

**Colorado River Workshop Handbook
for the
Colorado Water Conservation Board
July 20, 2004**



*Conserve, Develop, Protect and Manage Colorado's Water
for Present and Future Generations*

"Law of the River" Overview

I. Colorado River Compact (§ 37-61-101, C.R.S.)

- A. Negotiated in 1922 by representatives of the seven Colorado River Basin states and the federal government; effective in 1929 after congressional approval in the Boulder Canyon Project Act (43 U.S.C. § 617-*I*) and passage of California Limitation Act (where California agreed "expressly and unconditionally" with the United States, for the benefit of the other Colorado River Basin States, to limit its uses of the Lower Basin's Compact share to 4.4 MAFY).
- B. Article II(e) & (f) split the Colorado River Basin (at Lee Ferry, Arizona) into an Upper Basin, roughly including the slower developing, higher elevation states of Colorado, New Mexico, Utah, and Wyoming, and a Lower Basin encompassing primarily the fast-growing desert states of Arizona, California, and Nevada.
- C. Article III(a) allocates "**in perpetuity**" the "exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum" to each Basin.
- D. Article III(b) gives the Lower Basin the right to use an additional 1 MAFY, making its total apportionment 8.5 MAFY. The addition million is implicitly to be satisfied from Lower Basin tributaries (Article II(a) defines "Colorado River System" to include all tributaries).
- E. Article III(c) provides that any future Mexican treaty obligation is to be satisfied first "from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b)" and "if surplus shall prove insufficient," the burden is to be borne equally by the Upper and Lower Basin.
- F. Article III(d) is the Lower Basin's protection. It provides that the Upper Division may not "cause the flow at Lee Ferry to be depleted" below 75 million acre-feet every 10 years.
- G. Article III(e) gives both Basins protection: it provides that the Upper Division "shall not withhold water," and the Lower Division "shall not require the delivery of water," "which can not reasonably be applied to domestic and agricultural uses."
- H. These are the apportionment provisions of the compact: other provisions about power uses, present perfected rights, and the like have not been included for the sake of brevity.
- I. The Colorado River Compact was negotiated after several decades of abnormally high flows on the Colorado, so that it overestimated the long-term supply of the Colorado River Basin. This wasn't immediately apparent until the low flow years of the 1930s and 1950s.

II. Upper Colorado River Basin Compact (§ 37-62-101, C.R.S.)

- A. Negotiated in 1948 by representatives of Arizona, Colorado, New Mexico, Utah, Wyoming and the federal government, approved in 1949.

- B. Uses the same definitions as the Colorado River Compact.
- C. Article III(a) apportions “in perpetuity” the Upper Basin’s share of the consumptive use of water under the Colorado River Compact to individual states. Arizona gets a flat 50,000 AFY. The rest is by percentages:

State	%	% of 7.5 MAF (full supply)	% of 6 MAF (most likely supply)
Colorado	51.75	3,855,375	3,079,125
New Mexico	11.25	838,125	669,375
Utah	23	1,713,500	1,368,500
Wyoming	14	1,043,000	833,000

- D. Article VIII creates the Upper Colorado River Commission.
- E. Includes specific provisions about measurement of depletions, overuse of apportionments, and curtailment to meet the requirements of the Colorado River Compact, at Articles III(b) and IV. Article IV provides for curtailment if necessary to meet the 1922 Compact requirements. The Upper Colorado River Commission is to make the determination, applying several principles. First, any state that has overused in the preceding ten years must supply a quantity at Lee Ferry equal to its aggregate overdraft (IV(B)). Second, except for the makeup of overdraft, the extent of curtailment is to be proportional to the consumptive use by each state in the preceding water year, excluding use of water “under rights perfected prior to November 24, 1922” (IV(c)).
- F. Articles X through XIV address specific interstate tributaries.

