,250,000 8,250,000	5,790,000 5,790,000	229,483 264,568	6,818,443 5,799,301	0	0	6,818,443 5,799,301	5,737,301 4,879,755			
1975	17,072,661	5,799,301	4,879,755	8,250,000	5,790,000 5,790,000	282,634	8,549,329	0	0	8,549,329 5,542,932	7,193,734 4,664,036			
1976 1977	11,313,561 5,551,188	8,549,329 5,542,932	7,193,734 4,664,036	8,250,000 8,250,000	5,790,000	279,958 190,728	5,542,932 -3,136,608	0	3,136,608	0	0			
1978 1979	15,335,909 17,825,429	0 1,151,019	0 968,512	8,250,000 8,250,000	5,790,000 5,790,000	144,889 194,383	1,151,019 4,742,065	0	0	1,151,019 4,742,065	968,512 3,990,156			
1980	17,927,076	4,742,065	3,990,156	8,250,000	5,790,000	269,618	8,359,523	0	0	8,359,523	7,034,025			
1981 1982	9,015,200 17,489,400	8,359,523 3,082,427	7,034,025 2,593,672	8,250,000 8,250,000	5,790,000 5,790,000	252,296 230,812	3,082,427 6,301,015	0	0	3,082,427 6,301,015	2,593,672 5,301,916			
1983	24,361,989	6,301,015	5,301,916	8,250,000	5,790,000	368,292	16,254,712	0	0	16,254,712	13,677,340			
1984 1985	25,359,376 21,246,109	16,254,712 26,989,865	13,677,340 22,710,311	8,250,000 8,250,000	5,790,000 5,790,000	584,223 722,778	26,989,865 33,473,196	0 3,943,165	0	26,989,865 29,530,030	22,710,311 24,847,704			
1986	23,013,446	29,530,030	24,847,704	8,250,000	5,790,000	749,290	37,754,186	8,224,156	0	29,530,030	24,847,704			
1987 1988	15,640,478 11,456,357	29,530,030 29,530,030	24,847,704 24,847,704	8,250,000 8,250,000	5,790,000 5,790,000	749,290 714,863	30,381,219 26,231,523	851,188 0	0	29,530,030 26,231,523	24,847,704 22,072,213			
1989	9,921,847	26,231,523	22,072,213	8,250,000	5,790,000	630,871	21,482,499	0	0	21,482,499	18,076,202			
1990 1991	9,639,803 12,170,021	21,482,499 16,552,453	18,076,202 13,927,871	8,250,000 8,250,000	5,790,000 5,790,000	529,850 454,137	16,552,453 14,228,336	0	0	16,552,453 14,228,336	13,927,871 11,972,270			
1992	10,895,580	14,228,336 10,690,956	11,972,270	8,250,000	5,790,000	392,960	10,690,956	0	0	10,690,956	8,995,781			
1993 1994	18,160,118 11,125,503	14,416,153	8,995,781 12,130,306	8,250,000 8,250,000	5,790,000 5,790,000	394,921 399,215	14,416,153 11,102,440	0	0	14,416,153 11,102,440	12,130,306 9,342,020			
1995 1996	20,047,166	11,102,440	9,342,020	8,250,000 8,250,000	5,790,000	422,913	16,686,693	0	0	16,686,693	14,040,825			
1997	14,502,293 21,622,438	16,686,693 16,667,984	14,040,825 14,025,084	8,250,000	5,790,000 5,790,000	481,001 554,161	16,667,984 23,696,262	0	0	16,667,984 23,696,262	14,025,084 19,938,947			
1998 1999	16,798,378 15,934,210	23,696,262 25,805,114	19,938,947	8,250,000 8,250,000	5,790,000 5,790,000	649,526 684,165	25,805,114 27,015,159	0	0	25,805,114 27,015,159	21,713,416 22,731,595			
2000	10,646,526	27,015,159		8,250,000	5,790,000	654,545	22,967,140	0	0	22,967,140	19,325,436			
Total									8,486,120					
Averages:	40.000.00-			0.050.00	E 700 00-	040.045				F 400 45-	4.040.000	Percentage shortage =		
1953-1977 1931-1977	13,088,628 13,594,590			8,250,000	5,790,000 5,790,000	249,013 359,902		0	339,445 180,556	5,133,193 10,563,561	4,319,266 8,888,587	5.86% 3.12%		
1906-2000	15,284,742			8,250,000	5,790,000	491,413		911,740	89,328	17,141,586	14,423,590	1.54%		

Run 3 - Maintain CRSP Minimum Power Pools, 7.50 maf Lower Basin Delivery, No Shortage