III. Lower Basin Apportionment

- A. Resolved in Arizona v. California, 373 U.S. 546 (1963); decree entered in Arizona v. California, 376 U.S. 340 (1964).
- B. Divides “all the water in the mainstream below Lee Ferry.” 373 U.S. at 591; decree paragraph I.B.
- C. Apportionments of 4.4 MAFY to California, 2.8 MAFY to Arizona, and .3 MAFY to Nevada. Decree, paragraph II.B.1.

Surpluses and shortages to be decided by Secretary of Interior. Surplus divided 50% to California, 46% to Arizona, and 4% to Nevada. Division of shortages up to Secretary. Decree, paragraphs II.B.2 and II.B.3.

IV. 1945 Treaty with Mexico on Water Utilization, 59 Stat. 1219. Allots Mexico a “guaranteed annual quantity” of 1.5 MAF. In a surplus, may be increased to 1.7 MAF; in an extraordinary drought, may be reduced in the same proportion as uses within the U.S. are reduced.

V. 1956 Colorado River Storage Project Act, 43 U.S.C. § 620. Provides for construction of four major “storage units:” Lake Powell (26 MAF); Flaming Gorge (3.75MAF active capacity); Navajo (about 1 MAF active capacity); and Aspinall (about .8 MAF active

capacity). One of the primary purposes of these projects is to assist the Upper Basin states in using their compact apportionments (by providing protection against a Lower Basin call). Revenues from power from the storage units go to the Upper Basin fund.

VI. 1968 Colorado River Basin Project Act, 43 U.S.C. § 1501 et seq., 82 Stat. 886.

A. § 602(a) (43 U.S.C. § 1552(a) directs the Secretary to propose criteria for coordinated long-range operation of Colorado River reservoirs. The criteria are to provide “for the storage of water in storage units of the Colorado River storage project and releases of water from Lake Powell in the following listed order of priority:”

1. Releases to supply half the III(c) Mexican Treaty deficiency “if any such deficiency exists and is chargeable to the States of the Upper Division;”
2. Releases to comply with Article III(d) (75 million in 10 years), less any water delivered from other sources;
3. Storage if found “reasonably necessary to assure deliveries under clauses (1) and (2) without impairment of annual consumptive uses in the upper basin;”
4. Releases
 - i. “to the extent [water] can be reasonably applied” to Article III(e) uses in the Lower Division, **but** no releases if active storage in Powell is less than Mead;
 - ii. To “maintain, as nearly as practicable,” active storage in Mead equal to Powell; and
 - iii. “To avoid anticipated spills from Lake Powell.”

VII. Long-Range Operating Criteria (promulgated June 8, 1970 pursuant to the above provision). Sets the minimum release from Powell at 8.23 MAFY.

VIII. Minute No. 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River, (Aug. 30, 1973); 88 Stat. 266 (1974). United States is to adopt measures that assure that water delivered upstream of Morelos Dam have a salinity no more the 115 p.p.m. plus or minus 30 p.p.m. over the average salinity of water at Imperial Dam.

IX. 1976 Colorado River Basin Salinity Control Act, 43 USC § 1517 et seq. Provides for salinity standards and projects within the U.S.

X. 1992 Grand Canyon Protection Act, 106 Stat. 4669. Provides for daily operational parameters to protect Grand Canyon resources; genesis of Adaptive Management Work Group.

XI. Interim Surplus Criteria. Set criteria for “surplus” releases from Lake Mead.

37-61-101. Colorado River compact.

The General Assembly hereby approves the compact, designated as the "Colorado River Compact", signed at the City of Santa Fe, State of New Mexico, on the 24th day of November, A.D. 1922, by Delph E. Carpenter, as the Commissioner for the State of Colorado, under authority of and in conformity with the provisions of an act of the General Assembly of the State of Colorado, approved April 2, 1921, entitled "An Act providing for the appointment of a Commissioner on behalf of the State of Colorado to negotiate a compact and agreement between the States of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming and between said States and the United States respecting the use and distribution of the waters of the Colorado River and the rights of said States and the United States thereto, and making an appropriation therefor.", the same being Chapter 246 of the Session Laws of Colorado, 1921, and signed by the Commissioners for the States of Arizona, California, Nevada, New Mexico, Utah, and Wyoming, under legislative authority, and signed by the Commissioners for said seven States and approved by the Representative of the United States of America under authority and in conformity with the provisions of an Act of the Congress of the United States, approved August 19, 1921, entitled "An Act to permit a compact or agreement between the States of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming, respecting the disposition and apportionment of the waters of the Colorado River, and for other purposes.", which said compact is as follows:

Colorado River Compact

The States of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming, having resolved to enter into a compact, under the Act of the Congress of the United States of America approved August 19, 1921, (42 Statutes at Large, page 171), and the Acts of the legislatures of the said states, have through their Governors appointed as their commissioners:

W. S. Norviel, for the State of Arizona;

W. F. McClure, for the State of California;

Delph E. Carpenter, for the State of Colorado;

J. G. Scrugham, for the State of Nevada;

Stephen B. Davis, Jr., for the State of New Mexico;

R. E. Caldwell, for the State of Utah;

Frank C. Emerson, for the State of Wyoming;

who, after negotiations participated in by Herbert Hoover appointed by the President as the representative of the United States of America, have agreed upon the following articles:

Article I

The major purposes of this compact are to provide for the equitable division and apportionment of the use of the waters of the Colorado River System; to establish the relative importance of different beneficial uses of water; to promote interstate comity; to remove causes of present and future controversies; and to secure the expeditious agricultural and industrial development of the Colorado River Basin, the storage of its waters and the protection of life and property from floods. To these ends the Colorado River Basin is divided into two Basins, and an apportionment of the use of part of the water of the Colorado River System is made to each of them with the provision that further equitable apportionments may be made.

Article II

As used in this Compact: -

(a) The term "Colorado River System" means that portion of the Colorado River and its tributaries within the United States of America.

(b) The term "Colorado River Basin" means all of the drainage area of the Colorado River System and all other territory within the United States of America to which the waters of the Colorado River System shall be beneficially applied.

(c) The term "States of the Upper Division" means the States of Colorado, New Mexico, Utah and Wyoming.

(d) The term "States of the Lower Division" means the States of Arizona, California and Nevada.

(e) The "Lee Ferry" means a point in the main stream of the Colorado River one mile below the mouth of the Paria River.

(f) The term "Upper Basin" means those parts of the States of Arizona, Colorado, New Mexico, Utah and Wyoming within and from which waters naturally drain into the Colorado River System above Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River System which are now or shall hereafter be beneficially served by waters diverted from the System above Lee Ferry.

(g) The term "Lower Basin" means those parts of the States of Arizona, California, Nevada, New Mexico and Utah within and from which waters naturally drain into the Colorado River System below Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River System which are now or shall hereafter be beneficially served by waters diverted from the System below Lee Ferry.

(h) The term "domestic use" shall include the use of water for household, stock, municipal, mining, milling, industrial and other like purposes, but shall exclude the generation of electrical power.

Article III

(a) There is hereby apportioned from the Colorado River System in perpetuity to the Upper Basin and to the Lower Basin respectively the exclusive beneficial consumptive

use of 7,500,000 acre feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

(b) In addition to the apportionment in paragraph (a) the Lower Basin is hereby given the right to increase its beneficial consumptive use of such waters by one million acre per annum.

(c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River System, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then, the burden of such deficiency shall be equally borne by the Upper Basin and the Lower Basin, and whenever necessary the States of the Upper Division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

(d) The states of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre feet for any period of ten consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.

(e) The States of the Upper Division shall not withhold water, and the States of the Lower Division shall not require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses.

(f) Further equitable apportionment of the beneficial uses of the waters of the Colorado River System unapportioned by paragraphs (a), (b) and (c) may be made in the manner provided in paragraph (g) at any time after October first, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b).

(g) In the event of a desire for a further apportionment as provided in paragraph (f) any two signatory States, acting through their Governors, may give joint notice of such desire to the Governors of the other signatory States and to the President of the United States of America, and it shall be the duty of the Governor of the signatory states and of the President of the United States of America forthwith to appoint representatives, whose duty it shall be to divide and apportion equitably between the Upper Basin and Lower Basin the beneficial use of the unapportioned water of the Colorado River System as mentioned in paragraph (f), subject to the Legislative ratification of the signatory States and the Congress of the United States of America.