Per		CR Natural Flow at Lee	Total Carry- Over	CRSP Carry-	Lower Basin	Upper	Shared CRSP I	Net Available			UC Basin Year-end			
18.00.001   18.00.001   28.00.001   24.0	CY	Ferry	Storage	Over	Delivery	Basin Use	Evap	to Store			Storage		Variables	
1241647   252000   246776   70000   25000   2500000   250000   250000   250000   250000   250000   250000   2500000   250000   250000   250000   250000   250000   250000   2500000   250000   250000   250000   250000   250000   250000   2500000   250000   250000   250000   250000   250000   250000   2500000   250000   250000   250000   250000   250000   250000   2500000   250000   250000   250000   250000   250000   250000   2500000   250000   250000   250000   250000   250000   250000   2500000   250	1906	18,550,021	29,530,030	24,847,704	7,500,000	6,300,000	749,290	33,530,761	4,000,731	0	29,530,030	24,847,704	Storage	
14,000,00   20,000,00   20,0	1908	12,218,817	29,530,030	24,847,704	7,500,000	6,300,000	725,218	27,223,629	0	0	27,223,629	22,907,009	Bank Storage	4%
1862  1862	1910	14,650,616	29,530,030	24,847,704	7,500,000	6,300,000	749,290	29,631,356	101,326	0	29,530,030	24,847,704	UB Demand Level	6,300,000 af/yr
Part   1,156,000   20,167   20,000													LB Delivery	7,500,000 af/yr
1.560.257   2.50.000   2.64.770   7.50.000   2.60.000   7.50.000														
Part   120-200.   120-200.   120-207.   120-200.   12	1915	13,623,277	29,530,030	24,847,704	7,500,000	6,300,000	739,725	28,613,582	0	0	28,613,582	24,076,569		F07 000 -44
1961   1961   1962	1917	22,942,804	29,530,030	24,847,704	7,500,000	6,300,000	749,290	37,923,544	8,393,514	0	29,530,030	24,847,704		
1921   12-25-25-71   12-25-25-25   12-25-25-25   12-2							729,686						Shortage Years	Shortage
1962   16.44716    26.0000   24.47734   75.0000   20.00000   74.5754   75.0000   20.00000   74.5754   75.0000   74.5754   74													1963	0 af
1987   1987	1922	18,447,198	29,530,030	24,847,704	7,500,000	6,300,000	749,290	33,427,938	3,897,908		29,530,030	24,847,704	1964	0 af
1921   1921   1921   1922	1924	13,877,798	29,530,030	24,847,704	7,500,000	6,300,000	742,354	28,865,474	0	0	28,865,474	24,288,521	1968	0 af
1985   1965-139   19													1977	0 at
1985   18,958   28,													NM allocation(w/o evap)	703,125 af/yr
1941   1,41,41   2,500,000   2,44,770   7,500,000   0,500,000	1929	21,829,585	29,530,030	24,847,704	7,500,000	6,300,000	749,290	36,810,325	7,280,295		29,530,030	24,847,704		
1931   1,15,5,500   2,46,5,005   2,25,5,5,6,7   5,000,00   2,000,00   67,9,6   1,000,00   1,000,0	1931	8,474,134	29,530,030	24,847,704	7,500,000	6,300,000	686,538	23,517,626	0	0	23,517,626	19,788,636	primarily charged against NM's	s allocation. Shared
1985   12,003.349   13,081.960   13,489.00   13,489.00   13,489.00   12,003.05   13,489.00   13,003.		17,422,187 12,183,500		22,285,545			661,949		0	0	24,206,607	20,368,371		emoved from UC
1464,8473													Total Upper Basin depletion, in	nc. CRSP evap:
1989   161-48-391   4,986-5671   12,552-573   7,700,000   0,800,000   48,585   18,700,055   0   0   19,750,055   0,777,018   109-5000   0,827,200 shy	1936	14,648,873	14,411,681	12,126,543	7,500,000	6,300,000	437,996	14,822,558	0	Ō	14,822,558	12,472,271	1953-1977	6,620,057 af/yr
1944   0.931.657   1.56.22-89   31,445.95   7.500.00   0.300.00   41,239   42,235   0.0   11,339.862   0.0   11,339.862   0.0   13,339.862   0.0	1938	18,148,319	14,885,671	12,525,376	7,500,000	6,300,000	483,935	18,750,055	0	0	18,750,055	15,777,018		
1942 17.228.138 17.228.138 17.228.238 14.494.228 7.500.00 6.00.000 52.2737 20.000 0.000.000 1927.77 0 0 0 0 0.000.775 15.208.238 1977.84 1974 22.288 6 1 1974 1974 1974 1974 1974 1974 1974 19														
1944   13,731.401   20,172.202   16,98.64.10   7,500.000   5,000.0														203.226 af
1946 14-140.529 0.2031.321 17.275.84 7.500.00 0.500.00 0.500.00 0.00 0.00 0.	1943	13,731,401	20,127,925	16,936,410	7,500,000	6,300,000	546,608	19,512,717	0	0	19,512,717	16,418,751	1972	226,985 af
1947 16,49,496 17,084,998 14,376,93 7,000,000 63,000,000 511,77 19,212,705 0 0 19,212,705 16,166,307 177,000,000 63,000,000 512,244 20,002,755 0 0 20,007,75 180,000 177 112,291 at 1940 16,335,54 20,000,755 18,000,000 7,000,000 177,000 177,000,000 177,000,000 177,000,000 177,000,000 177,000 177,000 177,000,000 177,000,000 177,000 177,000,000 177,000,000 177,000 177,000 177,000,000 177,000 177,000,000 177	1945	14,140,528	20,531,321	17,275,843	7,500,000	6,300,000	559,168	20,312,681	0	0	20,312,681	17,091,871	1974	196,384 af
1949 16,933,564 20,000,755 16,88,978 7,000,000 6,000,000 677,249 22,566,098 0 0 2,256,098 18,987,982 1978 152,1978 153,559 at 1919 12,250,684 21,1316,839 17,000,000 6,000,000 508,485 11,436,000 1,130,000 18,987,982 1978 1980 151,835,99 at 1919 12,250,684 21,1316,839 17,500,000 6,000,000 68,845 11,436,000 18,987,982 1978 1980 151,835,99 at 1919 1981 1980 1980 1980 1980 1980 1980														
1990 13.140.416 2.256.084 2.315.086 17.985.796 7.500.000 6.300.000 583.886 17.485.796 0 0 12.315.6389 17.985.796 1990 153.559 at 1990 153.559														
1962 20,805,422 1 9,483,047 16,376,967 7,500,000 63,000,000 608,972 25,983,374 19,007,686 19,000 638,972 25,983,374 19,007,686 19,000,000 638,972 25,983,374 19,007,686 19,000,000 638,972 25,983,374 19,007,686 19,000,000 638,972 25,983,374 19,007,686 19,000,000 63,	1950	13,140,416	22,566,096	18,987,982	7,500,000	6,300,000	590,873	21,315,639	0	0	21,315,639	17,935,799	1979	153,559 af
1964 8, 466, 102 22,883,74 1907/589 7,500,000 630,000 452,665 1908 7 1908 14,426,74 11,223,37 1033,229 7,500,000 630,000 452,665 1908 14,426,74 11,223,37 1033,229 7,500,000 630,000 482,665 1908 14,426,74 11,223,37 1033,229 7,500,000 630,000 482,665 1908 1908 11,426,74 11,223,37 1033,229 7,500,000 630,000 483,620 1908 1908 11,426,74 11	1952	20,805,422	19,463,047	16,376,957	7,500,000	6,300,000	605,942	25,862,527	0	0	25,862,527	21,761,725	1900	161,093 ai
1966   14-26,874   11-262,937   10.033.259   7.500,000   6.300,000   6.300,000   401,055   64-7397   0   0   9,197-489   7.739.121   1968   15,500,065   9,197-489   7.739.121   7.500,000   6.300,000   401,055   64-7397   0   0   16,066,289   15,201,670   1969   15,524,610   13,534,132   11,277-81   7.500,000   6.300,000   34-281   6.673,870   0   0   16,066,289   15,201,670   1961   10,010,259   10,742,407   9,039,075   7.500,000   6.300,000   34-281   6.683,836   0   0   6.683,836   5.865,738   1962   17,377,609   6.683,836   5.865,738   7.500,000   6.300,000   34-281   6.683,836   0   0   6.683,836   5.865,738   1963   18,640,900   9,910,388   8.383,990   7.500,000   6.300,000   25,511   4.666,284   0   0   4.666,284   3262,381   1964   16,683,836   4.668,836   4.668,836   4.6683,836														
1957 2,150,0963 9,197,499 7,739,121 7,500,000 6,000,000 49,055 16,467,397 0 0 16,479,397 13,881,644 1959 15,862,511 16,862,281 15,201,670 7,500,000 6,000,000 49,055 13,403,132 0 0 13,403,132 11,277,811 1960 11,524,160 13,403,132 11,277,811 7,500,000 63,000 28,885 13,403,132 0 0 13,403,132 11,277,811 1960 11,524,160 13,403,132 11,277,811 7,500,000 63,000 28,885 13,403,132 0 0 13,403,132 11,277,811 1962 17,377,600 6,838,386 6,565,733 7,500,000 63,000 00 95,587 9,910,386 0 0 9,910,386 8,388,900 1963 1964 10,865,286 4,666,284 3,266,391 7,500,000 63,000 00 25,576 44,666,284 0 0 46,662,284 3,266,391 1965 1967,000 197,000 197,571 1,532,299 0 0 1,532,299 1,289,335 1966 1967,000 40,403,473,373,475 1967,000 197,571 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 1967,000 197,671 1,532,299 1,289,335 197,671 197,77														
1990   9,598,169   18,066,288   18,201,670   7,500,000   6,000   61,325   13,403,132   0   0   13,403,132   1,1277,911	1957	21,500,963	9,197,489	7,739,121	7,500,000	6,300,000	401,055	16,497,397	0		16,497,397	13,881,544		
1961   10,010,229   10,742,407   9,039,075   7,500,000   6,300,000   314,281   6,683,386   0   0   6,583,386   0   0   6,583,386   0   0   6,583,386   0   0   6,583,386   0   0   6,583,386   0   0   6,583,386   0   0   6,583,386   0   0   6,583,386   0   0   6,583,386   0   0   0   6,583,386   0   0   0   0   0   0   0   0   0	1959	9,598,169	18,066,288	15,201,670	7,500,000	6,300,000	461,325	13,403,132	0	Ō	13,403,132	11,277,911		
1963   8,840,900   9,911,0398   8,338,990   7,500,000   6,300,000   25,751   1,532,299   0   1,532,299   1,289,335   1,289,3														
1964   10,863,586   4,666,284   3,926,391   7,800,000   6,300,000   29,7571   1,532,299   0   1,832,299   1,289,335   1,289,335   7,800,000   6,300,000   25,959   7,381,417   0   0   7,381,417   6,211,008   1,280,336   1,280,336   1,280,335   1														
1966   10,679,844   7,381,417   6,211,008   7,500,000   6,300,000   12,8764   4,009,497   0 0   4,009,497   3,373,745     1967   11,670,830   4,009,497   3,373,745   7,500,000   6,300,000   12,8764   4,009,497   0 0   1,887,986   1,423,036     1968   13,739,392   1,687,986   1,420,336   7,500,000   6,300,000   16,754   1,462,164   0 0   1,462,164   1,230,321     1970   15,344,136   2,757,407   2,320,188   7,500,000   6,300,000   7,679,100   7,574,007   0 0   2,757,407   2,320,188     1971   15,434,659   4,677,125   3,477,479   7,500,000   6,300,000   23,8363   5,571,46   0 0   5,557,146   4,675,96     1972   13,186,637   5,571,46   4,675,996   7,500,000   6,300,000   23,8363   5,571,46   0 0   5,557,146   4,675,96     1973   13,265,426   9,275,229   7,804,534   7,500,000   6,300,000   33,820   3,757,90   0 0   9,275,229   7,804,534     1974   13,265,426   9,275,229   7,804,534   7,500,000   6,300,000   33,925   1,375,790   0 0   1,375,790   9,572,028     1975   11,313,61   11,375,780   9,572,028   7,500,000   6,300,000   33,925   1,375,790   0 0   1,375,790   9,572,028     1976   11,313,61   11,375,780   9,572,028   7,500,000   6,300,000   23,925   1,375,790   0 0   1,375,790   9,572,028     1977   1,326,529   1,463,768   1,241,689   7,500,000   6,300,000   23,322   5,265,672   0   0   5,265,672   4,447,764     1980   1,726,707   1,726,70	1964	10,863,586	4,666,284	3,926,391	7,500,000	6,300,000	197,571	1,532,299			1,532,299	1,289,335		
1968   13,739,932   1,887,986   1,420,338   7,500,000   6,300,000   165,754   1,462,164   0   0   1,462,164   1,230,321	1966	10,679,844	7,381,417	6,211,008	7,500,000	6,300,000	251,764	4,009,497	0	0	4,009,497	3,373,745		
1970	1968	13,739,932	1,687,986	1,420,336	7,500,000	6,300,000	165,754	1,462,164	0	0	1,462,164	1,230,321		
1971   15,498,6599   4,097,125   3,447,479   7,500,000   6,300,000   239,970   7,703,812   0   0   4,703,812   3,957,968   1973   18,660,193   4,703,812   3,957,968   7,500,000   6,300,000   239,970   0   0   9,275,229   7,804,534   7,104,142   7,500,000   6,300,000   317,801   8,442,854   0   0   8,442,854   7,104,142   7,500,000   6,300,000   317,801   8,442,854   0   0   8,442,854   7,104,142   7,500,000   6,300,000   340,828   11,375,790   0   0   11,375,790   9,572,028   7,804,534   7,193,057   1976   1,375,790   7,500,000   6,300,000   340,828   4,642,854   0   0   8,442,854   7,193,057   7,500,000   6,300,000   340,828   4,642,854   0   0   8,442,854   7,193,057   7,500,000   6,300,000   340,828   4,642,854   0   0   8,442,854   7,193,057   7,500,000   6,300,000   340,828   4,642,854   0   0   8,442,854														
1973   18,650,193   4,703,812   3,957,968   7,500,000   6,300,000   278,776   9,275,229   0   0   9,275,229   7,804,534   7,104,142   7,500,000   6,300,000   37,801   8,442,854   0   0   8,442,854   7,104,142   7,500,000   6,300,000   339,725   11,375,790   0   0   11,375,790   9,757,028   7,750,007   7,500,000   6,300,000   3,900,000   3	1971	15,493,659	4,097,125	3,447,479	7,500,000			5,557,146	0		5,557,146	4,675,996		
1975 17,072.661 8,442.854 7,104,142 7,500,000 6,300,000 339,725 11,375,790 0 0 11,375,790 9,572.028 7,500,000 6,300,000 340,875 11,375,790 0 0 11,375,790 9,572.028 7,500,000 6,300,000 12,382,8548,824 0 0 8,548,524 7,193,057 7,500,000 6,300,000 12,28,99 76,813 0 0 76,813 64,833 7,500,000 6,300,000 12,28,99 76,813 0 0 76,813 64,833 7,500,000 6,300,000 12,28,99 76,813 0 0 76,813 64,833 7,500,000 6,300,000 12,382,59 1,463,766 0 0 1,463,766 1,231,689 1990 17,927,076 5,258,872 1,447,736 7,500,000 6,300,000 203,322 5,285,872 0 0 5,285,872 4,447,736 1980 17,927,076 5,258,872 4,447,736 7,500,000 6,300,000 270,684 4,074,132 0 0 4,074,132 3,428,132 1982 17,489,400 4,074,132 3,428,132 1982 17,489,400 4,074,132 3,428,132 1982 17,489,400 4,074,132 3,428,132 1982 14,381,899 7,590,754 6,318,996 7,500,000 6,300,000 285,742 17,676,001 0 0 7,509,754 6,318,996 1989 1989 2,369,314 2,408,314 2,408,312 2,408,414 2,408,1392 1985 2,1246,109 2,861,314 2,408,1392 1985 2,1246,109 2,861,314 2,408,1392 1985 2,1246,109 2,861,314 2,408,1392 1985 2,1246,109 2,861,314 2,408,1392 1985 1,463,357 29,530,030 24,847,704 7,500,000 6,300,000 739,785 3,532,638 5,795,807 0 28,530,030 24,847,704 1987 15,804,074 29,530,030 24,847,704 7,500,000 6,300,000 749,290 37,994,168 8,464,156 0 29,530,030 24,847,704 1987 1991 12,170,021 17,250,397 14,151,148 18,304,985 9,921,847 17,250,000 6,300,000 749,290 37,994,168 8,464,156 0 29,530,030 24,847,704 1991 12,170,021 17,250,397 14,151,148 18,304,985 9,924,847 7,94 1991 12,170,021 17,250,397 14,151,148 18,304,985 0 15,143,382 12,747,273 1992 10,895,580 15,143,382 12,747,273 7,500,000 6,300,000 749,290 37,994,168 8,464,156 0 29,530,030 24,847,704 14,151,148 14,1	1973	18,650,193	4,703,812	3,957,968	7,500,000	6,300,000	278,776	9,275,229	0	0	9,275,229	7,804,534		
1977   5,551,188   8,848,524   7,193,057   7,500,000   6,300,000   14,867,66   0 0 1,463,766   0 0 1,463,766   1,231,669   1,683,769   1	1975	17,072,661	8,442,854	7,104,142	7,500,000	6,300,000	339,725	11,375,790	0	0	11,375,790	9,572,028		
1979 17,825,429 1,463,766 1,231,669 7,500,000 6,300,000 203,322 5,285,872 0 0 5,285,872 4,447,736   1980 17,927,076 5,285,872 4,447,736 7,500,000 6,300,000 270,684 4,074,132 0 0 4,074,132 3,428,132 1 1982 17,489,400 4,074,132 3,428,132 7,500,000 6,300,000 270,684 4,074,132 0 0 7,509,754 6,318,996   1983 24,361,989 7,509,754 6,318,996 7,500,000 6,300,000 253,778 7,509,754 0 0 7,509,754 6,318,996   1983 24,361,989 7,509,754 6,318,996 7,500,000 6,300,000 395,742 17,676,001 0 0 17,676,001 14,873,268   1984 25,359,376 17,676,001 14,873,268 7,500,000 6,300,000 739,785 35,252,633 5,795,607 0 29,530,030 24,847,704   1986 23,013,446 29,530,030 24,847,704 7,500,000 6,300,000 749,290 37,994,186 8,464,156 0 29,530,030 24,847,704   1987 15,640,478 29,530,030 24,847,704 7,500,000 6,300,000 717,342 26,469,044 0 0 26,469,044 22,272,073 1 1989 9,921,847 26,469,044 22,272,073 7,500,000 6,300,000 717,342 26,469,044 0 0 26,469,044 22,272,073 1 1990 19,639,803 21,952,634 18,471,791 7,500,000 6,300,000 741,035 15,149,832 0 0 12,952,039 14,515,148 1 1991 12,170,021 17,250,397 14,515,148 7,500,000 6,300,000 471,035 15,149,832 12,747,273 1 1992 10,895,580 15,149,382 12,747,273 7,500,000 6,300,000 410,456 1 1,830,495 15,643 7,500,000 6,300,000 410,456 1 1,830,495 15,643 7,500,000 6,300,000 420,941 15,769,579 0 15,769,672 13,269,209 10,657,255 1 1996 20,047,166 12,665,519 10,657,255 7,500,000 6,300,000 420,941 15,769,579 0 18,835,001 15,528,748 16,640,23 26,89,293 19,99 16,344,500 1 15,528,748 15,500,000 6,300,000 420,941 15,769,579 0 18,835,001 15,528,748 16,640,23 26,89,293 17,601,610 6,300,000 420,941 15,769,579 0 0 25,667,579 10,657,255 10,657,599 10,657,255 10,667,579 10,687,579 10,600,600,600,600 14,845,500 1 13,601,780 11,360,918 0 0.00% 10,646,526 29,530,030 24,847,704 7,500,000 6,300,000 420,941 15,769,579 0 0 25,667,579 21,597,689 10,600,600,600 10,646,526 29,530,030 24,847,704 7,500,000 6,300,000 420,941 15,769,579 0 0 25,667,579 21,597,689 10,600,600,600,600,600,600,600,600 12,660,600 10,640,600 10,640,600 10,640,600 10,640,6														
1980 17,927,076 5,285,872 4,447,736 7,500,000 6,300,000 283,332 9,129,617 0 0 9,129,617 7,682,011  1981 9,015,200 9,129,617 7,682,011  1982 17,489,400 4,074,132 3,428,132 7,500,000 6,300,000 257,687 4 0 0 7,509,754 6,318,996  1983 24,361,889 7,509,754 6,318,996 7,500,000 6,300,000 385,742 17,676,001 0 0 17,676,001 14,873,268  1984 25,399,376 17,676,001 14,873,268 7,500,000 6,300,000 789,785 35,325,638 5,795,607 0 29,530,030 24,847,704  1986 23,013,446 29,530,303 24,847,704 7,500,000 6,300,000 749,290 30,521,219 1,091,188 0 29,530,030 24,847,704  1987 15,640,478 29,530,300 24,847,704 7,500,000 6,300,000 773,742 20 6,809,44 0 0 26,689,644 22,272,073  1989 9,921,847 26,469,044 22,272,073 7,500,000 6,300,000 71,7342 20 6,809,44 0 0 26,469,644 22,720,73  1989 19,509,803 21,952,634 18,471,791 7,500,000 6,300,000 471,035 15,149,382 12,747,273  1991 12,170,021 17,250,397 14,515,148 7,500,000 6,300,000 471,035 15,149,382 0 0 15,149,382 12,747,273  1992 10,895,580 15,149,382 12,747,273 7,500,000 6,300,000 414,467 17,569,672 0 0 15,696,672 13,269,209  1994 11,125,503 15,769,672 13,269,209 7,500,000 6,300,000 457,683 18,65,001 11,255,033 18,160,118 11,830,495 9,954,634 7,500,000 6,300,000 457,683 18,65,001 11,255,033 18,450,0118 11,830,495 9,954,634 7,500,000 6,300,000 47,68,83 18,961,18 11,830,495 9,954,634 7,500,000 6,300,000 457,683 18,65,001 15,528,748 7,500,000 6,300,000 457,683 18,65,001 0 18,657,255 12,662,399 17,616,18 1,500,408 1996 16,769,378 25,667,579 0 0 28,662,399 17,616,18 1,500,408 1996 16,662,239 18,455,001 15,528,748 7,500,000 6,300,000 789,782 25,862,399 0 0 28,662,399 21,761,618 7,500,000 6,300,000 789,782 25,862,399 0 0 28,662,399 21,761,618 7,500,000 6,300,000 789,782 25,862,399 0 0 28,662,399 21,761,618 7,500,000 6,300,000 789,782 25,862,399 0 0 28,662,399 21,761,618 7,500,000 6,300,000 789,782 25,862,399 0 0 28,662,399 21,761,618 7,500,000 6,300,000 789,782 25,862,399 0 0 28,667,579 21,597,689														
1982 17,489,400 4,074,132 34,28,132 7,500,000 6,300,000 253,778 7,509,754 0 0 7,509,754 6,318,996   1983 24,361,899 7,509,754 6,318,996 7,500,000 6,300,000 395,742 17,676,001 0 0 17,676,001 14,873,268   1984 25,359,376 17,676,001 14,873,268 7,500,000 6,300,000 616,064 28,619,314 0 0 28,619,314 24,081,392   1985 21,246,109 28,619,314 24,081,392 7,500,000 6,300,000 749,290 35,225,638 5,795,607 0 29,530,030 24,847,704   1986 23,013,446 29,530,030 24,847,704 7,500,000 6,300,000 749,290 30,621,219 1,091,188 0 29,530,030 24,847,704   1987 11,466,357 29,530,030 24,847,704 7,500,000 6,300,000 773,422 0 30,621,219 1,091,188 0 29,530,030 24,847,704   1988 11,466,357 29,530,030 24,847,704 7,500,000 6,300,000 773,422 0 30,621,219 1,091,188 0 29,530,030 24,847,704   1989 9,921,847 26,469,044 22,272,073 7,500,000 6,300,000 773,422 0 30,621,219 1,091,188 0 29,530,030 24,847,704   1990 9,639,803 21,952,634 18,471,791 7,500,000 6,300,000 542,041 17,250,397 0 0 17,250,397 14,515,148   1991 12,170,021 17,250,397 14,515,148 7,500,000 6,300,000 471,035 15,149,382 12,747,273 7,500,000 1,300,000 410,467 11,830,495 0 0 15,149,382 12,747,273 1992 10,895,580 15,149,382 12,747,273 7,500,000 6,300,000 410,467 11,830,495 0 0 15,665,519 10,657,255 1995 1995 12,047,616 12,665,519 10,667,255 7,500,000 6,300,000 429,941 18,637,284 0 0 18,637,284 15,682,128 1998 16,789,378 25,862,399 21,761,618 7,500,000 6,300,000 476,883 18,65,001 0 0 18,650,001 15,582,748 1999 15,934,210 28,164,023 23,698,293 7,500,000 6,300,000 735,033 29,563,200 33,170 0 29,530,030 24,847,704 2000 10,646,526 29,530,030 24,847,704 7,500,000 6,300,000 708,978 25,667,579 0 0 18,651,410 7,111,342 0.00% 193,017,107 13,088,628 1 7,500,000 6,300,000 474,255 0 0 18,651,410 7,111,342 0.00% 133,017,80 113,60,918 0.00%	1980	17,927,076	5,285,872	4,447,736	7,500,000	6,300,000	283,332	9,129,617	0	0	9,129,617	7,682,011		
1984 25,359,376 17,676,001 14,873,268 7,500,000 6,300,000 739,785 25,225,638 5,795,607 0 28,519,314 24,081,392 17,004 0 0,300,000 739,785 25,225,638 5,795,607 0 29,530,030 24,847,704 1986 23,013,446 29,530,030 24,847,704 7,500,000 6,300,000 749,290 37,994,186 8,464,156 0 29,530,030 24,847,704 1987 11,640,478 29,530,030 24,847,704 7,500,000 6,300,000 749,290 30,621,219 1,091,188 0 29,530,030 24,847,704 1987 11,465,637 29,530,030 24,847,704 7,500,000 6,300,000 749,290 30,621,219 1,091,188 0 29,530,030 24,847,704 1,091,188 11,465,637 29,530,030 24,847,704 1,500,000 6,300,000 749,290 30,621,219 1,091,188 0 29,530,030 24,847,704 1,091,189 11,091,199 11,091,189 11,091,189 11,091,199 11,091,199 11,091,199 11,091,	1982	17,489,400	4,074,132	3,428,132	7,500,000	6,300,000	253,778	7,509,754	0	0	7,509,754	6,318,996		
1986         23,013,446         29,530,030         24,847,704         7,500,000         6,300,000         749,290         37,994,186         8,464,156         0         29,530,030         24,847,704         7,500,000         6,300,000         749,290         30,621,219         1,091,188         0         29,530,030         24,847,704         7,500,000         6,300,000         717,342         26,469,044         0         26,469,044         22,272,073         1989         9,921,847         26,469,044         22,272,073         7,500,000         6,300,000         632,572         21,952,634         0         21,952,634         18,471,791         1898         9,921,847         26,469,044         22,272,073         7,500,000         6,300,000         632,627         21,952,634         0         21,952,634         18,471,791         18,971,791         14,941,791         7,500,000         6,300,000         542,041         17,503,977         0         0         17,552,397         14,515,148         14,500,000         6,300,000         420,467         11,830,495         0         11,549,382         12,747,273         27,472,73         7,500,000         6,300,000         420,941         11,830,495         0         15,149,382         12,747,273         13,269,209         7,500,000         6,300,000         420,941	1984	25,359,376	17,676,001	14,873,268	7,500,000	6,300,000	616,064	28,619,314	0	0	28,619,314	24,081,392		
1987         15,640,478         29,530,030         24,847,704         7,500,000         6,300,000         749,290         30,621,219         1,091,188         0         29,530,030         24,847,704         4         4         4         4         2,953,030         24,847,704         4         4         4         2         2,530,030         24,847,704         4         5         6         6         9         4         0         26,689,044         0         26,689,044         22,272,073         18         9,921,847         26,689,044         22,272,073         7,500,000         6,300,000         542,041         17,250,397         0         17,250,397         14,515,148         9         14,417,91         7,500,000         6,300,000         471,035         15,149,382         12,777,273         7,500,000         6,300,000         471,035         15,149,382         12,777,273         7,500,000         6,300,000         414,516,382         0         15,149,382         12,747,273         7,500,000         6,300,000         414,516,945         0         0         15,689,672         13,804,955         0         11,830,495         9,954,634         14,502,209         14,516,148         14,502,209         14,502,209         14,502,203         15,769,672         13,689,672         13,6														
1989         9,921,847         26,489,044         22,272,073         7,500,000         630,000         638,257         21,952,634         0         0         21,952,634         18,471,791           1990         9,639,803         21,952,634         18,471,791         7,500,000         6,300,000         542,041         17,250,397         0         0         12,1952,634         18,471,791           1991         12,170,021         17,250,397         14,515,148         7,500,000         6,300,000         414,467         11,830,495         0         15,149,382         12,747,273         9,954,634           1993         18,160,118         11,830,495         9,954,634         7,500,000         6,300,000         420,941         15,769,672         0         0         15,769,672         13,269,209         9,954,634         9,954														
1991   12,170,021   17,250,397   14,515,148   7,500,000   6,300,000   417,467   11,830,495   0   0   15,149,382   12,747,273   7,500,000   6,300,000   414,467   11,830,495   0   0   15,769,672   13,269,209   7,500,000   7,500,000   7,500,000   429,941   15,769,672   0   0   15,769,672   13,269,209   7,500,000   7,500,000   7,500,000   429,945   15,469,342   15,662,193   12,665,519   0   12,665,519   10,657,255   10,	1989	9,921,847	26,469,044	22,272,073	7,500,000	6,300,000	638,257	21,952,634	0	0	21,952,634	18,471,791		
1993       18,180,118       11,1830,495       9,954,634       7,500,000       6,300,000       429,656       12,665,519       0       0       15,769,672       13,269,209         1994       11,125,503       15,769,672       13,269,209       7,500,000       6,300,000       429,656       12,665,519       0       0       12,665,501       10,657,255         1995       20,047,166       12,665,519       10,657,255       7,500,000       6,300,000       520,011       18,455,001       0       18,637,284       15,682,748         1997       21,622,438       18,637,284       15,682,128       7,500,000       6,300,000       597,322       28,682,399       0       0       25,862,399       21,761,618         1998       16,788,378       25,862,399       21,761,618       7,500,000       6,300,000       697,624       28,164,023       0       28,164,023       23,698,293         1999       15,934,210       28,164,023       23,698,293       7,500,000       6,300,000       708,978       25,667,579       0       28,667,579       21,597,689     Total  Averages:  1953-1977  13,088,628	1991	12,170,021	17,250,397	14,515,148	7,500,000	6,300,000	471,035	15,149,382	0	0	15,149,382	12,747,273		
1994   11,125,503   15,769,672   13,269,209   7,500,000   6,300,000   42,9,656   12,665,519   0   0   12,665,519   10,657,255   1995   20,047,168   18,650,01   0   0   18,455,001   15,528,748   1996   14,502,293   18,455,001   15,528,748   7,500,000   6,300,000   457,683   18,455,001   0   0   18,455,001   15,528,748   1996   14,502,293   18,455,001   15,528,748   7,500,000   6,300,000   529,732   25,862,399   0   0   25,862,399   21,761,618   1997   16,872,844   15,682,128   1997   15,934,210   28,164,023   23,698,293   7,500,000   6,300,000   735,033   29,563,200   33,170   0   29,530,030   24,847,704   29,530,030   29,530,030   29,530,030   29,530,030   29,530,030   29,530,030   2		18,160,118		9,954,634	7,500,000			15,769,672				13,269,209		
1996       14,502,293       18,485,001       15,528,748       7,500,000       6,300,000       590,011       18,637,284       0       0       18,637,284       15,682,128       1,5628,748       1,5628,748       1,5628,748       1,5628,748       1,5628,748       7,500,000       6,300,000       6,300,000       6,300,000       6,300,000       6,300,000       6,300,000       6,300,000       6,300,000       7,500,000       6,300,000       7,500,000       7,	1994	11,125,503	15,769,672	13,269,209	7,500,000	6,300,000	429,656	12,665,519	0	0	12,665,519	10,657,255		
1998       16,798,378       25,862,399       21,761,618       7,500,000       6,300,000       696,754       28,164,023       0       0       28,164,023       23,698,293         1999       15,934,210       28,164,023       23,698,293       7,500,000       6,300,000       735,033       29,563,200       33,170       0       29,530,030       24,847,704         2000       10,646,526       29,530,030       24,847,704       7,500,000       6,300,000       708,978       25,667,579       0       0       28,667,579       21,597,689     Total  Averages:  1953-1977  13,088,628  7,500,000  6,300,000  6,300,000  6,300,000  6,300,000  20,057  0  0  0  13,501,780  13,601,780  11,360,918  0,00%  13,601,918  0,00%  13,601,918  1,360,918  1,	1996	14,502,293	18,455,001	15,528,748	7,500,000	6,300,000	520,011	18,637,284	0	0	18,637,284	15,682,128		
2000 10,646,526 29,530,030 24,847,704 7,500,000 6,300,000 708,978 25,667,579 0 0 25,667,579 21,597,689  Total Averages: 1953-1977 13,088,628 7,500,000 6,300,000 320,057 0 0 8,451,410 7,111,342 0.00% 1931-1977 13,594,590 7,500,000 6,300,000 421,255 0 0 13,501,780 11,360,918 0.00%	1998	16,798,378	25,862,399	21,761,618	7,500,000	6,300,000	696,754	28,164,023	0	0	28,164,023	23,698,293		
Total								29,563,200 25,667,579						
Averages:         Percentage shortage =           1953-1977         13,088,628         7,500,000         6,300,000         320,057         0         0         8,451,410         7,111,342         0.00%           1931-1977         13,594,590         7,500,000         6,300,000         421,255         0         0         13,501,780         11,360,918         0.00%										0				
<b>1931-1977</b> 13,594,590 7,500,000 6,300,000 421,255 0 0 13,501,780 11,360,918 0.00%	Averages:	13.088 628			7.500.000	6.300.000	320.057		0		8,451 410	7.111.342		
												11,360,918 15,907,129		

Run 4 - Maintain CRSP Minimum Power Pools, 7.50 maf Lower Basin Delivery, 6% Overall Shortage

	CR Natural Total Carry- Lower Shared Net UC Basin												
	Flow at Lee Ferry	Over Storage	CRSP Carry- Over	Basin Delivery	Upper Basin Use	CRSP Evap	Available to Store	Spill to LC	Shortage	Year-end Storage	CRSP Year-		
CY 1906	(plus) 18,550,021	(plus) 29,530,030	Storage 24.847.704	(minus) 7,500,000	(minus) 6,570,000	(minus) 749,290	(subtotal) 33,260,761	(minus) 3,730,731	(plus)	(equals) 29,530,030	end Storage 24,847,704	Variables Storage	30,167,576 af
1907	21,201,694	29,530,030	24,847,704	7,500,000	6,570,000	749,290	35,912,434	6,382,404	0	29,530,030	24,847,704	Sedimentation Rate (Active)	24,292 af/yr
1908 1909	12,218,817 22,356,301	29,530,030 26,956,418	24,847,704 22,682,168	7,500,000 7,500,000	6,570,000 6,570,000	722,429 722,429	26,956,418 34,520,290	0 4,990,260	0	26,956,418 29,530,030	22,682,168 24,847,704	Bank Storage Adjusted Storage (2060)	4% 29,530,030 af
1910 1911	14,650,616 15,499,729	29,530,030 29,363,098	24,847,704 24,707,241	7,500,000 7,500,000	6,570,000 6,570,000	747,548 747,548	29,363,098 30,045,280	0 515,249	0	29,363,098 29,530,030	24,707,241 24,847,704	UB Demand Level LB Delivery	6,570,000 af/yr 7,500,000 af/yr
1912	18,623,410	29,530,030	24,847,704	7,500,000	6,570,000	749,290	33,334,150	3,804,120	0	29,530,030	24,847,704		,,,
1913 1914	14,536,373 21,354,814	29,530,030 29,250,036	24,847,704 24,612,106	7,500,000 7,500,000	6,570,000 6,570,000	746,368 746,368	29,250,036 35,788,482	0 6,258,451	0	29,250,036 29,530,030	24,612,106 24,847,704		
1915 1916	13,623,277 20,142,892	29,530,030 28,346,371	24,847,704 23,851,728	7,500,000 7,500,000	6,570,000 6,570,000	736,936 736,936	28,346,371 33,682,327	0 4,152,296	0	28,346,371 29,530,030	23,851,728 24,847,704	Results Average CRSP Evap	487,445 af/yr
1917	22,942,804	29,530,030	24,847,704	7,500,000	6,570,000	749,290	37,653,544	8,123,514	0	29,530,030	24,847,704	Total Yield w/ CRSP evap	7,057,445 af/yr
1918 1919	15,865,939 12,651,369	29,530,030 29,530,030	24,847,704 24,847,704	7,500,000 7,500,000	6,570,000 6,570,000	749,290 726,897	30,576,679 27,384,502	1,046,649 0	0	29,530,030 27,384,502	24,847,704 23,042,374	Shortage Years	Shortage
1920 1921	22,287,632 22,526,781	27,384,502 29,530,030	23,042,374 24,847,704	7,500,000 7,500,000	6,570,000 6,570,000	726,897 749,290	34,875,237 37,237,521	5,345,207 7,707,491	0	29,530,030 29,530,030	24,847,704 24,847,704	1963	1,891,395 af
1922	18,447,198	29,530,030	24,847,704	7,500,000	6,570,000	749,290	33,157,938	3,627,908	0	29,530,030	24,847,704	1964	3,339,290 af
1923 1924	19,024,046 13,877,798	29,530,030 29,530,030	24,847,704 24,847,704	7,500,000 7,500,000	6,570,000 6,570,000	749,290 739,565	33,734,786 28,598,263	4,204,756 0	0	29,530,030 28,598,263	24,847,704 24,063,679	1967 1968	542,082 af 462,944 af
1925 1926	14,430,701	28,598,263 28,232,937	24,063,679 23,756,279	7,500,000 7,500,000	6,570,000	726,027 726,568	28,232,937 28,650,099	0	0	28,232,937	23,756,279	1977	3,385,340 af
1927	15,213,731 19,539,212	28,650,099	24,107,296	7,500,000	6,570,000 6,570,000	740,106	33,379,205	3,849,175	0	28,650,099 29,530,030	24,107,296 24,847,704	NM allocation(w/o evap)	733,500 af/yr
1928 1929	16,954,334 21,829,585	29,530,030 29,530,030	24,847,704 24,847,704	7,500,000 7,500,000	6,570,000 6,570,000	749,290 749,290	31,665,074 36,540,325	2,135,044 7,010,295	0	29,530,030 29,530,030	24,847,704 24,847,704	Note: NM allocation is exclusi	ve of its portion of
1930	14,621,041	29,530,030	24,847,704	7,500,000	6,570,000	747,242	29,333,829	0	0	29,333,829	24,682,613	CRSP evaporation. Navajo ev	aporation would be
1931 1932	8,474,134 17,422,187	29,333,829 23,058,267	24,682,613 19,402,113	7,500,000 7,500,000	6,570,000 6,570,000	679,696 642,479	23,058,267 25,767,975	0	0	23,058,267 25,767,975	19,402,113 21,682,166	primarily charged against NM's CRSP evaporation is already r	
1933 1934	12,183,500 6,178,192	25,767,975 23,237,129	21,682,166 19,552,614	7,500,000 7,500,000	6,570,000 6,570,000	644,346 530,032	23,237,129 14,815,289	0	0	23,237,129 14,815,289	19,552,614 12,466,154	demands.	
1935	12,630,349	14,815,289	12,466,154	7,500,000	6,570,000	422,695	12,952,943	0	0	12,952,943	10,899,105	Total Upper Basin depletion, in	
1936 1937	14,648,873 14,306,056	12,952,943 13,126,744	10,899,105 11,045,348	7,500,000 7,500,000	6,570,000 6,570,000	405,072 405,121	13,126,744 12,957,679	0	0	13,126,744 12,957,679	11,045,348 10,903,090	1953-1977 1931-1977	6,812,490 af/yr 6,923,418 af/yr
1938 1939	18,148,319	12,957,679	10,903,090 13,963,404	7,500,000 7,500,000	6,570,000	441,316 444,309	16,594,682	0	0	16,594,682 13,244,432	13,963,404 11,144,375	1906-2000	7,057,445 af/yr
1940	11,164,059 9,931,657	16,594,682 13,244,432	11,144,375	7,500,000	6,570,000 6,570,000	362,368	13,244,432 8,743,721	Ō	0	8,743,721	7,357,303		
1941 1942	20,116,678 17,225,136	8,743,721 14,415,805	7,357,303 12,130,013	7,500,000 7,500,000	6,570,000 6,570,000	374,594 461,903	14,415,805 17,109,038	0	0	14,415,805 17,109,038	12,130,013 14,396,203	Flow Adjustments: 1971	203,226 af
1943	13,731,401	17,109,038	14,396,203	7,500,000	6,570,000	481,454	16,288,986	0	0	16,288,986	13,706,179	1972	226,985 af
1944 1945	15,369,422 14,140,528	16,288,986 17,106,976	13,706,179 14,394,468	7,500,000 7,500,000	6,570,000 6,570,000	481,432 485,637	17,106,976 16,691,867	0	0	17,106,976 16,691,867	14,394,468 14,045,179	1973 1974	252,377 af 196,384 af
1946 1947	11,095,453 16,439,486	16,691,867 13,271,712	14,045,179 11,167,329	7,500,000 7,500,000	6,570,000 6,570,000	445,608 430,153	13,271,712 15,211,045	0	0	13,271,712 15,211,045	11,167,329 12,799,159	1975 1976	246,665 af 173,250 af
1948	15,139,294	15,211,045	12,799,159	7,500,000	6,570,000	456,786	15,823,553	0	0	15,823,553	13,314,546	1977	112,291 af
1949 1950	16,933,584 13,140,416	15,823,553 18,199,163	13,314,546 15,313,476	7,500,000 7,500,000	6,570,000 6,570,000	487,974 497,870	18,199,163 16,771,709	0	0	18,199,163 16,771,709	15,313,476 14,112,362	1978 1979	152,187 af 153,559 af
1951 1952	12,505,894 20,805,422	16,771,709 14,745,777	14,112,362 12,407,664	7,500,000 7,500,000	6,570,000 6,570,000	461,826 505,702	14,745,777 20,975,497	0	0	14,745,777 20,975,497	12,407,664 17,649,591	1980	161,893 af
1953	11,165,419	20,975,497	17,649,591	7,500,000	6,570,000	534,824	17,536,092	0	0	17,536,092	14,755,543		
1954 1955	8,496,102 9,413,908	17,536,092 11,525,995	14,755,543 9,698,416	7,500,000 7,500,000	6,570,000 6,570,000	436,199 321,520	11,525,995 6,548,383	0	0	11,525,995 6,548,383	9,698,416 5,510,062		
1956 1957	11,426,874 21,500,963	6,548,383 3,665,775	5,510,062 3,084,525	7,500,000 7,500,000	6,570,000 6,570,000	239,482 283,989	3,665,775 10,812,749	0	0	3,665,775 10,812,749	3,084,525 9,098,263		
1958	15,862,511	10,812,749	9,098,263	7,500,000	6,570,000	373,394	12,231,866	0	0	12,231,866	10,292,363		
1959 1960	9,598,169 11,524,160	12,231,866 7,422,030	10,292,363 6,245,181	7,500,000 7,500,000	6,570,000 6,570,000	338,005 258,535	7,422,030 4,617,655	0	0	7,422,030 4,617,655	6,245,181 3,885,472		
1961	10,010,259	4,617,655	3,885,472	7,500,000	6,570,000	184,963	372,950	0	0	372,950	313,815		
1962 1963	17,377,609 8,840,900	372,950 3,507,186	313,815 2,951,081	7,500,000 7,500,000	6,570,000 6,570,000	173,373 169,481	3,507,186 -1,891,395	0	1,891,395	3,507,186 0	2,951,081 0		
1964 1965	10,863,586 19,875,027	0	0	7,500,000 7,500,000	6,570,000 6,570,000	132,876 191,465	-3,339,290 5,613,562	0	3,339,290	5,613,562	0 4,723,467		
1966	10,679,844	5,613,562	4,723,467	7,500,000	6,570,000	212,454	2,010,952	0	0	2,010,952	1,692,093		
1967 1968	11,670,830 13,739,932	2,010,952 0	1,692,093 0	7,500,000 7,500,000	6,570,000 6,570,000	153,864 132,876	-542,082 -462,944	0	542,082 462,944	0	0		
1969 1970	15,272,159 15,344,136	0 1,058,238	0 890,442	7,500,000 7,500,000	6,570,000 6,570,000	143,921 166,526	1,058,238 2,165,848	0	0	1,058,238 2,165,848	890,442 1.822.428		
1971	15,493,659	2,165,848	1,822,428	7,500,000	6,570,000	190,952	3,398,555	0	0	3,398,555	2,859,675		
1972 1973	13,186,637 18,650,193	3,398,555 2,322,603	2,859,675 1,954,327	7,500,000 7,500,000	6,570,000 6,570,000	192,588 226,795	2,322,603 6,676,001	0	0	2,322,603 6,676,001	1,954,327 5,617,444		
1974 1975	13,285,426 17,072,661	6,676,001 5,630,111	5,617,444 4,737,392	7,500,000 7,500,000	6,570,000 6,570,000	261,316 278,829	5,630,111 8,353,944	0	0	5,630,111 8,353,944	4,737,392 7,029,330		
1976	11,313,561	8,353,944	7,029,330	7,500,000	6,570,000	275,612	5,321,894	0	0	5,321,894	4,478,046		
1977 1978	5,551,188 15,335,909	5,321,894 0	4,478,046 0	7,500,000 7,500,000	6,570,000 6,570,000	188,421 144,579	-3,385,340 1,121,329	0	3,385,340 0	0 1,121,329	943,530		
1979 1980	17,825,429 17,927,076	1,121,329 4,683,298	943,530 3,940,708	7,500,000 7,500,000	6,570,000 6,570,000	193,459 268,094	4,683,298 8,272,280	0	0	4,683,298 8,272,280	3,940,708 6,960,615		
1981	9,015,200	8,272,280	6,960,615	7,500,000	6,570,000	250,184	2,967,296	0	0	2,967,296	2,496,797		
1982 1983	17,489,400 24,361,989	2,967,296 6,158,572	2,496,797 5,182,060	7,500,000 7,500,000	6,570,000 6,570,000	228,123 365,039	6,158,572 16,085,522	0	0	6,158,572 16,085,522	5,182,060 13,534,977		
1984 1985	25,359,376 21,246,109	16,085,522 26,794,480	13,534,977 22,545,907	7,500,000 7,500,000	6,570,000 6,570,000	580,418 720,739	26,794,480 33,249,850	0 3,719,820	0	26,794,480 29,530,030	22,545,907 24,847,704		
1986	23,013,446	29,530,030	24,847,704	7,500,000	6,570,000	749,290	37,724,186	8,194,156	0	29,530,030	24,847,704		
1987 1988	15,640,478 11,456,357	29,530,030 29,530,030	24,847,704 24,847,704	7,500,000 7,500,000	6,570,000 6,570,000	749,290 714,554	30,351,219 26,201,833	821,188 0	0	29,530,030 26,201,833	24,847,704 22,047,231		
1989	9,921,847 9,639,803	26,201,833 21,423,732	22,047,231 18,026,753	7,500,000 7,500,000	6,570,000 6,570,000	629,948 528,326	21,423,732	0	0	21,423,732	18,026,753		
1990 1991	12,170,021	16,465,210	13,854,461	7,500,000	6,570,000	452,025	16,465,210 14,113,205	ō	0	16,465,210 14,113,205	13,854,461 11,875,394		
1992 1993	10,895,580 18,160,118	14,113,205 10,548,513	11,875,394 8,875,925	7,500,000 7,500,000	6,570,000 6,570,000	390,272 391,668	10,548,513 14,246,963	0	0	10,548,513 14,246,963	8,875,925 11,987,943		
1994	11,125,503	14,246,963	11,987,943	7,500,000	6,570,000	395,410	10,907,055	Ō	0	10,907,055	9,177,616		
1995 1996	20,047,166 14,502,293	10,907,055 16,465,654	9,177,616 13,854,835	7,500,000 7,500,000	6,570,000 6,570,000	418,567 476,125	16,465,654 16,421,822	0	0	16,465,654 16,421,822	13,854,835 13,817,953		
1997 1998	21,622,438 16,798,378	16,421,822 23,425,495	13,817,953 19,711,113	7,500,000 7,500,000	6,570,000 6,570,000	548,765 643,622	23,425,495 25,510,251	0	0	23,425,495 25,510,251	19,711,113 21,465,307		
1999	15,934,210	25,510,251	21,465,307	7,500,000	6,570,000	677,764	26,696,697	0	0	26,696,697	22,463,628		
2000	10,646,526	26,696,697	22,463,628	7,500,000	6,570,000	647,656	22,625,567	0	0	22,625,567	19,038,023		
Total Averages:									9,621,051			Percentage shortage =	
1953-1977 1931-1977	13,088,628 13,594,590			7,500,000	6,570,000 6,570,000	242,490 353,418		0	384,842	4,831,696 10,253,242	4,065,575 8,627,472	5.86% 3.12%	
1906-2000	15,284,742			7,500,000 7,500,000		487,445		901,250	204,703 101,274	16,949,719	14,262,146	3.12% 1.54%	