Article IV

(a) Inasmuch as the Colorado River has ceased to be navigable for commerce and the reservation of its waters for navigation would seriously limit the development of its Basin, the use of its waters for purpose of navigation shall be subservient to the uses of such waters for domestic, agricultural and power purposes. If the Congress shall not consent to this paragraph, the other provisions of this compact shall nevertheless remain binding.

(b) Subject to the provisions of this compact, water of the Colorado River System may be impounded and used for the generation of electrical power, but such impounding and use shall be subservient to the use and consumption of such water for agricultural and domestic purposes and shall not interfere with or prevent use for such dominant purposes.

(c) The provisions of this article shall not apply to or interfere with the regulation and control by any state within its boundaries of the appropriation, use and distribution of water.

Article V

The Chief Official of each signatory State charged with the administration of water rights, together with the Director of the United States Reclamation Service and the Director of the United States Geological Survey shall co-operate, ex officio:

(a) To promote the systematic determination and coordination of the facts as to flow, appropriation, consumption and use of water in the Colorado River Basin, and the interchange of available information in such matters.

(b) To secure the ascertainment and publication of the annual flow of the Colorado River at Lee Ferry.

(c) To perform such other duties as may be assigned by mutual consent of the signatories from time to time.

Article VI

Should any claim or controversy arise between any two or more of the signatory States: (a) with respect to the waters of the Colorado River System not covered by the terms of this compact; (b) over the meaning or performance of any of the terms of this compact; (c) as to the allocation of the burdens incident to the performance of any article of this compact or the delivery of waters as herein provided; (d) as to the construction or operation of works within the Colorado River Basin to be situated in two or more States, or to be constructed in one State for the benefit of another State; or (e) as to the diversion of water in one State for the benefit of another State; the Governors of the States affected, upon the request of one of them, shall forthwith appoint Commissioners with power to consider and adjust such claim or controversy, subject to ratification by the Legislatures of the States so affected.

Nothing herein contained shall prevent the adjustment of any such claim or controversy by any present method or by direct future legislative action of the interested States.

Article VII

Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian tribes.

Article VIII

Present perfected rights to the beneficial use of waters of the Colorado River System are unimpaired by this compact. Whenever storage capacity of 5,000,000 acre feet shall have been provided on the main Colorado River within or for the benefit of the Lower Basin, then claims of such rights, if any, by appropriators or users of waters in the Lower Basin, against appropriators or users of water in the Upper Basin shall attach to and be satisfied from water that may be stored not in conflict with Article III.

All other rights to beneficial use of waters of the Colorado River System shall be satisfied solely from the water apportioned to that Basin in which they are situate.

Article IX

Nothing in this compact shall be construed to limit or prevent any State from instituting or maintaining any action or proceeding, legal or equitable, for the protection of any right under this compact or the enforcement of any of its provisions.

Article X

This compact may be terminated at any time by the unanimous agreement of the signatory States. In the event of such termination all rights established under it shall continue unimpaired.

Article XI

This compact shall become binding and obligatory when it shall have been approved by the Legislatures of each of the signatory States and by the Congress of the United States. Notice of approval by the Legislatures shall be given by the Governor of each signatory State to the Governors of the other signatory States and to the President of the United States, and the President of the United States is requested to give notice to the Governors of the signatory States of approval by the Congress of the United States.

In Witness Whereof, The Commissioners have signed this compact in a single original, which shall be deposited in the archives of the Department of State of the United States of America and of which a duly certified copy shall be forwarded to the Governor of each of the signatory States.

Done at the City of Santa Fe, New Mexico, this Twenty-fourth day of November, A.D. One Thousand Nine Hundred and Twenty-Two.

W. S. Norviel,
W. F. McClure,
Delph E. Carpenter,
J. G. Scrugham,
Stephen B. Davis, Jr.,
R. E. Caldwell,
Frank E. Emerson.