### Run 5 - Use CRSP Minimum Power Pools, 8.25 maf Lower Basin Delivery, No Shortage

	CR Natural	Total Carry-		Lower		Shared				UC Basin			
	Flow at Lee Ferry	Over Storage	CRSP Carry- Over	Basin Delivery	Upper Basin Use	CRSP Evap	Net Available to Store	Spill to LC	Shortage	Year-end Storage	CRSP Year-		
CY	(plus)	(plus)	Storage	(minus)	(minus)	(minus)	(subtotal)	(minus)	(plus)	(equals)	end Storage	Variables	
1906 1907	18,550,021 21,201,694	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	725,390 725,390	37,688,221 40,339,894	3,854,631 6,506,304	0	33,833,590 33,833,590	29,151,263 29,151,263	Storage Sedimentation Rate (Active)	35,233,298 af 37,000 af/yr
1908 1909	12,218,817 22,356,301	33,833,590 31,383,105	29,151,263 27,039,907	8,250,000 8,250,000	5,720,000 5,720,000	699,302 699,302	31,383,105 39,070,104	0 5,236,514	0	31,383,105 33,833,590	27,039,907 29,151,263	Bank Storage Adjusted Storage (2060)	4% 33,833,590 af
1910	14,650,616	33,833,590	29,151,263	8,250,000	5,720,000	724,918	33,789,288	0	0	33,789,288	29,113,092	UB Demand Level	5,720,000 af/yr
1911 1912	15,499,729 18,623,410	33,789,288 33,833,590	29,113,092 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	724,918 725,390	34,594,099 37,761,610	760,509 3,928,020	0	33,833,590 33,833,590	29,151,263 29,151,263	LB Delivery	8,250,000 af/yr
1913	14,536,373	33,833,590	29,151,263	8,250,000	5,720,000	723,715 723,715	33,676,248	0	0	33,676,248	29,015,696		
1914 1915	21,354,814 13,623,277	33,676,248 33,833,590	29,015,696 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	714,096	40,337,348 32,772,771	6,503,758 0	0	33,833,590 32,772,771	29,151,263 28,237,254	Results	
1916 1917	20,142,892 22,942,804	32,772,771 33,833,590	28,237,254 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	714,096 725,390	38,231,566 42,081,004	4,397,976 8,247,414	0	33,833,590 33,833,590	29,151,263 29,151,263	Average CRSP Evap Total Yield w/ CRSP evap	463,436 af/yr 6,183,436 af/yr
1918	15,865,939	33,833,590	29,151,263	8,250,000	5,720,000	725,390	35,004,139	1,170,549	0	33,833,590	29,151,263		•
1919 1920	12,651,369 22,287,632	33,833,590 31,811,100	29,151,263 27,408,672	8,250,000 8,250,000	5,720,000 5,720,000	703,858 703,858	31,811,100 39,424,874	0 5,591,284	0	31,811,100 33,833,590	27,408,672 29,151,263	Shortage Years	<u>Shortage</u>
1921	22,526,781	33,833,590	29,151,263	8,250,000	5,720,000	725,390	41,664,981	7,831,391	0	33,833,590	29,151,263	1963	0 af
1922 1923	18,447,198 19,024,046	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	725,390 725,390	37,585,398 38,162,246	3,751,808 4,328,656	0	33,833,590 33,833,590	29,151,263 29,151,263	1964 1967	0 af 0 af
1924 1925	13,877,798 14,430,701	33,833,590 33,024,611	29,151,263 28,454,241	8,250,000 8,250,000	5,720,000 5,720,000	716,777 705,558	33,024,611 32,779,753	0	0	33,024,611 32,779,753	28,454,241 28,243,270	1968 1977	0 af 0 af
1926	15,213,731	32,779,753	28,243,270	8,250,000	5,720,000	708,648	33,314,836	Ō	Ō	33,314,836	28,704,301		
1927 1928	19,539,212 16,954,334	33,314,836 33,833,590	28,704,301 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	719,867 725,390	38,164,181 36,092,534	4,330,591 2,258,944	0	33,833,590 33,833,590	29,151,263 29,151,263	NM allocation (w/o evap)	637,875 af/yr
1929 1930	21,829,585 14,621,041	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	725,390 724,606	40,967,785 33,760,025	7,134,195 0	0	33,833,590 33,760,025	29,151,263 29,087,879	Note: NM allocation is exclusi	
1931	8,474,134	33,760,025	29,131,263	8,250,000	5,720,000	658,307	27,605,852	0	0	27,605,852	23,785,399	CRSP evaporation. Navajo ev primarily charged against NM's	
1932 1933	17,422,187 12,183,500	27,605,852 30,435,128	23,785,399 26,223,124	8,250,000 8,250,000	5,720,000 5,720,000	622,911 627,333	30,435,128 28,021,294	0	0	30,435,128 28,021,294	26,223,124 24,143,347	CRSP evaporation is already r demands.	emoved from UC
1934	6,178,192	28,021,294	24,143,347	8,250,000	5,720,000	513,222	19,716,264	0	0	19,716,264	16,987,674		
1935 1936	12,630,349 14,648,873	19,716,264 17,970,391	16,987,674 15,483,417	8,250,000 8,250,000	5,720,000 5,720,000	406,222 390,704	17,970,391 18,258,560	0	0	17,970,391 18,258,560	15,483,417 15,731,706	Total Upper Basin depletion, ir 1953-1977	nc. CRSP evap: 5,934,611 af/yr
1937	14,306,056 18,148,319	18,258,560	15,731,706 15,682,501	8,250,000	5,720,000 5,720,000	393,164 432,434	18,201,452 21,947,337	0	0	18,201,452	15,682,501	1931-1977	6,058,021 af/yr 6,183,436 af/yr
1938 1939	11,164,059	18,201,452 21,947,337	18,909,983	8,250,000 8,250,000	5,720,000	437,780	18,703,617	0	0	21,947,337 18,703,617	18,909,983 16,115,170	1906-2000	6,183,436 ai/yr
1940 1941	9,931,657 20,116,678	18,703,617 14,308,812	16,115,170 12,328,575	8,250,000 8,250,000	5,720,000 5,720,000	356,461 371,160	14,308,812 20,084,330	0	0	14,308,812 20,084,330	12,328,575 17,304,802	Flow Adjustments:	
1942	17,225,136	20,084,330	17,304,802	8,250,000	5,720,000	462,377	22,877,090	0	0	22,877,090	19,711,064	1971	203,226 af
1943 1944	13,731,401 15,369,422	22,877,090 22,154,080	19,711,064 19,088,114	8,250,000 8,250,000	5,720,000 5,720,000	484,411 486,433	22,154,080 23,067,069	0	0	22,154,080 23,067,069	19,088,114 19,874,751	1972 1973	226,985 af 252,377 af
1945 1946	14,140,528 11,095,453	23,067,069 22,744,874	19,874,751 19,597,146	8,250,000 8,250,000	5,720,000 5,720,000	492,723 453,859	22,744,874 19,416,468	0	0	22,744,874 19,416,468	19,597,146 16,729,368	1974 1975	196,384 af 246,665 af
1947	16,439,486	19,416,468	16,729,368	8,250,000	5,720,000	440,031	21,445,923	0	0	21,445,923	18,477,961	1976	173,250 af
1948 1949	15,139,294 16,933,584	21,445,923 22,146,127	18,477,961 19,081,262	8,250,000 8,250,000	5,720,000 5,720,000	469,090 502,742	22,146,127 24,606,969	0	0	22,146,127 24,606,969	19,081,262 21,201,541	1977 1978	112,291 af 152,187 af
1950	13,140,416	24,606,969	21,201,541	8,250,000	5,720,000	514,629 479,627	23,262,756	0	0	23,262,756	20,043,357	1979	153,559 af
1951 1952	12,505,894 20,805,422	23,262,756 21,319,023	20,043,357 18,368,623	8,250,000 8,250,000	5,720,000 5,720,000	526,102	21,319,023 27,628,343	0	0	21,319,023 27,628,343	18,368,623 23,804,778	1980	161,893 af
1953 1954	11,165,419 8,496,102	27,628,343 24,266,285	23,804,778 20,908,004	8,250,000 8,250,000	5,720,000 5,720,000	557,478 458,530	24,266,285 18,333,856	0	0	24,266,285 18,333,856	20,908,004 15,796,582		
1955	9,413,908	18,333,856	15,796,582	8,250,000	5,720,000	343,218	13,434,547	0	0	13,434,547	11,575,301		
1956 1957	11,426,874 21,500,963	13,434,547 10,630,214	11,575,301 9,159,069	8,250,000 8,250,000	5,720,000 5,720,000	261,206 308,243	10,630,214 17,852,934	0	0	10,630,214 17,852,934	9,159,069 15,382,216		
1958 1959	15,862,511 9,598,169	17,852,934 19,344,432	15,382,216 16,667,301	8,250,000 8,250,000	5,720,000 5,720,000	401,013 366,449	19,344,432 14,606,152	0	0	19,344,432 14,606,152	16,667,301 12,584,765		
1960	11,524,160	14,606,152	12,584,765	8,250,000	5,720,000	286,914	11,873,398	0	0	11,873,398	10,230,205		
1961 1962	10,010,259 17,377,609	11,873,398 7,700,263	10,230,205 6,634,601	8,250,000 8,250,000	5,720,000 5,720,000	213,395 203,083	7,700,263 10,904,789	0	0	7,700,263 10,904,789	6,634,601 9,395,644		
1963	8,840,900	10,904,789	9,395,644	8,250,000	5,720,000 5,720,000	180,671 90,114	5,595,018	0	0	5,595,018	4,820,707		
1964 1965	10,863,586 19,875,027	5,595,018 2,398,489	4,820,707 2,066,556	8,250,000 8,250,000	5,720,000	117,696	2,398,489 8,185,821	0	0	2,398,489 8,185,821	2,066,556 7,052,962		
1966 1967	10,679,844 11,670,830	8,185,821 4,752,904	7,052,962 4,095,136	8,250,000 8,250,000	5,720,000 5,720,000	142,760 80,877	4,752,904 2,372,858	0	0	4,752,904 2,372,858	4,095,136 2,044,471		
1968	13,739,932	2,372,858	2,044,471	8,250,000	5,720,000	52,531	2,090,259	0	0	2,090,259	1,800,982		
1969 1970	15,272,159 15,344,136	2,090,259 3,329,701	1,800,982 2,868,894	8,250,000 8,250,000	5,720,000 5,720,000	62,717 89,587	3,329,701 4,614,250	0	0	3,329,701 4,614,250	2,868,894 3,975,671		
1971 1972	15,493,659 13,186,637	4,614,250 6,019,685	3,975,671 5,186,604	8,250,000 8,250,000	5,720,000 5,720,000	118,224 123,531	6,019,685 5,112,790	0	0	6,019,685 5,112,790	5,186,604 4,405,217		
1973	18,650,193	5,112,790	4,405,217	8,250,000	5,720,000	161,977	9,631,006	0	0	9,631,006	8,298,144		
1974 1975	13,285,426 17,072,661	9,631,006 8,745,780	8,298,144 7,535,427	8,250,000 8,250,000	5,720,000 5,720,000	200,653 221,897	8,745,780 11,626,544	0	0	8,745,780 11,626,544	7,535,427 10,017,513		
1976	11,313,561	11,626,544	10,017,513	8,250,000	5,720,000	221,923 100,584	8,748,183	0	0	8,748,183	7,537,497		
1977 1978	5,551,188 15,335,909	8,748,183 228,786	7,537,497 197,124	8,250,000 8,250,000	5,720,000 5,720,000	24,172	228,786 1,570,522	0	0	228,786 1,570,522	197,124 1,353,173		
1979 1980	17,825,429 17,927,076	1,570,522 5,347,288	1,353,173 4,607,262	8,250,000 8,250,000	5,720,000 5,720,000	78,663 159,300	5,347,288 9,145,065	0	0	5,347,288 9,145,065	4,607,262 7.879,453		
1981	9,015,200	9,145,065	7,879,453	8,250,000	5,720,000	145,434	4,044,830	Ō	Ō	4,044,830	3,485,055		
1982 1983	17,489,400 24,361,989	4,044,830 7,436,980	3,485,055 6,407,755	8,250,000 8,250,000	5,720,000 5,720,000	127,250 271,108	7,436,980 17,557,861	0	0	7,436,980 17,557,861	6,407,755 15,127,979		
1984 1985	25,359,376 21,246,109	17,557,861 28,452,403	15,127,979 24,514,794	8,250,000 8,250,000	5,720,000 5,720,000	494,834 668,102	28,452,403 35,060,409	0 1,226,819	0	28,452,403 33,833,590	24,514,794 29,151,263		
1986	23,013,446	33,833,590	29,151,263	8,250,000	5,720,000	725,390	42,151,647	8,318,057	0	33,833,590	29,151,263		
1987 1988	15,640,478 11,456,357	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,720,000 5,720,000	725,390 691,271	34,778,679 30,628,676	945,089 0	0	33,833,590 30,628,676	29,151,263 26,389,886		
1989	9,921,847	30,628,676	26,389,886	8,250,000	5,720,000	607,588	25,972,935	0	0	25,972,935	22,378,466		
1990 1991	9,639,803 12,170,021	25,972,935 21,136,206	22,378,466 18,211,106	8,250,000 8,250,000	5,720,000 5,720,000	506,532 431,288	21,136,206 18,904,938	0	0	21,136,206 18,904,938	18,211,106 16,288,630		
1992 1993	10,895,580 18,160,118	18,904,938 15,459,662	16,288,630 13,320,155	8,250,000 8,250,000	5,720,000 5,720,000	370,856 374,796	15,459,662 19,274,984	0	0	15,459,662 19,274,984	13,320,155 16,607,464		
1994	11,125,503	19,274,984	16,607,464	8,250,000	5,720,000	381,074	16,049,413	0	Ō	16,049,413	13,828,289		
1995 1996	20,047,166 14,502,293	16,049,413 21,719,481	13,828,289 18,713,660	8,250,000 8,250,000	5,720,000 5,720,000	407,098 468,143	21,719,481 21,783,631	0	0	21,719,481 21,783,631	18,713,660 18,768,932		
1997 1998	21,622,438 16,798,378	21,783,631 28,891,573	18,768,932 24,893,185	8,250,000 8,250,000	5,720,000 5,720,000	544,496 643,427	28,891,573 31,076,524	0	0	28,891,573 31,076,524	24,893,185 26,775,755		
1999	15,934,210	31,076,524	26,775,755	8,250,000	5,720,000	680,355	32,360,379	0	0	32,360,379	27,881,934		
2000	10,646,526	32,360,379	27,881,934	8,250,000	5,720,000	651,703	28,385,202	0	0	28,385,202	24,456,893		
Total									0			Poroontone of	
Averages: 1953-1977	13,088,628			8,250,000	5,720,000	214,611		0	0	9,295,958	8,009,464	Percentage shortage = 0.00%	
1931-1977 1906-2000	13,594,590 15,284,742			8,250,000 8,250,000	5,720,000 5,720,000	338,021 463,436		908,658	0	15,283,419 21,501,781	13,168,303 18,526,088	0.00% 0.00%	



Run 6 - Use CRSP Minimum Power Pools, 8.25 maf Lower Basin Delivery, 6% Overall Shortage

	CR Natural Flow at Lee	Total Carry- Over	CRSP Carry-	Lower Basin	Upper	Shared CRSP	Net Available			UC Basin Year-end			
CY	Ferry (plus)	Storage (plus)	Over Storage	Delivery (minus)	Basin Use (minus)	Evap (minus)	to Store (subtotal)	Spill to LC (minus)	Shortage (plus)	Storage (equals)	CRSP Year- end Storage	Variables	
1906 1907	18,550,021 21,201,694	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	725,390 725,390	37,428,221 40,079,894	3,594,631 6,246,304	0	33,833,590 33,833,590	29,151,263 29,151,263	Storage Sedimentation Rate (Active)	35,233,298 af 37,000 af/yr
1908	12,218,817	33,833,590	29,151,263	8,250,000	5,980,000	696,563	31,125,844	0	0	31,125,844	26,818,249	Bank Storage	4%
1909 1910	22,356,301 14,650,616	31,125,844 33,833,590	26,818,249 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	696,563 722,179	38,555,581 33,532,027	4,721,991 0	0	33,833,590 33,532,027	29,151,263 28,891,434	Adjusted Storage (2060) UB Demand Level	33,833,590 af 5,980,000 af/yr
1911 1912	15,499,729 18,623,410	33,532,027 33,833,590	28,891,434 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	722,179 725,390	34,079,577 37,501,610	245,987 3,668,020	0	33,833,590 33,833,590	29,151,263 29,151,263	LB Delivery	8,250,000 af/yr
1913	14,536,373	33,833,590	29,151,263	8,250,000	5,980,000	720,976	33,418,987	0	0	33,418,987	28,794,038		
1914 1915	21,354,814 13,623,277	33,418,987 33,833,590	28,794,038 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	720,976 711,358	39,822,825 32,515,509	5,989,235 0	0	33,833,590 32,515,509	29,151,263 28,015,595	Results	
1916	20,142,892	32,515,509	28,015,595	8,250,000	5,980,000	711,358	37,717,044	3,883,454	0	33,833,590	29,151,263	Average CRSP Evap	420,659 af/yr
1917 1918	22,942,804 15,865,939	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	725,390 725,390	41,821,004 34,744,139	7,987,414 910,549	0	33,833,590 33,833,590	29,151,263 29,151,263	Total Yield w/ CRSP evap	6,400,659 af/yr
1919	12,651,369	33,833,590 31,553,839	29,151,263 27,187,013	8,250,000	5,980,000 5,980,000	701,120 701,120	31,553,839	0	0	31,553,839 33,833,590	27,187,013	Shortage Years	Shortage
1920 1921	22,287,632 22,526,781	33,833,590	29,151,263	8,250,000 8,250,000	5,980,000	725,390	38,910,351 41,404,981	5,076,762 7,571,391	0	33,833,590	29,151,263 29,151,263	1963	703,237 af
1922 1923	18,447,198 19,024,046	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	725,390 725,390	37,325,398 37,902,246	3,491,808 4,068,656	0	33,833,590 33,833,590	29,151,263 29,151,263	1964 1967	3,371,431 af 639,589 af
1924	13,877,798	33,833,590	29,151,263	8,250,000	5,980,000	714,039	32,767,349	0	0	32,767,349	28,232,583	1968	495,085 af
1925 1926	14,430,701 15,213,731	32,767,349 32,270,651	28,232,583 27,804,623	8,250,000 8,250,000	5,980,000 5,980,000	697,400 695,184	32,270,651 32,559,198	0	0	32,270,651 32,559,198	27,804,623 28,053,238	1977	3,665,093 af
1927	19,539,212	32,559,198	28,053,238	8,250,000	5,980,000	711,823	37,156,587	3,322,997	0	33,833,590	29,151,263	NM allocation (w/o evap)	667,125 af/yr
1928 1929	16,954,334 21,829,585	33,833,590 33,833,590	29,151,263 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	725,390 725,390	35,832,534 40,707,785	1,998,944 6,874,195	0	33,833,590 33,833,590	29,151,263 29,151,263	Note: NM allocation is exclusi	ve of its portion of
1930 1931	14,621,041 8,474,134	33,833,590 33,502,763	29,151,263 28,866,220	8,250,000 8,250,000	5,980,000 5,980,000	721,868 650,148	33,502,763 27,096,749	0	0	33,502,763 27,096,749	28,866,220 23,346,753	CRSP evaporation. Navajo ev primarily charged against NM's	
1932	17,422,187	27,096,749	23,346,753	8,250,000	5,980,000	609,447	29,679,489	0	0	29,679,489	25,572,060	CRSP evaporation is already	
1933 1934	12,183,500 6,178,192	29,679,489 27,024,314	25,572,060 23,284,342	8,250,000 8,250,000	5,980,000 5,980,000	608,675 489,480	27,024,314 18,483,026	0	0	27,024,314 18,483,026	23,284,342 15,925,107	demands.	
1935	12,630,349	18,483,026	15,925,107	8,250,000	5,980,000	377,502	16,505,872	0	0	16,505,872	14,221,578 14,274,792	Total Upper Basin depletion, in	nc. CRSP evap:
1936 1937	14,648,873 14,306,056	16,505,872 16,567,634	14,221,578 14,274,792	8,250,000 8,250,000	5,980,000 5,980,000	357,112 354,802	16,567,634 16,288,888	0	0	16,567,634 16,288,888	14,274,792	1953-1977 1931-1977	6,109,607 af/yr 6,246,233 af/yr
1938 1939	18,148,319 11,164,059	16,288,888 19,817,805	14,034,623 17,075,162	8,250,000 8,250,000	5,980,000 5,980,000	389,402 390,177	19,817,805 16,361,687	0	0	19,817,805 16,361,687	17,075,162 14,097,346	1906-2000	6,400,659 af/yr
1940	9,931,657	16,361,687	14,097,346	8,250,000	5,980,000	304,384	11,758,959	0	0	11,758,959	10,131,603		
1941 1942	20,116,678 17,225,136	11,758,959 17,330,935	10,131,603 14,932,457	8,250,000 8,250,000	5,980,000 5,980,000	314,703 401,631	17,330,935 19,924,440	0	0	17,330,935 19,924,440	14,932,457 17,167,040	Flow Adjustments: 1971	203,226 af
1943	13,731,401	19,924,440	17,167,040	8,250,000	5,980,000	419,467	19,006,373	0	0	19,006,373	16,376,027	1972	226,985 af
1944 1945	15,369,422 14,140,528	19,006,373 19,728,415	16,376,027 16,998,143	8,250,000 8,250,000	5,980,000 5,980,000	417,381 419,647	19,728,415 19,219,295	0	0	19,728,415 19,219,295	16,998,143 16,559,482	1973 1974	252,377 af 196,384 af
1946 1947	11,095,453 16,439,486	19,219,295 15,707,903	16,559,482 13,534,041	8,250,000 8,250,000	5,980,000 5,980,000	376,846 359,162	15,707,903 17,558,227	0	0	15,707,903 17,558,227	13,534,041 15,128,294	1975 1976	246,665 af 173,250 af
1948	15,139,294	17,558,227	15,128,294	8,250,000	5,980,000	384,448	18,083,073	0	0	18,083,073	15,580,505	1977	112,291 af
1949 1950	16,933,584 13,140,416	18,083,073 20,372,251	15,580,505 17,552,877	8,250,000 8,250,000	5,980,000 5,980,000	414,405 422,676	20,372,251 18,859,991	0	0	20,372,251 18,859,991	17,552,877 16,249,903	1978 1979	152,187 af 153,559 af
1951	12,505,894	18,859,991	16,249,903	8,250,000	5,980,000	384,133	16,751,752	0	0	16,751,752	14,433,429	1980	161,893 af
1952 1953	20,805,422 11,165,419	16,751,752 22,900,031	14,433,429 19,730,831	8,250,000 8,250,000	5,980,000 5,980,000	427,143 455,126	22,900,031 19,380,324	0	0	22,900,031 19,380,324	19,730,831 16,698,226		
1954	8,496,102	19,380,324	16,698,226	8,250,000	5,980,000 5,980,000	352,857 234,293	13,293,569	0	0	13,293,569	11,453,834		
1955 1956	9,413,908 11,426,874	13,293,569 8,243,183	11,453,834 7,102,386	8,250,000 8,250,000	5,980,000	149,099	8,243,183 5,290,958	Ō	ō	8,243,183 5,290,958	7,102,386 4,558,728		
1957 1958	21,500,963 15,862,511	5,290,958 12,368,901	4,558,728 10,657,133	8,250,000 8,250,000	5,980,000 5,980,000	193,021 282,741	12,368,901 13,718,671	0	0	12,368,901 13,718,671	10,657,133 11,820,105		
1959	9,598,169	13,718,671	11,820,105	8,250,000	5,980,000	245,190	8,841,650	Ō	ō	8,841,650	7,618,029		
1960 1961	11,524,160 10,010,259	8,841,650 5,973,078	7,618,029 5,146,447	8,250,000 8,250,000	5,980,000 5,980,000	162,732 86,352	5,973,078 1,666,985	0	0	5,973,078 1,666,985	5,146,447 1,436,286		
1962 1963	17,377,609 8,840,900	1,666,985 4,741,355	1,436,286 4,085,186	8,250,000 8,250,000	5,980,000 5,980,000	73,239 55,493	4,741,355 -703,237	0	0 703,237	4,741,355 0	4,085,186 0		
1964	10,863,586	4,741,355	4,065,166	8,250,000	5,980,000	5,017	-3,371,431	0	3,371,431	0	0		
1965 1966	19,875,027 10,679,844	0 5,580,600	0 4,808,285	8,250,000 8,250,000	5,980,000 5,980,000	64,427 85,136	5,580,600 1,945,307	0	0	5,580,600 1,945,307	4,808,285 1,676,091		
1967	11,670,830	1,945,307	1,676,091	8,250,000	5,980,000	25,726	-639,589	0	639,589	0	0		
1968 1969	13,739,932 15,272,159	0	0	8,250,000 8,250,000	5,980,000 5,980,000	5,017 15,942	-495,085 1,026,217	0	495,085 0	0 1,026,217	0 884,196		
1970 1971	15,344,136 15,493,659	1,026,217 2,102,033	884,196 1,811,127	8,250,000 8,250,000	5,980,000 5,980,000	38,320 62,559	2,102,033 3,303,132	0	0	2,102,033 3,303,132	1,811,127 2,846,003		
1972	13,186,637	3,303,132	2,846,003	8,250,000	5,980,000	63,562	2,196,207	0	0	2,196,207	1,892,268		
1973 1974	18,650,193 13,285,426	2,196,207 6,518,607	1,892,268 5,616,478	8,250,000 8,250,000	5,980,000 5,980,000	97,793 132,344	6,518,607 5,441,689	0	0	6,518,607 5,441,689	5,616,478 4,688,598		
1975	17,072,661	5,441,689	4,688,598	8,250,000	5,980,000	149,550	8,134,800	0	0	8,134,800	7,009,002		
1976 1977	11,313,561 5,551,188	8,134,800 5,072,739	7,009,002 4,370,709	8,250,000 8,250,000		145,622 59,020	5,072,739 -3,665,093	Ō	0 3,665,093	5,072,739 0	4,370,709 0		
1978 1979	15,335,909 17,825,429	0 1,089,295	938,544	8,250,000 8,250,000	5,980,000 5,980,000	16,613 65,786	1,089,295 4,618,938	0	0	1,089,295 4,618,938	938,544 3,979,710		
1980	17,927,076	4,618,938	3,979,710	8,250,000	5,980,000	141,217	8,174,797	0	0	8,174,797	7,043,464		
1981 1982	9,015,200 17,489,400	8,174,797 2,837,743	7,043,464 2,445,019	8,250,000 8,250,000	5,980,000 5,980,000	122,255 99,081	2,837,743 5,998,061	0	0	2,837,743 5,998,061	2,445,019 5,167,972		
1983 1984	24,361,989 25,359,376	5,998,061 15,891,995	5,167,972 13,692,657	8,250,000 8,250,000	5,980,000 5,980,000	238,055 457,000	15,891,995 26,564,372	0	0	15,891,995 26,564,372	13,692,657 22,888,053		
1985	21,246,109	26,564,372	22,888,053	8,250,000	5,980,000	638,511	32,941,970	0	0	32,941,970	28,383,037		
1986 1987	23,013,446 15,640,478	32,941,970 33,833,590	28,383,037 29,151,263	8,250,000 8,250,000	5,980,000 5,980,000	715,898 725,390	41,009,518 34,518,679	7,175,928 685,089	0	33,833,590 33,833,590	29,151,263 29,151,263		
1988	11,456,357	33,833,590	29,151,263	8,250,000	5,980,000	688,532	30,371,415	0	0	30,371,415	26,168,228		
1989 1990	9,921,847 9,639,803	30,371,415 25,463,832	26,168,228 21,939,820	8,250,000 8,250,000	5,980,000 5,980,000	599,429 493,068	25,463,832 20,380,567	0	0	25,463,832 20,380,567	21,939,820 17,560,042		
1991 1992	12,170,021 10,895,580	20,380,567 17,907,958	17,560,042 15,429,625	8,250,000 8,250,000	5,980,000 5,980,000	412,630 347,114	17,907,958 14,226,424	0	0	17,907,958 14,226,424	15,429,625 12,257,589		
1993	18,160,118	14,226,424	12,257,589	8,250,000	5,980,000	346,076	17,810,466	0	0	17,810,466	15,345,625		
1994 1995	11,125,503 20,047,166	17,810,466 14,358,487	15,345,625 12,371,375	8,250,000 8,250,000	5,980,000 5,980,000	347,482 368,736	14,358,487 19,806,917	0	0	14,358,487 19,806,917	12,371,375 17,065,781		
1996	14,502,293	19,806,917	17,065,781	8,250,000	5,980,000	425,112	19,654,098	0	0	19,654,098	16,934,112		
1997 1998	21,622,438 16,798,378	19,654,098 26,549,643	16,934,112 22,875,362	8,250,000 8,250,000	5,980,000 5,980,000	496,894 591,349	26,549,643 28,526,671	0	0	26,549,643 28,526,671	22,875,362 24,578,784		
1999	15,934,210	28,526,671	24,578,784	8,250,000	5,980,000	623,897	29,606,984	0	0	29,606,984	25,509,589		
2000	10,646,526	29,606,984	25,509,589	8,250,000	5,980,000	590,958	25,432,552	U		25,432,552	21,912,869		
Total Averages:									8,874,436			Percentage shortage =	
1953-1977 1931-1977	13,088,628 13,594,590			8,250,000 8,250,000	5,980,000 5,980,000	129,607 266,233		0	354,977 188,818	5,393,600 11,912,066	4,647,165 10,263,521	5.94% 3.16%	
1906-2000	15,284,742				5,980,000	420,659		815,930	93,415	19,477,169	16,781,668	1.56%	