Approved:
Herbert Hoover.

37-62-101. Upper Colorado River compact.

The general assembly hereby ratifies the compact among the states of Colorado, New Mexico, Utah, Wyoming, and Arizona, designated as the "Upper Colorado river basin compact" and signed in the city of Santa Fe, state of New Mexico, on the 11th day of October, A. D. 1948, by Clifford H. Stone, commissioner for the state of Colorado, Fred E. Wilson, commissioner for the state of New Mexico, Edward H. Watson, commissioner for the state of Utah, L. C. Bishop, commissioner for the state of Wyoming, Charles A. Carson, commissioner for the state of Arizona, and approved by Harry W. Bashore, representative of the United States of America. Said compact is as follows:

Article I

(a) The major purposes of this compact are to provide for the equitable division and apportionment of the use of the waters of the Colorado river system, the use of which was apportioned in perpetuity to the upper basin by the Colorado river compact; to establish the obligations of each state of the upper division with respect to the deliveries of water required to be made at Lee ferry by the Colorado river compact; to promote interstate comity; to remove causes of present and future controversies; to secure the expeditious agricultural and industrial development of the upper basin, the storage of water and to protect life and property from floods.

(b) It is recognized that the Colorado river compact is in full force and effect and all of the provisions hereof are subject thereto.

Article II

As used in this compact:

(a) The term "Colorado river system" means that portion of the Colorado river and its tributaries within the United States of America.

(b) The term "Colorado river basin" means all of the drainage area of the Colorado river system and all other territory within the United States of America to which the waters of the Colorado river system shall be beneficially applied.

(c) The term "states of the upper division" means the states of Colorado, New Mexico, Utah and Wyoming.

(d) The term "states of the lower division" means the states of Arizona, California and Nevada.

(e) The term "Lee ferry" means a point in the main stream of the Colorado river one mile below the mouth of the Paria river.

(f) The term "upper basin" means those parts of the states of Arizona, Colorado, New Mexico, Utah and Wyoming within and from which waters naturally drain into the Colorado river system above Lee ferry, and also all parts of said states located without

the drainage area of the Colorado river system which are now or shall hereafter be beneficially served by waters diverted from the Colorado river system above Lee ferry.

(g) The term "lower basin" means those parts of the states of Arizona, California, Nevada, New Mexico and Utah within and from which waters naturally drain into the Colorado river system below Lee ferry, and also all parts of said states located without the drainage area of the Colorado river system which are now or shall hereafter be beneficially served by waters diverted from the Colorado river system below Lee ferry.

(h) The term "Colorado river compact" means the agreement concerning the apportionment of the use of the waters of the Colorado river system dated November 24, 1922, executed by commissioners for the states of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming, approved by Herbert Hoover, representative of the United States of America, and proclaimed effective by the President of the United States of America, June 25, 1929.

(i) The term "Upper Colorado river system" means that portion of the Colorado river system above Lee ferry.

(j) The term "Commission" means the administrative agency created by article VIII of this compact.

(k) The term "water year" means that period of twelve months ending September 30 of each year.

(l) The term "acre-foot" means the quantity of water required to cover an acre to the depth of one foot and is equivalent to 43,560 cubic feet.

(m) The term "domestic use" shall include the use of water for household, stock, municipal, mining, milling, industrial and other like purposes, but shall exclude the generation of electrical power.

(n) The term "virgin flow" means the flow of any stream undepleted by the activities of man.

Article III

(a) Subject to the provisions and limitations contained in the Colorado river compact and in this compact, there is hereby apportioned from the upper Colorado river system in perpetuity to the states of Arizona, Colorado, New Mexico, Utah and Wyoming, respectively, the consumptive use of water as follows:

(1) To the state of Arizona the consumptive use of 50,000 acre-feet of water per annum.