Run 7 - Use CRSP Minimum Power Pools, 7.50 maf Lower Basin Delivery, No Shortage

	CR Natural Total Carry- Lower Shared UC Basin												
CY	Flow at Lee Ferry (plus)	Over Storage (plus)	CRSP Carry- Over Storage	Basin	Upper Basin Use (minus)	CRSP Evap (minus)	Net Available to Store (subtotal)	Spill to LC (minus)	Shortage (plus)	Year-end Storage (equals)	CRSP Year- end Storage	Variables	
1906	18,550,021	33,833,590		7,500,000	6,470,000	725,390	37,688,221	3,854,631	(pius)	33,833,590	29,151,263	Storage	35,233,298 af
1907 1908	21,201,694 12,218,817	33,833,590 33,833,590		7,500,000 7,500,000	6,470,000 6,470,000	725,390 699,302	40,339,894 31,383,105	6,506,304 0	0	33,833,590 31,383,105	29,151,263 27,039,907	Sedimentation Rate (Active) Bank Storage	37,000 af/yr 4%
1909	22,356,301	31,383,105	27,039,907	7,500,000	6,470,000	699,302	39,070,104	5,236,514	0	33,833,590	29,151,263	Adjusted Storage (2060)	33,833,590 af
1910 1911	14,650,616 15,499,729	33,833,590 33,789,288		7,500,000 7,500,000	6,470,000 6,470,000	724,918 724,918	33,789,288 34,594,099	760,509	0	33,789,288 33,833,590	29,113,092 29,151,263	UB Demand Level LB Delivery	6,470,000 af/yr 7,500,000 af/yr
1912	18,623,410	33,833,590	29,151,263	7,500,000	6,470,000	725,390	37,761,610	3,928,020	0	33,833,590	29,151,263	LD Delivery	7,500,000 anyi
1913 1914	14,536,373 21,354,814	33,833,590 33,676,248		7,500,000 7,500,000	6,470,000 6,470,000	723,715 723,715	33,676,248 40,337,348	0 6,503,758	0	33,676,248 33,833,590	29,015,696 29,151,263		
1915	13,623,277	33,833,590	29,151,263	7,500,000	6,470,000	714,096	32,772,771	0	0	32,772,771	28,237,254	Results	
1916 1917	20,142,892 22,942,804	32,772,771 33,833,590	28,237,254 29,151,263	7,500,000 7,500,000	6,470,000 6,470,000	714,096 725,390	38,231,566 42,081,004	4,397,976 8,247,414	0	33,833,590 33,833,590	29,151,263 29,151,263	Average CRSP Evap Total Yield w/ CRSP evap	463,436 af/yr 6,933,436 af/yr
1918	15,865,939	33,833,590	29,151,263	7,500,000	6,470,000	725,390	35,004,139	1,170,549	0	33,833,590	29,151,263	·	· ·
1919 1920	12,651,369 22,287,632	33,833,590 31,811,100	29,151,263 27,408,672	7,500,000 7,500,000	6,470,000 6,470,000	703,858 703,858	31,811,100 39,424,874	0 5,591,284	0	31,811,100 33,833,590	27,408,672 29,151,263	Shortage Years	<u>Shortage</u>
1921	22,526,781	33,833,590	29,151,263	7,500,000	6,470,000	725,390	41,664,981	7,831,391	0	33,833,590	29,151,263	1963	0 af
1922 1923	18,447,198 19,024,046	33,833,590 33,833,590	29,151,263 29,151,263	7,500,000 7,500,000	6,470,000 6,470,000	725,390 725,390	37,585,398 38,162,246	3,751,808 4,328,656	0	33,833,590 33,833,590	29,151,263 29,151,263	1964 1967	0 af 0 af
1924	13,877,798	33,833,590	29,151,263	7,500,000	6,470,000	716,777	33,024,611	0	0	33,024,611	28,454,241	1968	0 af
1925 1926	14,430,701 15,213,731	33,024,611 32,779,753	28,454,241 28,243,270	7,500,000 7,500,000	6,470,000 6,470,000	705,558 708,648	32,779,753 33,314,836	0	0	32,779,753 33,314,836	28,243,270 28,704,301	1977	0 af
1927 1928	19,539,212 16,954,334	33,314,836 33,833,590	28,704,301 29,151,263	7,500,000 7,500,000	6,470,000 6,470,000	719,867 725,390	38,164,181 36,092,534	4,330,591 2,258,944	0	33,833,590 33,833,590	29,151,263 29,151,263	NM allocation (w/o evap)	722,250 af/yr
1929	21,829,585	33,833,590	29,151,263	7,500,000	6,470,000	725,390	40,967,785	7,134,195	0	33,833,590	29,151,263	Note: NM allocation is exclusi	ve of its portion of
1930 1931	14,621,041 8,474,134	33,833,590 33,760,025		7,500,000 7,500,000	6,470,000 6,470,000	724,606 658,307	33,760,025 27,605,852	0	0	33,760,025 27,605,852	29,087,879 23,785,399	CRSP evaporation. Navajo ev primarily charged against NM's	
1932	17,422,187	27,605,852	23,785,399	7,500,000	6,470,000	622,911	30,435,128	0	0	30,435,128	26,223,124	CRSP evaporation is already r	
1933 1934	12,183,500 6,178,192	30,435,128 28,021,294		7,500,000 7,500,000	6,470,000 6,470,000	627,333 513,222	28,021,294 19,716,264	0	0	28,021,294 19,716,264	24,143,347 16,987,674	demands.	
1935	12,630,349	19,716,264	16,987,674	7,500,000	6,470,000	406,222	17,970,391	0	0	17,970,391	15,483,417	Total Upper Basin depletion, in	
1936 1937	14,648,873 14,306,056	17,970,391 18,258,560	15,483,417 15,731,706	7,500,000 7,500,000	6,470,000 6,470,000	390,704 393,164	18,258,560 18,201,452	0	0	18,258,560 18,201,452	15,731,706 15,682,501	1953-1977 1931-1977	6,684,611 af/yr 6,808,021 af/yr
1938	18,148,319	18,201,452	15,682,501	7,500,000	6,470,000	432,434	21,947,337	0	0	21,947,337	18,909,983	1906-2000	6,933,436 af/yr
1939 1940	11,164,059 9,931,657	21,947,337 18,703,617	18,909,983 16,115,170	7,500,000 7,500,000	6,470,000 6,470,000	437,780 356,461	18,703,617 14,308,812	0	0	18,703,617 14,308,812	16,115,170 12,328,575		
1941	20,116,678	14,308,812	12,328,575	7,500,000	6,470,000	371,160	20,084,330	0	0	20,084,330	17,304,802	Flow Adjustments:	
1942 1943	17,225,136 13,731,401	20,084,330 22,877,090		7,500,000 7,500,000	6,470,000 6,470,000	462,377 484,411	22,877,090 22,154,080	0	0	22,877,090 22,154,080	19,711,064 19,088,114	1971 1972	203,226 af 226,985 af
1944	15,369,422	22,154,080	19,088,114	7,500,000	6,470,000	486,433	23,067,069	0	0	23,067,069	19,874,751	1973	252,377 af
1945 1946	14,140,528 11,095,453	23,067,069 22,744,874		7,500,000 7,500,000	6,470,000 6,470,000	492,723 453,859	22,744,874 19,416,468	0	0	22,744,874 19,416,468	19,597,146 16,729,368	1974 1975	196,384 af 246,665 af
1947	16,439,486 15,139,294	19,416,468 21,445,923		7,500,000	6,470,000 6,470,000	440,031 469,090	21,445,923	0	0	21,445,923	18,477,961	1976 1977	173,250 af
1948 1949	16,933,584	22,146,127	18,477,961 19,081,262	7,500,000 7,500,000	6,470,000	502,742	22,146,127 24,606,969	0	0	22,146,127 24,606,969	19,081,262 21,201,541	1978	112,291 af 152,187 af
1950 1951	13,140,416 12,505,894	24,606,969 23,262,756		7,500,000 7,500,000	6,470,000 6,470,000	514,629 479,627	23,262,756 21,319,023	0	0	23,262,756 21,319,023	20,043,357 18,368,623	1979 1980	153,559 af 161,893 af
1952	20,805,422	21,319,023	18,368,623	7,500,000	6,470,000	526,102	27,628,343	0	0	27,628,343	23,804,778	1900	101,093 41
1953 1954	11,165,419 8,496,102	27,628,343 24,266,285		7,500,000 7,500,000	6,470,000 6,470,000	557,478 458,530	24,266,285 18,333,856	0	0	24,266,285 18,333,856	20,908,004 15,796,582		
1955	9,413,908	18,333,856	15,796,582	7,500,000	6,470,000	343,218	13,434,547	0	0	13,434,547	11,575,301		
1956 1957	11,426,874 21,500,963	13,434,547 10,630,214	11,575,301 9,159,069	7,500,000 7,500,000	6,470,000 6,470,000	261,206 308,243	10,630,214 17,852,934	0	0	10,630,214 17,852,934	9,159,069 15,382,216		
1958	15,862,511	17,852,934	15,382,216	7,500,000	6,470,000	401,013	19,344,432	0	0	19,344,432	16,667,301		
1959 1960	9,598,169 11,524,160	19,344,432 14,606,152		7,500,000 7,500,000	6,470,000 6,470,000	366,449 286,914	14,606,152 11,873,398	0	0	14,606,152 11,873,398	12,584,765 10,230,205		
1961 1962	10,010,259 17,377,609	11,873,398 7,700,263	10,230,205 6,634,601	7,500,000 7,500,000	6,470,000 6,470,000	213,395 203,083	7,700,263 10,904,789	0	0	7,700,263 10,904,789	6,634,601 9,395,644		
1963	8,840,900	10,904,789	9,395,644	7,500,000	6,470,000	180,671	5,595,018	0	0	5,595,018	4,820,707		
1964 1965	10,863,586 19,875,027	5,595,018 2,398,489	4,820,707 2,066,556	7,500,000 7,500,000	6,470,000 6,470,000	90,114 117,696	2,398,489 8,185,821	0	0	2,398,489 8,185,821	2,066,556 7,052,962		
1966	10,679,844	8,185,821	7,052,962	7,500,000	6,470,000	142,760	4,752,904	0	0	4,752,904	4,095,136		
1967 1968	11,670,830 13,739,932	4,752,904 2,372,858	4,095,136 2,044,471	7,500,000 7,500,000	6,470,000 6,470,000	80,877 52,531	2,372,858 2,090,259	0	0	2,372,858 2,090,259	2,044,471 1,800,982		
1969	15,272,159	2,090,259	1,800,982	7,500,000	6,470,000	62,717	3,329,701	0	0	3,329,701	2,868,894		
1970 1971	15,344,136 15,493,659	3,329,701 4,614,250	2,868,894 3,975,671	7,500,000 7,500,000	6,470,000 6,470,000	89,587 118,224	4,614,250 6,019,685	0	0	4,614,250 6,019,685	3,975,671 5,186,604		
1972	13,186,637	6,019,685 5,112,790	5,186,604	7,500,000	6,470,000 6,470,000	123,531	5,112,790	0	0	5,112,790 9,631,006	4,405,217		
1973 1974	18,650,193 13,285,426	9,631,006	4,405,217 8,298,144	7,500,000 7,500,000	6,470,000	161,977 200,653	9,631,006 8,745,780	0	0	8,745,780	8,298,144 7,535,427		
1975 1976	17,072,661 11,313,561	8,745,780 11,626,544	7,535,427 10,017,513	7,500,000 7,500,000	6,470,000 6,470,000	221,897 221,923	11,626,544 8,748,183	0	0	11,626,544 8,748,183	10,017,513 7,537,497		
1977	5,551,188	8,748,183	7,537,497	7,500,000	6,470,000	100,584	228,786	0	0	228,786	197,124		
1978 1979	15,335,909 17,825,429	228,786 1,570,522		7,500,000 7,500,000	6,470,000 6,470,000	24,172 78,663	1,570,522 5,347,288	0	0	1,570,522 5,347,288	1,353,173 4,607,262		
1980	17,927,076	5,347,288	4,607,262	7,500,000	6,470,000	159,300	9,145,065	0	0	9,145,065	7,879,453		
1981 1982	9,015,200 17,489,400	9,145,065 4,044,830	7,879,453 3,485,055	7,500,000 7,500,000	6,470,000 6,470,000	145,434 127,250	4,044,830 7,436,980	0	0	4,044,830 7,436,980	3,485,055 6,407,755		
1983 1984	24,361,989 25,359,376	7,436,980 17,557,861	6,407,755 15,127,979	7,500,000 7,500,000	6,470,000 6,470,000	271,108 494,834	17,557,861 28,452,403	0	0	17,557,861 28,452,403	15,127,979 24,514,794		
1984	25,359,376	28,452,403		7,500,000	6,470,000	668,102	28,452,403 35,060,409	1,226,819	0	33,833,590	29,151,263		
1986	23,013,446 15,640,478	33,833,590 33,833,590		7,500,000	6,470,000 6,470,000	725,390 725,390	42,151,647	8,318,057	0	33,833,590 33,833,590	29,151,263		
1987 1988	11,456,357	33,833,590	29,151,263	7,500,000 7,500,000	6,470,000	691,271	34,778,679 30,628,676	945,089 0	0	30,628,676	29,151,263 26,389,886		
1989 1990	9,921,847 9,639,803	30,628,676 25,972,935		7,500,000 7,500,000	6,470,000 6,470,000	607,588 506,532	25,972,935 21,136,206	0	0	25,972,935 21,136,206	22,378,466 18,211,106		
1991	12,170,021	21,136,206	18,211,106	7,500,000	6,470,000	431,288	18,904,938	0	0	18,904,938	16,288,630		
1992 1993	10,895,580 18,160,118	18,904,938 15,459,662		7,500,000 7,500,000	6,470,000 6,470,000	370,856 374,796	15,459,662 19,274,984	0	0	15,459,662 19,274,984	13,320,155 16,607,464		
1994	11,125,503	19,274,984	16,607,464	7,500,000	6,470,000	381,074	16,049,413	0	0	16,049,413	13,828,289		
1995 1996	20,047,166 14,502,293	16,049,413 21,719,481	13,828,289 18,713,660	7,500,000 7,500,000	6,470,000 6,470,000	407,098 468,143	21,719,481 21,783,631	0	0	21,719,481 21,783,631	18,713,660 18,768,932		
1997	21,622,438	21,783,631	18,768,932	7,500,000	6,470,000	544,496	28,891,573	0	0	28,891,573	24,893,185		
1998 1999	16,798,378 15,934,210	28,891,573 31,076,524		7,500,000 7,500,000	6,470,000 6,470,000	643,427 680,355	31,076,524 32,360,379	0	0	31,076,524 32,360,379	26,775,755 27,881,934		
2000	10,646,526	32,360,379		7,500,000	6,470,000	651,703	28,385,202	0	0	28,385,202	24,456,893		
Total									0				
Averages: 1953-1977	13,088,628			7,500,000	6,470,000	214,611		0	0	9,295,958	8,009,464	Percentage shortage = 0.00%	
1931-1977 1906-2000	13,594,590 15,284,742			7,500,000	6,470,000 6,470,000	338,021 463,436		0 908,658	0	15,283,419	13,168,303 18,526,088	0.00% 0.00%	
1900-2000	10,264,742			7,500,000	0,410,000	403,436		300,008	0	21,501,781	10,5∠6,088	0.00%	



Run 8 - Use CRSP Minimum Power Pools, 7.50 maf Lower Basin Delivery, 6% Overall Shortage

	CR Natural	Total Carry- Over	CRSP Carry-	Lower Basin	Upper	Shared CRSP	Net Available to			UC Basin Year-end			
CY	Ferry (plus)	Storage (plus)	Over Storage	Delivery (minus)	Basin Use (minus)	Evap (minus)	Store (subtotal)	Spill to LC (minus)	Shortage (plus)	Storage (equals)	CRSP Year- end Storage	Variables	
1906 1907	18,550,021 21,201,694	33,833,590 33,833,590	29,151,263 29,151,263	7,500,000 7,500,000	6,760,000 6,760,000	725,390 725,390	37,398,221 40,049,894	3,564,631 6,216,304	0	33,833,590 33,833,590	29,151,263 29,151,263	Storage Sedimentation Rate (Active)	35,233,298 af 37,000 af/yr
1908	12,218,817 22,356,301	33,833,590 31,096,160	29,151,263 26,792,673	7,500,000 7,500,000	6,760,000 6,760,000	696,247 696,247	31,096,160 38,496,213	4,662,623	0	31,096,160 33,833,590	26,792,673	Bank Storage Adjusted Storage (2060)	4% 33,833,590 af
1909 1910	14,650,616	33,833,590	29,151,263	7,500,000	6,760,000	721,863	33,502,343	0	0	33,502,343	29,151,263 28,865,858	UB Demand Level	6,760,000 af/yr
1911 1912	15,499,729 18,623,410	33,502,343 33,833,590	28,865,858 29,151,263	7,500,000 7,500,000	6,760,000 6,760,000	721,863 725.390	34,020,209 37,471,610	186,619 3,638,020	0	33,833,590 33,833,590	29,151,263 29,151,263	LB Delivery	7,500,000 af/yr
1913	14,536,373	33,833,590	29,151,263	7,500,000	6,760,000	720,660	33,389,303	0	0	33,389,303	28,768,462		
1914 1915	21,354,814 13,623,277	33,389,303 33,833,590	28,768,462 29,151,263	7,500,000 7,500,000	6,760,000 6,760,000	720,660 711,041	39,763,457 32,485,825	5,929,867 0	0	33,833,590 32,485,825	29,151,263 27,990,019	Results	
1916	20,142,892	32,485,825	27,990,019	7,500,000	6,760,000	711,041	37,657,676	3,824,086	0	33,833,590	29,151,263	Average CRSP Evap	416,577 af/yr
1917 1918	22,942,804 15,865,939	33,833,590 33,833,590	29,151,263 29,151,263	7,500,000 7,500,000	6,760,000 6,760,000	725,390 725,390	41,791,004 34,714,139	7,957,414 880,549	0	33,833,590 33,833,590	29,151,263 29,151,263	Total Yield w/ CRSP evap	7,176,577 af/yr
1919 1920	12,651,369 22,287,632	33,833,590 31,524,155	29,151,263 27,161,438	7,500,000 7,500,000	6,760,000 6,760,000	700,804 700,804	31,524,155 38,850,983	0 5,017,394	0	31,524,155 33,833,590	27,161,438 29,151,263	Shortage Years	<u>Shortage</u>
1921	22,526,781	33,833,590	29,151,263	7,500,000	6,760,000	725,390	41,374,981	7,541,391	0	33,833,590	29,151,263	1963	1,436,832 af
1922 1923	18,447,198 19,024,046	33,833,590 33,833,590	29,151,263 29,151,263	7,500,000 7,500,000	6,760,000 6,760,000	725,390 725,390	37,295,398 37,872,246	3,461,808 4,038,656	0	33,833,590 33,833,590	29,151,263 29,151,263	1964 1967	3,401,431 af 727,706 af
1924	13,877,798 14,430,701	33,833,590	29,151,263	7,500,000	6,760,000	713,723 696,458	32,737,665	0	0	32,737,665	28,207,007	1968	525,085 af
1925 1926	15,213,731	32,737,665 32,211,908	28,207,007 27,754,010	7,500,000 7,500,000	6,760,000 6,760,000	693,630	32,211,908 32,472,009	0	0	32,211,908 32,472,009	27,754,010 27,978,115	1977	3,913,425 af
1927 1928	19,539,212 16,954,334	32,472,009 33,833,590	27,978,115 29,151,263	7,500,000 7,500,000	6,760,000 6,760,000	710,894 725,390	37,040,326 35,802,534	3,206,736 1,968,944	0	33,833,590 33,833,590	29,151,263 29,151,263	NM allocation (w/o evap)	754,875 af/yr
1929	21,829,585	33,833,590	29,151,263	7,500,000	6,760,000	725,390	40,677,785	6,844,195	0	33,833,590	29,151,263	Note: NM allocation is exclusi	
1930 1931	14,621,041 8,474,134	33,833,590 33,473,079	29,151,263 28,840,644	7,500,000 7,500,000	6,760,000 6,760,000	721,552 649,207	33,473,079 27,038,006	0	0	33,473,079 27,038,006	28,840,644 23,296,139	CRSP evaporation. Navajo ev primarily charged against NM's	
1932	17,422,187	27,038,006	23,296,139	7,500,000	6,760,000	607,893	29,592,300	0	0	29,592,300	25,496,937	CRSP evaporation is already	
1933 1934	12,183,500 6,178,192	29,592,300 26,909,278	25,496,937 23,185,226	7,500,000 7,500,000	6,760,000 6,760,000	606,523 486,740	26,909,278 18,340,729	0	0	26,909,278 18,340,729	23,185,226 15,802,503	demands.	
1935	12,630,349	18,340,729	15,802,503	7,500,000	6,760,000	374,189 353,236	16,336,890	0	0	16,336,890	14,075,981	Total Upper Basin depletion, in 1953-1977	
1936 1937	14,648,873 14,306,056	16,336,890 16,372,527	14,075,981 14,106,686	7,500,000 7,500,000	6,760,000 6,760,000	353,236 350,375	16,372,527 16,068,208	0	0	16,372,527 16,068,208	14,106,686 13,844,483	1953-1977 1931-1977	6,882,986 af/yr 7,019,645 af/yr
1938 1939	18,148,319 11,164,059	16,068,208 19,572,090	13,844,483 16,863,452	7,500,000 7,500,000	6,760,000 6,760,000	384,437 384,685	19,572,090 16,091,464	0	0	19,572,090 16,091,464	16,863,452 13,864,520	1906-2000	7,176,577 af/yr
1940	9,931,657	16,091,464	13,864,520	7,500,000	6,760,000	298,375	11,464,746	0	0	11,464,746	9,878,107		
1941 1942	20,116,678 17,225,136	11,464,746 17,013,235	9,878,107 14,658,725	7,500,000 7,500,000	6,760,000 6,760,000	308,188 394,622	17,013,235 19,583,749	0	0	17,013,235 19,583,749	14,658,725 16,873,498	Flow Adjustments: 1971	203,226 af
1943	13,731,401	19,583,749	16,873,498	7,500,000	6,760,000	411,974	18,643,176	0	0	18,643,176	16,063,094	1972	226,985 af
1944 1945	15,369,422 14,140,528	18,643,176 19,343,185	16,063,094 16,666,227	7,500,000 7,500,000	6,760,000 6,760,000	409,413 411,216	19,343,185 18,812,498	0	0	19,343,185 18,812,498	16,666,227 16,208,983	1973 1974	252,377 af 196,384 af
1946	11,095,453 16,439,486	18,812,498 15,279,991	16,208,983	7,500,000	6,760,000	367,959	15,279,991	0	0	15,279,991 17,109,646	13,165,350 14,741,793	1975	246,665 af
1947 1948	15,139,294	15,279,991	13,165,350 14,741,793	7,500,000 7,500,000	6,760,000 6,760,000	349,831 374,681	17,109,646 17,614,259	0	0	17,109,646	14,741,793 15,176,571	1976 1977	173,250 af 112,291 af
1949 1950	16,933,584 13,140,416	17,614,259 19,883,630	15,176,571 17,131,878	7,500,000 7,500,000	6,760,000 6,760,000	404,213 412,066	19,883,630 18,351,980	0	0	19,883,630 18,351,980	17,131,878 15,812,197	1978 1979	152,187 af 153,559 af
1951	12,505,894	18,351,980	15,812,197	7,500,000	6,760,000	373,115	16,224,759	0	0	16,224,759	13,979,368	1980	161,893 af
1952 1953	20,805,422 11,165,419	16,224,759 22,354,457	13,979,368 19,260,760	7,500,000 7,500,000	6,760,000 6,760,000	415,724 443,316	22,354,457 18,816,559	0	0	22,354,457 18,816,559	19,260,760 16,212,482		
1954	8,496,102	18,816,559	16,212,482	7,500,000	6,760,000	340,664	12,711,997	0	0	12,711,997	10,952,748		
1955 1956	9,413,908 11,426,874	12,711,997 7,644,180	10,952,748 6,586,280	7,500,000 7,500,000	6,760,000 6,760,000	221,725 136,164	7,644,180 4,674,890	0	0	7,644,180 4,674,890	6,586,280 4,027,919		
1957	21,500,963	4,674,890	4,027,919	7,500,000	6,760,000	179,726	11,736,128	0	ō	11,736,128	10,111,931		
1958 1959	15,862,511 9,598,169	11,736,128 13,069,545	10,111,931 11,260,813	7,500,000 7,500,000	6,760,000 6,760,000	269,094 231,199	13,069,545 8,176,515	0	0	13,069,545 8,176,515	11,260,813 7,044,944		
1960	11,524,160 10,010,259	8,176,515	7,044,944 4,559,859	7,500,000	6,760,000 6,760,000	148,403 71,693	5,292,272	0	0	5,292,272	4,559,859		
1961 1962	17,377,609	5,292,272 970,838	836,481	7,500,000 7,500,000	6,760,000	58,257	970,838 4,030,190	0	0	970,838 4,030,190	836,481 3,472,440		
1963 1964	8,840,900 10,863,586	4,030,190 0	3,472,440 0	7,500,000 7,500,000	6,760,000 6,760,000	47,922 5,017	-1,436,832 -3,401,431	0	1,436,832 3,401,431	0	0		
1965	19,875,027	0	0	7,500,000	6,760,000	64,111	5,550,916	0	0	5,550,916	4,782,709		
1966 1967	10,679,844 11,670,830	5,550,916 1,886,565	4,782,709 1,625,478	7,500,000 7,500,000	6,760,000 6,760,000	84,195 25,101	1,886,565 -727,706	0	0 727,706	1,886,565 0	1,625,478 0		
1968	13,739,932	0	0	7,500,000	6,760,000	5,017	-525,085	0	525,085	0	0		
1969 1970	15,272,159 15,344,136	996,533	0 858,620	7,500,000 7,500,000	6,760,000 6,760,000	15,626 37,378	996,533 2,043,291	0	0	996,533 2,043,291	858,620 1,760,514		
1971 1972	15,493,659 13,186,637	2,043,291 3,215,943	1,760,514 2,770,880	7,500,000 7,500,000	6,760,000 6,760,000	61,006 61,409	3,215,943 2,081,171	0	0	3,215,943 2,081,171	2,770,880 1,793,152		
1973	18,650,193	2,081,171	1,793,152	7,500,000	6,760,000	95,054	6,376,310	0	0	6,376,310	5,493,874		
1974 1975	13,285,426 17,072,661	6,376,310 5,272,706	5,493,874 4,543,001	7,500,000 7,500,000	6,760,000 6,760,000	129,030 145,674	5,272,706 7,939,693	0	0	5,272,706 7,939,693	4,543,001 6,840,897		
1976	11,313,561	7,939,693	6,840,897	7,500,000	6,760,000	141,196	4,852,059	0	0	4,852,059	4,180,569		
1977 1978	5,551,188 15,335,909	4,852,059 0	4,180,569 0	7,500,000	6,760,000 6,760,000	56,671 16,297	-3,913,425 1,059,611	0	3,913,425 0	0 1,059,611	0 912,969		
1979 1980	17,825,429	1,059,611	912,969 3,929,097	7,500,000	6,760,000 6,760,000	64,844 139,663	4,560,195	0	0	4,560,195	3,929,097 6,968,341		
1981	17,927,076 9,015,200	4,560,195 8,087,608	6,968,341		6,760,000	120,102	8,087,608 2,722,707	0	0	8,087,608 2,722,707	2,345,903		
1982 1983	17,489,400 24,361,989	2,722,707 5,855,764	2,345,903 5,045,368	7,500,000 7,500,000	6,760,000 6,760,000	96,342 234,741	5,855,764 15,723,013	0	0	5,855,764 15,723,013	5,045,368 13,547,060		
1984	25,359,376	15,723,013	13,547,060	7,500,000	6,760,000	453,124	26,369,265	0	0	26,369,265	22,719,947		
1985 1986	21,246,109 23,013,446	26,369,265 32,721,289	22,719,947 28,192,897	7,500,000 7,500,000	6,760,000 6,760,000	634,084 713,548	32,721,289 40,761,187	0 6,927,597	0	32,721,289 33,833,590	28,192,897 29,151,263		
1987	15,640,478	33,833,590	29,151,263	7,500,000	6,760,000	725,390	34,488,679	655,089	0	33,833,590	29,151,263		
1988 1989	11,456,357 9,921,847	33,833,590 30,341,731	29,151,263 26,142,652	7,500,000 7,500,000	6,760,000 6,760,000	688,216 598,488	30,341,731 25,405,090	0	0	30,341,731 25,405,090	26,142,652 21,889,207		
1990	9,639,803	25,405,090	21,889,207	7,500,000	6,760,000	491,515	20,293,378	0	0	20,293,378	17,484,920		
1991 1992	12,170,021 10,895,580	20,293,378 17,792,922	17,484,920 15,330,509	7,500,000 7,500,000	6,760,000 6,760,000	410,477 344,374	17,792,922 14,084,127	0	0	17,792,922 14,084,127	15,330,509 12,134,985		
1993	18,160,118	14,084,127	12,134,985	7,500,000	6,760,000	342,762	17,641,483	0	0	17,641,483	15,200,028		
1994 1995	11,125,503 20,047,166	17,641,483 14,163,380	15,200,028 12,203,269	7,500,000 7,500,000	6,760,000 6,760,000	343,606 364,309	14,163,380 19,586,237	0	0	14,163,380 19,586,237	12,203,269 16,875,642		
1996	14,502,293	19,586,237	16,875,642	7,500,000	6,760,000	420,147	19,408,383	0	0	19,408,383	16,722,402		
1997 1998	21,622,438 16,798,378	19,408,383 26,279,420	16,722,402 22,642,536	7,500,000 7,500,000	6,760,000 6,760,000	491,401 585,341	26,279,420 28,232,457	0	0	26,279,420 28,232,457	22,642,536 24,325,287		
1999 2000	15,934,210 10,646,526	28,232,457 29,289,284	24,325,287 25,235,857	7,500,000 7,500,000	6,760,000 6,760,000	617,383 583,949	29,289,284 25,091,861	0	0	29,289,284 25,091,861	25,235,857 21,619,327		
	10,040,020	20,203,204	20,200,007	,,550,000	0,700,000	555,543	20,001,001	0		20,031,001	21,013,321		
Total Averages:									10,004,478			Percentage shortage =	
1953-1977 1931-1977	13,088,628 13,594,590				6,760,000 6,760,000	122,986 259,645		0	400,179 212,861	5,093,532 11,602,960	4,388,624 9,997,193	5.92% 3.15%	
1906-2000	15,284,742				6,760,000	416,577		805,494	105,310	19,283,636	16,614,918	1.56%	