(2) To the states of Colorado, New Mexico, Utah and Wyoming, respectively, the consumptive use per annum of the quantities resulting from the application of the following percentages to the total quantity of consumptive use per annum appropriated in perpetuity to and available for use each year by upper basin under the Colorado river compact and remaining after the deduction of the use, not to exceed 50,000 acre-feet per annum, made in the state of Arizona.

State of Colorado 51.75 per cent,

State of New Mexico 11.25 per cent,

State of Utah 23.00 per cent,

State of Wyoming 14.00 per cent.

(b) The apportionment made to the respective states by paragraph (a) of this article is based upon, and shall be applied in conformity with, the following principles and each of them:

(1) The apportionment is of any and all man-made depletions;

(2) Beneficial use is the basis, the measure and the limit of the right to use;

(3) No state shall exceed the apportioned use in any water year when the effect of such excess use, as determined by the commission, is to deprive another signatory state of its apportioned use during the water year; provided, that this subparagraph (b) (3) shall not be construed as:

(i) Altering the apportionment of use, or obligations to make deliveries as provided in article XI, XII, XIII or XIV of this compact;

(ii) Purporting to apportion among the signatory states of such uses of water as the upper basin may be entitled to under paragraphs (f) and (g) of article III of the Colorado river compact; or

(iii) Countenancing average uses by any signatory state in excess of its apportionment.

(4) The apportionment to each state includes all water necessary for the supply of any rights which now exist.

(c) No apportionment is hereby made, or intended to be made of such use of water as the upper basin may be entitled to under paragraphs (f) and (g) of article III of the Colorado river compact.

(d) The apportionment made by this article shall not be taken as any basis for the allocation among the signatory states of any benefits resulting from the generation of power.

Article IV

In the event curtailment of use of water by the states of the upper division at any time shall become necessary in order that the flow at Lee ferry shall not be depleted below that required by article III of the Colorado river compact, the extent of curtailment by each state of the consumptive use of water apportioned to it by article III of this compact shall be in such quantities and at such times as shall be determined by the commission upon the application of the following principles:

(a) The extent and times of curtailment shall be such as to assure full compliance with article III of the Colorado river compact;

(b) If any state or states of the upper division, in the ten years immediately preceding the water year in which curtailment is necessary, shall have consumptively used more water than it was or they were, as the case may be, entitled to use under the apportionment made by article III of this compact, such state or states shall be required to supply at Lee ferry a quantity of water equal to its, or the aggregate of their, overdraft or the proportionate part of such overdraft, as may be necessary to assure compliance with article III of the Colorado river compact, before demand is made on any other state of the upper division:

(c) Except as provided in subparagraph (b) of this article, the extent of curtailment by each state of the upper division of the consumptive use of water apportioned to it by article III of this compact shall be such as to result in the delivery at Lee ferry of a quantity of water which bears the same relation to the total required curtailment of use by the states of the upper division as the consumptive use of the upper Colorado river system water which was made by each such state during the water year immediately preceding the year in which the curtailment becomes necessary bears to the total consumptive use of such water in the states of the upper division during the same water year; provided, that in determining such relation the uses of water under rights perfected prior to November 24, 1922, shall be excluded.

Article V

(a) All losses of water occurring from or as the result of the storage of water in reservoirs constructed prior to the signing of this compact shall be charged to the state in which such reservoir or reservoirs are located. Water stored in reservoirs covered by this paragraph (a) shall be for the exclusive use of and shall be charged to the state in which the reservoir or reservoirs are located.

(b) All losses of water occurring from or as a result of the storage of water in reservoirs constructed after the signing of this compact shall be charged as follows:

(1) If the commission finds that the reservoir is used, in whole or in part, to assist the states of the upper division in meeting their obligations to deliver water at Lee ferry imposed by article III of the Colorado river compact, the commission shall make findings, which in no event shall be contrary to the laws of the United States of America under which any reservoir is constructed, as to the reservoir capacity allocated for that purpose. The whole or that proportion, as the case may be, of reservoir losses as found by the commission to be reasonably and properly chargeable to the reservoir or reservoir capacity utilized to assure deliveries at Lee ferry shall be charged to the states of the upper division in the proportion which the consumptive use of water in each state of the upper division during the water year in which the charge is made bears to the total consumptive use of water in all states of the upper division during the same water year. Water stored in reservoirs or in reservoir capacity covered by this subparagraph (b) (1) shall be for the common benefit of all of the states of the upper division.