# **APPENDIX B - Reservoir Storage**

### Upper Colorado River Basin Reservoir Storage

16 Fruitgrowers         X         4,460         A,460         CO         CR         FGRC         Hydromet         HYDromet         NRCS Website http://www.wcc.nrcs.usda.gov/wsf/reservoirfresv_rp.thml           18 Green Mountain         X         153,678         153,678         CO         CR         GMRC         NRCS Website http://www.wcc.nrcs.usda.gov/wsf/reservoirfresv_rp.thml           19 Groundring         X         27,500         CO         CR         NRCS Website http://www.wcc.nrcs.usda.gov/wsf/reservoirfresv_rp.thml	Upper Colorado River Basin Reservoirs	Complete	Live Capacity	CRSP Live	CRSP Active	CRSP Active +Other	State	Major Basin	Hydromet	Source
3 Bodes Lake		X								
A considerable				829,500	748,500				BMDC	
S Convalided   X		X							DUDU	Jade Henderson Superintendent for Region IV
Company   Comp		~								Erily Knight from C Loffice
Description   Common   Commo				17 536	13 000					
S   B   B   C   C   C   C   C   C   C   C				17,550	13,000					
5 Electric   13,164									CORO	
10 Electric Lake - Ush Prower at X		^							EDRII	14100 Website http://www.wcc.incs.dadd.gov/wsi/reservoii/resv_ipt.htmli
1 El-blands		r X							LDITO	Connely Baldwin at Pacific Corp. Connely Baldwin@pacificorp.com or 801-220-4636
12 Parming Gorge										
13 Fronzent Lake X 30,899	12 Flaming Gorge	X	3,749,000	3.749.000	3.515.700	3.515.700	UT	GR	FGRU	
15 Gould 15 Gould 17 Careby 17 Careby 18 Fullgrowers 18 4,460 19 4,460 19 5,400 19 5		X					WY	GR	FTRW	Hydromet
16 Frugnovers	14 Fremont Lake		30,899			30,899	WY	GR		Jade Henderson Superintendent for Region IV
17 Gm/shy	15 Gould	X	10,380			10,380	co	CR		George Wear with Colorado Division of Water Resources george.wear@dwr.state.co.us
16 Groundhog   X   27,500   27,500   CC   CR   CR   CR   CR   CR   CR									FGRC	
9 Groundrog	17 Granby		540,033			540,033				NRCS Website http://www.wcc.nrcs.usda.gov/wsf/reservoir/resv_rpt.html
20 Clurly	18 Green Mountain		153,678			153,678	CO	CR	GMRC	NRCS Website http://www.wcc.nrcs.usda.gov/wsf/reservoir/resv_rpt.html
21 Homestake	19 Groundhog									
22 Jackson Guldry   X   9,951   9,951   0.0	20 Gurley									George Wear with Colorado Division of Water Resources george.wear@dwr.state.co.us
23 Jose Valley										
24 Johnson										
25 Elaker Prowell  25 Laker Prowell  26 Laker Prowell  27 Lake Viva Naughton  28 Lemon  28 Lemon  29 Long Park  30 McPhee  30 McPhee		X							JVRU	Hydromet
26 Lake Powel   X   24,322,000   24,322,000   20,309,919   20,309,91										
27 Lake Vwa Nauphton X 98,945 69,645 69,845 WY GR Connely Baldwin@pacificorp.com or 801-220 Lemon X 39,792 39,792 CO SJR LMRC Hydromet 14,600 UT GR C SJR LMRC Hydrom										
28 Lennor		X		24,322,000	20,309,919				GLDA	
29 Long Park										
30 MePage		X							LMRC	Hydromet
31 Mesks Cabin   X										
22 Millsite   20,000										
33 Mirrante X 11,220									MERW	rydromet
34 Moro Lake		ν.								George Wear with Colorado Division of Water Resources george wear@dur.state.co.us
35 Morrow Proint   X   17,025   17,025   42,120   22,700   CC   CR   MFRC   Hydromet   MFCS Website http://www.wc.nrcs.usda.go/wsl/reservoir/resv_rpt.html   Hydromet   MFCS Website   Hydromet   MFCS Website   MFCS Website   Hydromet   MFCS Website   MFCS Webs									MNILLI	
14		^							WIINEO	Trydroniek
37 Narraquinnep		X		117 025	42.120				MPRC	Hydromet
1,000				,	,					
39 New Fork Lake				1.696.000	1.036.100	1.036.100	NM	SJR	NVRN	
41 Pelsan Lake 15,850 15,850 UT GR 42 Pleasant Valley (Lake Catam X 7,275 7,275 C C C C C C C C C C C C C C C C C C C	39 New Fork Lake	X	20,340			20,340	WY	GR		Jade Henderson Superintendent for Region IV
42 Pleasant Valley (Lake Catam X 7,275   72.75	40 Paonia	X	16,703			16,703			PARC	Hydromet
43 Reapture Creek	41 Pelican Lake		15,850			15,850				
44 Redflefe X 25,700 25,700 CC CR RGRC Hydromet A5 Ridgway X 82,980 R2,980 CC CR RGRC Hydromet A6 Ridge A6 Rile Cap X 12,708 12,708 12,708 CC CR RGRC Hydromet A7 Rued X 102,330 102,330 CC CR RGRC Hydromet A9 Shadow Mountain X 18,368 18,368 CC CR SRRC GReat Planes Region Website A9 Shadow Mountain X 18,368 18,368 CC CR SRRC Great Planes Region Website A9 Shadow Mountain X 13,000 13,000 CC CR SRC GREAT RESPONSIBLE AND ASSESSED AND ASSESSED AS	42 Pleasant Valley (Lake Catam	ı X	7,275			7,275	co			Erin,Light@state.co.us Division 6 Water Resources for State of Colorado
45 Ridyawy X 82,980 82,980 CO CR RWRC Hydromet 46 Ridle Gap X 12,708 12,708 12,708 CO CR RURC Great Planes Region Website 47 Ruedi X 102,330 102,330 CO CR RURC Great Planes Region Website 49 Shadow Mountain X 18,368 13,368 13,368 CO CR SMRC Great Planes Region Website 49 Shadow Mountain X 18,368 13,368 CO CR SMRC Great Planes Region Website 49 Shadow Mountain X 18,368 13,300 CO CR SMRC Great Planes Region Website 49 Shadow Mountain X 18,368 13,300 CO CR SMRC Great Planes Region Website 49 Shadow Mountain X 18,368 CO CR SMRC Great Planes Region Website 49 Shadow Mountain X 18,368 CO CR SMRC Great Planes Region Website 49 Great Planes Region Web	43 Recapture Creek		16,000			16,000				
46 RHis Gap X 12,708 12,708 12,708 CC CR RGRC Hydromet 47 Ruedi X 102,330 102,										
47 Ruadi X 102,330 102,330 1CO CR RURC Great Planes Region Website   48 Scoffeld X 65,800 66,800 UT GR SFRU   Hydromet   49 Shadow Mountain X 18,388 13,888 12,888 13,888 CC CR SMRC Great Planes Region Website   51 Soldier Creek X 13,000 13,000 12,000 CC CR SMRC   Hydromet   52 Stagecoach X 33,275 33,275 CC GR SMRC   Hydromet   52 Stagecoach X 1,105,910 UT GR SKRU   Hydromet   53 Starvation X 165,320 165,320 UT GR SKRU   Hydromet   54 Stateline X 13,880 13,880 WY GR SKRU   Hydromet   54 Stateline X 13,880 13,880 UT GR SKRU   Hydromet   55 Steambout Lake X 25,400 CC GR SKRU   Hydromet   57 Taylor Park X 106,210 100,210 CC CR TPKC   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout Lake X 31,382 UT GR SKRU   Hydromet   58 Steambout   58										
48 Schofiel X 65,800 65,800 CF										
49 Shadow Mountain         X         18,388         18.388         CO         CR         SMC         Great Planes Region Website           50 Silver Jack         X         13,000         13,000         CO         CR         SJRC         Hydromet           51 Soldier Creek         X         1,105,910         11,05,910         UT         GR         SJRC         Hydromet           52 Stagecoach         X         33,275         33,275         CO         GR         Image: Company of the phydromet         Image: Company of the phydromet         Image: Company of the phydromet         Hydromet         Hydromet         Hydromet         Hydromet         Hydromet         Hydromet         SS Reamboal Lake         X         25,400         CO         GR         STRU         Hydromet         Hydromet         STRU         Hydromet         Hydromet         STRU         Hydromet         <										
50 Silver Jack										
51 Solder Creek										
52 Stagecoach         X         33,275         33,275         CO         GR         Efn.Light@state.co.us. Division 6 Water Resources for State of Colorado           54 Stateline         X         13,880         13,880         WY         GR         SVRU Hydromet           54 Stateline         X         25,400         25,400         CO         GR         Efn.Light@state.co.us. Division 6 Water Resources for State of Colorado           55 Steambact ake         X         25,400         25,400         CO         GR         STRU         Hydromet         Hydromet           56 Steinsker         X         34,455         34,455         UT         GR         STRU         Hydromet         Hydromet         Hydromet         Hydromet         Hydromet         Strate of Colorado         Fin.Light@state.co.us. Division 6 Water Resources for State of Colorado         Colorado         Fin.Light@state.co.us. Division 6 Water Resources for State of Colorado         Colorado         Fin.Light@state.co.us. Division 6 Water Resources for State of Colorado         Fin.Light@state.co.us. Division 6 Water Resources for State of Colorado         Colorado         Fin.Light@state.co.us. Division 6 Water Resources for State of Colorado         Colorado         Fin.Light@state.co.us. Division 6 Water Resources for State of Colorado         Colorado         Fin.Light@state.co.us. Division 6 Water Resources for State of Colorado         Colorado         Colorad										
53 Slarwation         X         165,320         165,320         UT         GR         SVRU         Hydromet           54 Stateline         X         13,880         13,880         CO         GR         SLRNW         Hydromet           55 Steanabcat Lake         X         25,400         25,400         CO         GR         STRU         Hydromet           57 Taylor Park         X         106,210         106,210         CO         CR         TPRC         Hydromet           59 Vallection         X         2125,400         125,400         CO         SIR         USRU         Hydromet           60 Vega         X         33,311         33,311         CO         CR         VCRC         Hydromet         Hydromet           61 Williams Fork         X         10,084         10,084         CO         CR         TRIK         Hydromet         Hydromet           62 Williams Fork         X         96,824         96,824         CO         CR         WGR         Great Planes Region Website           63 Willow Lake         X         18,816         18,816         WY         GR         WGR         Hydromet         Hydromet									SCRU	
54 Stateline X 13,880 13,80 WY GR SLAW Hydromet 55 Staemboat Lake X 25,400 25,400 CO GR 56 Steinaker X 34,455 34,455 UT GR STRU Hydromet 56 Steinaker X 106,210 106,210 CO CR FRC 57 Taylor Park X 106,210 106,210 CO CR FRC 58 Upper Stillwater X 131,382 133,82 UT GR USRU Hydromet 59 Vallecio X 125,400 125,400 CO SR VCRC 60 Vega X 33,311 33,311 CO CR WGR USRU Hydromet 61 Williams Fork X 10,084 10,084 CO CR WGR GR WGR WGR WIN Colorado Division of Water Resources george.wear@dwr.st 62 Williams Fork X 96,824 95,824 CO CR WGR GR Green Planes Region Website 63 Willow Lake X 18,816 18,816 WY GR									ou ini	
55 Stemahoar Lake         X         25,400         25,400         CO         GR         Efin.LightEstate.co.us         Division 6 Water Resources for State of Colorado           56 Stemahor         X         34,455         34,455         UT         GR         STRU         Hydromet           57 Taylor Park         X         106,210         106,210         CO         CR         TPRC         Hydromet           58 Upper Sillwater         X         31,382         31,382         UT         GR         USRU         Hydromet           59 Vallecilo         X         125,400         125,400         SR         VCRC         USRU         Hydromet           60 Vega         X         33,311         33,311         CO         CR         VGRC         Erik Knight from GJ office           61 Williams Fork         X         96,824         96,824         CO         CR         WFC         Great Planes Region Website           62 Williams Fork         X         18,816         18,916         WY         GR         User Williams Port         Great Planes Region IV										
56 Steinaker         X         34,455         34,455         UT         GR         STRU         Hydromet           57 Taylor Park         X         106,210         106,210         CO         CR         TPRC         Hydromet           58 Upper Stillwater         X         31,382         31,382         UT         GR         USRU         Hydromet           59 Vallacio         X         225,400         125,400         CO         SJR         VCRC         Hydromet           60 Vega         X         33,331         33,311         CO         CR         VGRU         Elik Knight from GJ office           61 Williams Forek         X         10,084         CO         CR         George Wear with Colorado Division of Water Resources george.wear@dwr.str           62 Williams Fork         X         96,824         96,824         CO         CR         WFC         Great Planes Region Website           33 Willow Lake         X         18,816         Wy         GR         Globel Henderson Supprintendent for Region IV									SLRW	
57 Taylor Park         X         106,210         109,210         CO         CR         TPRC         Hydromet           58 Upper Stillwater         X         31,382         31,382         UT         GR         USRU         Hydromet           59 Vallecito         X         125,400         125,400         CO         SJR         VCRC         Hydromet           60 Vega         X         33,311         33,311         CO         CR         VGRU         Erik Knight from GJ office           61 Williams Fork         X         10,084         O         CR         Grouper Wear with Colorado Division of Water Resources george.wear@dwr.str           62 Williams Fork         X         96,824         96,824         CO         CR         WFC         Great Planes Region Website           80 Willow Lake         X         18,816         W         GR         Jade Henderson Suppenintendent for Region IV									CTD!	
58 Upper Sillwater X 31,382 31,382 UT GR USRU Hydromet C GR GR USRU Hydromet C GR										
59 Vialecio         X         125,400         125,400         CO         SJR         VCRC         Hydromet         Hydromet           60 Vega         X         33,311         33,311         CO         CR         VGRU         Enik Knight from GJ office           61 Williams Fork         X         10,084         10,084         CO         CR         George Wear with Colorado Division of Water Resources george.wear@dwr.sta           62 Williams Fork         X         96,824         96,824         O         CR         WFC         Great Planes Region Website           63 Willow Lake         X         18,816         WY         GR         Jade Henderson Superintendent for Region IV										
60 Vega X 33,311 33,311 CO CR VGRU Erik Knight from GJ office 61 Villiams Terek X 10,084 10,084 CO CR George Wear with Colorado Division of Water Resources george.wear@dwr.sti 62 Villiams Fork X 96,824 95,824 CO CR WFC Great Planes Region Website 33 Williow Lak X 18,816 18,816 WY GR										
61 Williams Creek X 10,084 10,084 CO CR George Wear with Colorado Division of Water Resources george .wear@dwr.st. 62 Williams Fork X 96,824 59,824 CO CR WFRC Great Planes Region Website S Willow Lake X 18,816 18,816 WY GR Jade Henderson Superintendent for Region IV										
62 Williams Fork X 96,824 96,824 CO CR WFRC Great Planes Region Website 63 Willow Lake X 18,816 18,816 WY GR GREAT									VGRU	
63 Willow Lake X 18,816 18,816 WY GR Jade Henderson Superintendent for Region IV									WERC	
									WINC	
									WCRC	
									WORL	George Wear with Colorado Division of Water Resources george.wear@dwr.state.co.us
66 Yamoolo X 8.000 CO GR Eini, Light@state.co.us Division 6 Water Resources for State of Colorado										
Total Capacity 35,233,298 30,731,061 25,665,339 30,167,576				30,731,061	25,665,339					





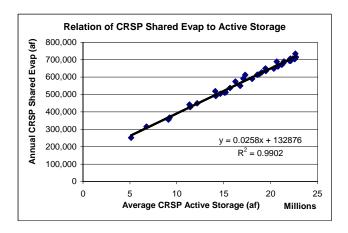
# **APPENDIX C - CRSP Evaporation Analysis**

#### Relationships of CRSP Shared Reservoir Evaporation to Total CRSP Storage

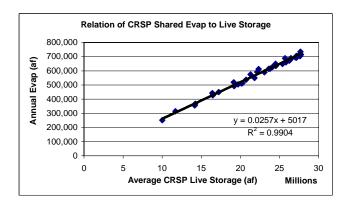
	Average	Average	CRSP
	CRSP Live	CRSP Active	Shared
<u>Year</u>	Storage (af)	Storage (af)	Evap (af)
1968	10,006,534	5,123,250	251,646
1969	11,701,142	6,764,000	315,083
1970	14,222,401	9,231,741	367,164
1971	16,417,858	11,354,088	442,260
1972	17,229,715	12,165,945	449,544
1973	19,703,066	14,639,296	504,409
1974	22,158,563	17,094,793	590,940
1975	23,634,096	18,570,326	613,612
1976	24,105,743	19,041,973	626,694
1977	20,730,592	15,672,536	537,406
1978	19,158,480	14,106,380	519,065
1979	22,336,514	17,284,414	612,639
1980	25,709,770	20,657,670	688,502
1981	25,392,305	20,340,205	648,525
1982	25,835,729	20,783,629	666,691
1983	27,692,454	22,640,354	734,416
1984	27,759,568	22,707,468	714,727
1985	27,619,938	22,567,838	702,973
1986	27,414,909	22,362,809	706,131
1987	27,153,464	22,101,364	705,172
1988	26,465,639	21,413,539	689,455
1989	24,540,351	19,488,251	634,821
1990	21,806,134	16,754,034	549,702
1991	20,141,572	15,089,472	510,689
1992	19,208,740	14,156,640	491,352
1993	21,297,564	16,245,464	573,884
1994	23,080,796	18,028,696	589,440
1995	24,500,724	19,448,624	649,206
1996	26,252,053	21,199,953	671,123
1997	26,416,641	21,364,541	681,115
1998	27,174,302	22,122,202	693,294
1999	27,050,819	21,998,719	694,007
2000	25,830,330	20,778,230	660,675
2001	23,802,258	18,750,158	614,593
2002	20,256,954	15,204,854	512,030
2003	16,472,537	11,420,437	427,526
2004	14,160,551	9,108,451	355,545

#### Regression Analyses

Active Storage:



#### Live Storage:



#### Notes:

- (1) Historic calendar year data from Bureau of Reclamation. Average storage values are based on the average of the end-of-year storage amounts for the year indicated and for the previous year. Storage amounts include storage in all CRSP units, including Lake Powell, Flaming Gorge Reservoir, Navajo Reservoir and the Aspinall Unit (Blue Mesa, Morrow Point and Crystal reservoirs).
- (2) CRSP shared evaporation includes lake evaporation for Lake Powell, Flaming Gorge Reservoir and the Aspinall Unit reservoirs, and is shared between the Upper Division States in proportions to their Upper Colorado River Basin Compact Article III(a) apportionments. CRSP shared evaporation is approximately 10,000 af at zero live CRSP storage (5,000 af based on the regression analyses) and approximately 130,000 af if storage in all CRSP reservoirs were at the top of the inactive pools (133,000 af based on the regression analysis). Lake evaporation for Navajo Reservoir is not included in CRSP shared evaporation.
- (3) Data for the period 1968-2004 were used in the regression analyses. Data prior to 1968 do not reflect a normal distribution of storage between CRSP unit reservoirs under future operational conditions (for example, Navajo Reservoir storage remained below the top of the inactive pool required for operation of the Navajo Indian Irrigation Project diversion from 1962 when it began storing water until 1968, and Morrow Point Reservoir began operation in 1968). For the period 1968-1977, the historic average end-of-year CRSP storage and annual CRSP evaporation amount were increased to reflect the average storage of 15,670 af and average evaporation amount of 340 af occurring at Crystal Reservoir after its initial filling in 1978.

#### Historic Storage and Evaporation at Colorado River Storage Project Reservoirs

	Lake I	Powell	Flaming Gor	ge Reservoir	Navajo F	Reservoir	Blue Mesa	Reservoir	Morrow Poi	nt Reservoir	Crystal F	Reservoir	1	otal All CRSP	Reservoirs Total	Annual
	EOY Live	Annual Evap	EOY Live	Annual Evap	EOY Live	Annual Evap	EOY Live	Annual Evap	EOY Live	Annual Evap	EOY Live	Annual Evap	EOY Live	EOY Active	Annual	Shared
V																
Year	Storage (af)	Amount (af)	Storage (af)	Amount (af)	Storage (af)	Amount (af)	Storage (af)	Amount (af)	Storage (af)	Amount (af)	Storage (af)	Amount (af)	Storage (af)	Storage (af)	Evap (af)	Evap (af)
1961	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	13,000	200	57,000	700	0	0	0	0	0	0	70,000	0	900	200
1962	970,000	25,000	883,500	20,000	331,834	8,323	0	0	0	0	0	0	2,185,334	650,500	53,323	45,000
1964	4,226,877	76,171	1,097,900	42,320	382,320	10,647	0	0	0	0	0	0	5,707,097	1,199,800	129,137	118,490
1964	6,755,838	144.900	2,395,300	47,402	404,111	14,630	0	100	0	0	0	0	9,555,248	5,026,100	207,031	192,401
1965	5,892,764	181,801	2,395,300	65,869	400,389	10,730	248,900	2,500	0	0	0	0	8,785,352	4,178,900	260,900	250,170
1967	6,237,331	158,145	2,243,300	66,614	588,132	13.048	321,500	4,500	0	0	0	0	9,435,263	4,641,100	242.308	229,259
1968	7,039,300	185,829	1,912,939	59.077	973,592	18,631	511,900	6,000	108,735	400	0	0	10,546,465	5,605,400	269,937	251.306
1969	9,527,661	252,105	1,565,599	54,074	1,043,002	22,326	652,343	8,064	35,875	500	0	0	12,824,480	7,922,600	337,068	314,743
1970	12,014,346	305,979	1,761,250	51,442	1,049,190	22,564	647,667	8,804	116,528	600	0	0	15,588,982	10,540,882	389,389	366,824
1971	12,973,499	365,252	2,704,322	68,523	991,296	20,505	431,077	7,297	115,200	848	0	0	17,215,394	12,167,294	462,425	441,920
1972	12,611,547	362.114	3,086,584	79.091	982.869	19,991	415,961	7,257	115,200	845	0	0	17,212,697	12,167,294	469,195	449.204
1973	17,397,040	417,269	2,938,138	77,932	1,112,631	28,408	598,694	8,028	115,730	839	0	0	22,162,095	17,113,995	532,477	504,069
1974	17,298,382	498,708	3,262,393	83,468	970,485	21,646	476,431	7.586	116,000	837	0	0	22,123,690	17,075,590	612,246	590,600
1975	19,846,968	521,418	3,430,797	83,664	1,185,693	26,432	533,575	7,360	116,128	831	0	0	25,113,161	20,065,061	639,704	613,272
1976	18,139,140	533.889	3,129,279	83,640	1,205,201	25,255	478,276	7,980	115,088	845	0	0	23,066,984	18,018,884	651,609	626,354
1977	15,050,697	467,624	1,990,703	62,883	979,918	22,439	235,328	5,729	113,928	832	7,714	100	18,378,288	13,326,188	559,605	537,166
1978	15,343,792	443,338	2,673,304	66,716	1,195,470	24,307	594,351	7,871	115,688	840	16,068	300	19,938,673	14,886,573	543,372	519,065
1979	20,395,402	536,289	2,397,144	67,120	1,233,240	27,623	579,788	8,040	111,536	840	17,244	349	24,734,354	19,682,254	640,261	612,639
1980	21,602,374	606,694	3,013,072	72,311	1,382,000	28,916	558,000	8,314	113,305	836	16,435	348	26,685,186	21,633,086	717,417	688,502
1981	19.610.804	566.573	2.783.198	74.001	1,234,201	26,237	340,276	6.763	114,242	839	16,703	349	24,099,424	19.047.324	674.762	648.525
1982	22,052,326	579,638	3,307,239	78,299	1,475,159	28,337	607,227	7,570	113,713	836	16,369	348	27,572,033	22,519,933	695,028	666,691
1983	22,095,450	638,987	3,451,988	85,654	1,545,720	30,691	593,402	8,583	113,018	842	13,297	350	27,812,875	22,760,775	765,108	734.416
1984	21,991,934	621,218	3,379,535	84,057	1,536,197	31,194	666,201	8,256	115,379	844	17,015	351	27,706,261	22,654,161	745,921	714,727
1985	22,324,682	613,050	3,116,556	80.358	1,392,531	31,206	567,471	8.373	115,476	842	16,900	350	27,533,616	22,481,516	734,179	702,973
1986	21,900,656	615,398	3,257,068	81,239	1,429,801	30,200	576,633	8,304	115,023	841	17,021	350	27,296,202	22,244,102	736,331	706,131
1987	22,041,008	613,810	3,216,414	81,897	1,075,143	24,350	547,283	8,279	113,913	839	16,965	349	27,010,726	21,958,626	729,523	705,172
1988	21,223,202	603,875	2,958,441	77,191	1,149,810	24,336	458,550	7,206	114,808	836	15,742	348	25,920,552	20,868,452	713,791	689,455
1989	18,292,024	551,911	2,943,401	73,516	1,230,357	26,906	563,467	8,217	114,531	832	16,369	346	23,160,150	18,108,050	661,727	634,821
1990	15,246,718	464,809	3,049,072	75,352	1,381,613	26,704	647,094	8,362	110,936	832	16,686	346	20,452,119	15,400,019	576,406	549,702
1991	14,251,955	420,198	3,328,132		1,551,852	30,621	571,167	9,008	111,922	831	15,997	346	19,831,025	14,778,925	541,310	510,689
1992	13,334,385	403,360	3,013,793	78,487	1,528,220	31,554	580,946	8,354	113,617	812	15,495	338	18,586,456	13,534,356	522,907	491,352
1993	18,402,436	483,699	3,317,500	80,461	1,567,023	30,954	594,902	8,546	112,000	832	14,811	346	24,008,671	18,956,571	604,838	573,884
1994	17,220,702	504,284	2,835,277	75,469	1,391,103	30,450	579,329	8,525	110,880	821	15,629	342	22,152,920	17,100,820	619,890	589,440
1995	21,392,360	560,150	3,285,793	79,319	1,461,480	30,153	586,169	8,569	109,120	825	13,607	343	26,848,529	21,796,429	679,359	649,206
1996	20,497,896	582,091	3,248,287	79,159	1,187,295	27,184	601,723	8,707	105,401	823	14,976	343	25,655,578	20,603,478	698,308	671,123
1997	21,595,054	592,707	3,323,228	78,851	1,558,033	28,612	578,393	8,392	108,842	823	14,154	342	27,177,704	22,125,604	709,727	681,115
1998	21,654,054	605,297	3,399,837	78,646	1,412,077	29,148	577,927	8,180	110,739	827	16,265	344	27,170,899	22,118,799	722,442	693,294
1999	21,443,640	605,738	3,269,090	78,352	1,500,893	27,969	589,147	8,749	112,771	825	15,198	343	26,930,739	21,878,639	721,976	694,007
2000	19,823,236	576,898	2,991,270	74,194	1,288,792	26,850	504,611	8,409	107,722	829	14,289	345	24,729,920	19,677,820	687,525	660,675
2001	17,995,952	532,968	2,876,393	72,363	1,334,015	26,563	544,265	8,102	109,410	819	14,561	341	22,874,596	17,822,496	641,156	614,593
2002	13,773,841	436,496	2,631,819	67,919	826,816	20,891	283,191	6,507	109,636	783	14,009	326	17,639,312	12,587,212	532,921	512,030
2003	11,486,774	352,779	2,606,058	67,223	710,076	17,085	376,564	6,359	111,708	823	14,582	343	15,305,762	10,253,662	444,611	427,526
2004	8,663,616	278,349	2,742,643	68,248	991,373	20,353	491,453	7,778	109,666	826	16,589	344	13,015,340	7,963,240	375,898	355,545

- Notes:

  (1) Lake Powell statistics: Dead storage 1,893,000 af at elevation 3370; Live storage capacity 24,322,000 af between elevations 3370 and 3700; Active storage capacity 20,325,000 af between elevations 3490 and 3700. Storage began March 1963.

  (2) Flaming Gorge Reservoir statistics: Dead storage 39,700 af at elevation 5740; Live storage capacity 3,749,500 af between elevations 5740 and 6040; Active storage capacity 3,516,000 af between elevations 5871 and 6040. Storage began November 1962.

  (3) Storage began November 1962.

  (4) Storage began November 1962.

  (5) Storage began November 1962.

  (6) Storage began November 1962.
- 30 Navajo Reservoir statistics: Dead storage 12,600 af at elevation 5775; Live storage capacity 1,701,300 af between elevations 5775 and 6085; Active storage capacity 1,039,500 af between elevations 5990 and 6085. Storage began ulune 1962.
- (4) Aspinall Unit statistics:

- 60.00.5 Glorage organization statistics:

  Blue Mesa Reservoir Dead storage 111,200 af at elevation 7358; Live storage capacity 829,600 af between elevations 7358 and 7519; Active storage capacity 748,800 af between elevations 7393 and 7519.

  Storage began October 1965. End-of-year 1965 total storage for Blue Mesa Reservoir was 85,240 af (0 live storage).

  Morrow Point Reservoir Dead storage 165 af at elevation 6808; Live storage capacity 117,000 af between elevations 6808 and 7160; Active storage capacity 42,000 af between elevations 7100 and 7160.

  Storage began January 1968.

  Crystal Reservoir Dead storage 8,000 af at elevation 6670; Live storage capacity 17,000 af between elevations 6670 and 6755; Active storage capacity 13,000 af between elevations 6700 and 6755. Storage began March 1977.

  (5) Total CRSP Live storage capacity is 30,736,400 af, and total CRSP Active storage capacity is 25,684,300 af. The total CRSP inactive storage capacity is 5,052,100 af.

  (6) Evaporation amounts were computed using the method and coefficients described in Historical Inflows, Colorado River Storage Project, Bureau of Reclamation (Tom Ryan), October 1993.

  (7) The following evaporation amounts were computed using the method and coefficients described in Historical Inflows, Colorado River Storage Project, Bureau of Reclamation (Tom Ryan), October 1993.

  (7) The following evaporation amounts are estimated from calculated evaporation for other years and relative total storage amounts: Lake Powell for 1965, Flaming Gorge Reservoir for 1968, Blue Mesa Reservoir for 1966, Blue Mesa Reservoir for 1966, Blue Morea Reservoir for 1960, Blue Morea Reservoir for 1966, Blue Morea Reservoir for 1966, Blue Morea Reservoir for 1966, Blue Morea Reservoir for 19

# **APPENDIX D - New Mexico Depletion Schedule**

#### STATE OF NEW MEXICO SCHEDULE OF ANTICIPATED UPPER BASIN DEPLETIONS (Units: 1000 acre-feet per year)

(4.11.6.1.1.6.1.1.1.1.1.1.1.1.1.1.1.1.1.1							
	2000	<u>2010</u>	2020	2030	2040	2050	2060
IRRIGATION USES (1)			· <u></u>	· <u></u>	·	· <u></u>	· <u></u>
Navajo Nation Irrigation:							
Navajo Indian Irrigation Project	150.0	215.0	250.0	270.0	270.0	270.0	270.0
Fruitland-Cambridge Irrigation Project	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Hogback-Cudei Irrigation Project	15.5	15.5	21.3	21.3	21.3	21.3	21.3
Chaco River drainage irrigation	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Crystal area irrigation Navajo Nation Irrigation Subtotal	0.3 176.9	0.3 241.9	0.3 282.7	0.3 302.7	0.3 302.7	0.3 302.7	0.3 302.7
Non-Navajo Irrigation:	176.9	241.9	202.1	302.7	302.7	302.7	302.7
Above Navajo Dam (including Jicarilla)	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Upper San Juan (excluding Hammond)	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Hammond Irrigation Project	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Animas River ditches	40.7	40.7	40.7	40.7	40.7	40.7	40.7
La Plata River ditches	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Farmers Mutual Ditch	11.2	11.2	11.2	11.2	11.2	11.2	11.2
Jewett Valley Ditch	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Chaco River drainage irrigation	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Non-Navajo Irrigation Subtotal	86.5	86.5	86.5	86.5	86.5	86.5	86.5
Irrigation Total	263.4	328.4	369.2	389.2	389.2	389.2	389.2
STOCKPOND EVAPORATION AND STOCK USE	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MUNICIPAL AND DOMESTIC USES (1)							
Current Municipal and Industrial Uses	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Animas-La Plata Project:							
San Juan Water Commission	1.0	5.0	10.4	10.4	10.4	10.4	10.4
Navajo Nation	0.0	1.0	2.0	2.3	2.3	2.3	2.3
La Plata Conservancy District	0.0	0.0	0.8	8.0	0.8	0.8	8.0
Ridges Basin Reservoir Evaporation - NM share	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Animas-La Plata Project Subtotal	1.0	6.0	13.3	13.6	13.6	13.6	13.6
Navajo-Gallup Water Supply Project: (2) Navajo Nation	0.0	0.0	7.9	10.2	12.5	12.5	12.5
Jicarilla Apache Nation	0.0	0.0	0.8	10.2	1.2	1.2	12.3
Navajo-Gallup Project Subtotal (within Basin)	0.0	0.0	8.7	11.2	13.7	13.7	13.7
Navajo Nation Municipal Use, Future (exc. NGWSP)	0.0	0.0	1.0	1.0	2.0	2.0	2.0
Jicarilla Apache Nation Municipal Use (exc. NGWSP)	0.0	0.0	0.0	0.4	0.6	0.6	0.6
Scattered Rural Domestic (including Jicarilla)	1.0	1.0	1.0	1.1	1.1	1.2	1.2
Municipal and Domestic Total	11.7	16.7	33.7	37.0	40.7	40.8	40.8
DOWED AND INDUSTRIAL LISES							
POWER AND INDUSTRIAL USES PNM - Navajo Reservoir contract (3)	16.2	16.2	16.2	16.2	16.2	16.2	16.2
BHP Billiton	37.0	37.0	38.0	39.0	39.0	39.0	39.0
Bloomfield Industrial	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Navajo Nation - Shiprock	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Navajo-Gallup Water Supply Project - NAPI (2)	0.0	0.0	0.7	0.7	0.7	0.7	0.7
Small Navajo Reservoir Contracts	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Power and Industrial Total	56.1	56.1	57.8	58.8	58.8	58.8	58.8
EXPORTS							
San Juan-Chama Project	105.2	105.2	105.2	105.2	105.2	105.2	105.2
Navajo-Gallup Water Supply Project: (2)	103.2	100.2	103.2	105.2	103.2	103.2	103.2
Navajo Nation in New Mexico	0.0	0.0	4.0	5.8	7.6	7.6	7.6
City of Gallup	0.0	0.0	4.7	6.1	7.5	7.5	7.5
Navajo-Gallup Project Subtotal (Export)	0.0	0.0	8.7	11.9	15.1	15.1	15.1
Export Total	105.2	105.2	113.9	117.1	120.3	120.3	120.3
RESERVOIR EVAPORATION							
Navajo Reservoir Evaporation	28.3	28.0	27.7	27.7	27.7	27.7	27.7
Small Reservoir Evaporation	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Reservoir Evaporation Total	29.5	29.2	28.9	28.9	28.9	28.9	28.9
TOTAL DEPLETIONS (4)	469.9	E20.6	607.5	635.0	641.9	642.0	642.0
State Share of Upper Basin Yield (5)	469.9 642.4	539.6 642.4	642.4	635.0 642.4	641.9 642.4	642.0 642.4	642.0 642.4
Remaining Available (5,6)	172.5	102.8	34.9	7.4	0.5	0.4	0.4
Percent of State Share Remaining	26.9%	16.0%	5.4%	1.2%	0.1%	0.1%	0.1%
	==:070						2/0

<sup>(1)</sup> Does not reflect post-1965 transfers from irrigation to municipal and industrial uses.
(2) Proposed Navajo-Gallup Water Supply Project depletions in New Mexico total 29,500 acre-feet per year. Exports to Gallup are anticipated to be supplied through a subcontract with the Jicarilla Apache Nation. Exports for Navajo Nation uses in Arizona ar

<sup>(3)</sup> Supplied through a subcontract with the Jicarilla Apache Nation.

<sup>(4)</sup> This is a schedule of anticipated depletions for planning purposes only. It is not a tabulation or determination of water rights or actual uses. Total depletions exclude New Mexico's share of reservoir evaporation from the major reservoirs constructed

<sup>(5)</sup> 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 of any assumption that lim (6) Reserved.

APPENDIX E - Upper Colorado River Commission Resolution

# RESOLUTION OF THE UPPER COLORADO RIVER COMMISSION

Regarding the Availability of Water from Navajo Reservoir for Navajo Nation Uses within the State of New Mexico

WHEREAS, the State of New Mexico has proposed the Navajo-Gallup Water Supply Project to provide a needed renewable water supply from the San Juan River for municipal and domestic uses for Indian and non-Indian communities located within New Mexico in both the Upper Basin and the Lower Basin; and

WHEREAS, the State of New Mexico and the Navajo Nation on April 19, 2005, executed the San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement (the "Settlement Agreement"), which is conditioned upon, among other things, the implementation of the Navajo Nation components of the Navajo-Gallup Water Supply Project within New Mexico; and

WHEREAS, the source of water supply for the proposed Navajo-Gallup Water Supply Project would be Navajo Reservoir and the San Juan River in New Mexico; and

WHEREAS, water from Navajo Reservoir and the San Juan River would be delivered to the proposed Navajo-Gallup Water Supply Project to meet the water demands of Navajo Nation communities in New Mexico through a proposed Settlement Contract between the United States, acting through the Secretary of the Interior, and the Navajo Nation (Appendix 4 to the Settlement Agreement); and

WHEREAS, Public Law 87-483 at section 11(a) requires that no new long-term contracts "... shall be entered into for the delivery of water stored in Navajo Reservoir or any other waters of the San Juan River and its tributaries, as aforesaid, until the Secretary has determined by hydrologic investigations that sufficient water to fulfill said contract is reasonably likely to be available for use in the State of New Mexico during the term thereof under the allocations made in articles III and XIV of the Upper Colorado River Basin compact, and has submitted such determination to the Congress of the United States and the Congress has approved such contracts"; and

WHEREAS, pursuant to Public Law 87-483, and in furtherance of the Jicarilla Apache Tribe Water Rights Settlement Act of 1992 and the Navajo Reservoir water supply contract approved by said Act, the Secretary of the Interior on February 2, 1989, approved the report on "Hydrologic Determination, 1988, Water Availability from Navajo Reservoir and the Upper Colorado River Basin for Use in New Mexico" (the "1988 Hydrologic Determination"); and

WHEREAS, the 1988 Hydrologic Determination evaluated the availability of water from the Navajo Reservoir supply for uses in New Mexico through the 2040 planning horizon; and

WHEREAS, an update and extension to the 1988 Hydrologic Determination is needed to evaluate the availability of water from the Navajo Reservoir supply through a 2060 planning horizon under the allocation of water made to the State of New Mexico by the Upper Colorado River Basin Compact for the purpose of furthering Congressional legislative approval of the Settlement Agreement, the authorization of the proposed Navajo-Gallup Water Supply Project, and the legislative approval of the proposed Settlement Contract for the Navajo Nation's project uses in New Mexico; and

WHEREAS, the proposed Settlement Contract between the United States and the Navajo Nation would provide water supplies for Navajo Nation uses in New Mexico under both the Navajo-Gallup Water Supply Project and the Navajo Indian Irrigation Project which was authorized by Public Law 87-483, and would supersede the existing Navajo Reservoir water supply contract for the Navajo Indian Irrigation Project; and

WHEREAS, the US Bureau of Reclamation has presented to the Upper Colorado River Commission for its consideration a draft hydrologic determination, dated May 2006, that evaluates the availability of water from the Navajo Reservoir supply through 2060 and shows: (1) at least 5.76 million acre-feet of water is reasonably available annually for use by the Upper Basin, exclusive of reservoir evaporation at Lake Powell, Flaming Gorge Reservoir and the Aspinall Unit reservoirs of the Colorado River Storage Project; and (2) sufficient water is reasonably likely to be available from the Navajo Reservoir supply to fulfill the proposed Settlement Contract for the Navajo Nation's uses in New Mexico under the Navajo-Gallup Water Supply Project and the Navajo Indian Irrigation Project, in addition to existing Navajo Reservoir water supply contracts for other uses, under the allocations made to New Mexico in Articles III and XIV of the Upper Colorado River Basin Compact; and

WHEREAS, the Settlement Agreement would provide at subparagraph 9.3.1: "The Navajo Nation and the United States agree that the State of New Mexico may administer in priority water rights in the San Juan River Basin in New Mexico, including rights of the Navajo Nation, as may be necessary for New Mexico to comply with its obligations under interstate compacts and other applicable law"; and

WHEREAS, the Upper Colorado River Commission supports water resource development in the Upper Colorado River Basin to enable the Upper Division States to fully develop their compact apportionments of Colorado River water while meeting compact obligations relating to the flow of the Colorado River at Lee Ferry; and

WHEREAS, it is the position of the Upper Colorado River Commission and the Upper Division States that, with the delivery at Lee Ferry of 75 million acre-feet of water in each period of ten consecutive years, the water supply available in the Colorado River

System below Lee Ferry is sufficient to meet the apportionments to the Lower Basin provided for in Articles III (a) and III (b) of the Colorado River Compact; and

WHEREAS, it is the position of the Upper Colorado River Commission and the Upper Division States that the obligation of the Upper Basin under Article III(c) of the Colorado River Compact to deliver water toward the Mexican Treaty obligation does not require the delivery at Lee Ferry of 0.75 million acre-feet of water annually; and

WHEREAS, the Upper Colorado River Commission anticipates that the Upper Division States will take all actions necessary to ensure that all Upper Basin States have access to their respective apportionments as specified in the Upper Colorado River Basin Compact; and

WHEREAS, the Upper Colorado River Commission on June 19, 2003, resolved that: (1) "the States of Colorado, New Mexico, Utah and Wyoming, support and to the extent necessary consent to the diversion of water from the Upper Basin for use in the Lower Basin solely within New Mexico via the proposed Navajo-Gallup Water Supply Project; provided, that any water so diverted by said project to the Lower Basin portion of New Mexico, being a depletion of water at Lee Ferry, shall be a part of the consumptive use apportionment made to the State of New Mexico by Article III (a) of the Upper Colorado River Compact;" and (2) "the Upper Colorado River Commission supports such Congressional action as may be necessary to authorize the Navajo-Gallup Water Supply Project."

NOW, THEREFORE, BE IT RESOLVED by the Upper Colorado River Commission, that the Commission supports Congressional action to: (1) approve the Settlement Agreement; (2) authorize the proposed Navajo-Gallup Water Supply Project; and (3) approve the proposed Settlement Contract for the Navajo Nation's uses in New Mexico from the Navajo Reservoir supply under the Navajo-Gallup Water Supply Project and the Navajo Indian Irrigation Project.

BE IT FURTHER RESOLVED, that while the Upper Colorado River Commission does not endorse all of the study assumptions used by the Bureau of Reclamation in its May 2006 draft hydrologic determination, including an assumption of a 6 percent allowable overall shortage, and specifically disagrees with the modeling assumption of a minimum Upper Basin delivery of 8.25 million acre-feet annually at Lee Ferry, the Commission supports a determination by the Secretary of the Interior that at least 5.76 million acre-feet of water is available annually for use by the Upper Basin, exclusive of reservoir evaporation at Lake Powell, Flaming Gorge Reservoir and the Aspinall Unit reservoirs of the Colorado River Storage Project.

BE IT FURTHER RESOLVED, that the Upper Colorado River Commission supports a determination by the Secretary of the Interior that sufficient water is reasonably likely to be available to fulfill the proposed Settlement Contract for the Navajo Nation's uses in New Mexico from the Navajo Reservoir supply under the Navajo-Gallup Water Supply Project and the Navajo Indian Irrigation Project, in addition

to existing Navajo Reservoir water supply contracts for other uses, under the allocations made to New Mexico in Articles III and XIV of the Upper Colorado River Basin Compact.

BE IT FURTHER RESOLVED, that nothing in this Resolution, or resulting from the adoption of this Resolution, shall limit the right or ability of any Upper Basin State to develop the full apportionment made to it under the Colorado River Compact and the Upper Colorado River Basin Compact.

BE IT FURTHER RESOLVED, that a copy of this resolution be transmitted to the Regional Director, Upper Colorado Region, Bureau of Reclamation, Salt Lake City, Utah.

### **CERTIFICATE**

I, Don A. Ostler, Executive Director and Secretary of the Upper Colorado River Commission, do hereby certify that the Upper Colorado River Commission adopted the above Resolution at its regular meeting held in Jackson Hole, Wyoming, on June 5, 2006.

WITNESS my hand this 9th day of June 2006.

DON A. OSTLER

**Executive Director and Secretary**