(2) If the commission finds that the reservoir is used, in whole or in part, to supply water for use in a state of the upper division, the commission shall make findings, which in no event shall be contrary to the laws of the United States of America under which any reservoir is constructed, as to the reservoir or reservoir capacity utilized to supply water for use and the state in which such water will be used. The whole or that proportion, as the case may be, of reservoir losses as found by the commission to be reasonably and properly chargeable to the state in which such water will be used shall be borne by that state. As determined by the commission, water stored in reservoirs covered by this subparagraph (b) (2) shall be earmarked for and charged to the state in which the water will be used.

(c) In the event the commission finds that a reservoir site is available both to assure deliveries at Lee ferry and to store water for consumptive use in a state of the upper division, the storage of water for consumptive use shall be given preference. Any reservoir or reservoir capacity hereafter used to assure deliveries at Lee ferry shall by order of the commission be used to store water for consumptive use in a state, provided the commission finds that such storage is reasonably necessary to permit such state to make the use of the water apportioned to it by this compact.

Article VI

The commission shall determine the quantity of the consumptive use of water, which use is apportioned by article III hereof, for the upper basin and for each state of the upper basin by the inflow-outflow method in terms of man-made depletions of the virgin flow at Lee ferry, unless the commission, by unanimous action, shall adopt a different method of determination.

Article VII

The consumptive use of water by the United States of America or any of its agencies, instrumentalities or wards shall be charged as a use by the state in which the use is made; provided, that such consumptive use incident to the diversion, impounding, or conveyance of water in one state for use in another shall be charged to such latter state.

Article VIII

(a) There is hereby created an interstate administrative agency to be known as the "Upper Colorado river commission." The commission shall be composed of one commissioner representing each of the states of the upper division, namely, the states of Colorado, New Mexico, Utah and Wyoming, designated or appointed in accordance with the laws of each such state and, if designated by the President, one commissioner representing the United States of America. The President is hereby requested to designate a commissioner. If so designated the commissioner representing the United States of America shall be the presiding officer of the commission and shall be entitled to the same powers and rights as the commissioner of any state. Any four members of the commission shall constitute a quorum.

(b) The salaries and personal expenses of each commissioner shall be paid by the government which he represents. All other expenses which are incurred by the

commission incident to the administration of this compact, and which are not paid by the United States of America, shall be borne by the four states according to the percentage of consumptive use apportioned to each. On or before December 1 of each year, the commission shall adopt and transmit to the governors of the four states and to the President a budget covering an estimate of its expenses for the following year, and of the amount payable by each state. Each state shall pay the amount due by it to the commission on or before April 1 of the year following. The payment of the expenses of the commission and of its employees shall not be subject to the audit and accounting procedures of any of the four states; however, all receipts and disbursements of funds handled by the commission shall be audited yearly by a qualified independent public accountant and the report of the audit shall be included in and become a part of the annual report of the commission.

(c) The commission shall appoint a secretary, who shall not be a member of the commission, or an employee of any signatory state or of the United States of America while so acting. He shall serve for such term and receive such salary and perform such duties as the commission may direct. The commission may employ such engineering, legal, clerical and other personnel as, in its judgment, may be necessary for the performance of its functions under this compact. In the hiring of employees, the commission shall not be bound by the civil service laws of any state.

(d) The commission, so far as consistent with this compact, shall have the power to:

(1) Adopt rules and regulations;

(2) Locate, establish, construct, abandon, operate and maintain water gauging stations;

(3) Make estimates to forecast water run-off on the Colorado river and any of its tributaries;

(4) Engage in co-operative studies of water supplies of the Colorado river and its tributaries;

(5) Collect, analyze, correlate, preserve and report on data as to the stream flows, storage, diversions and use of the waters of the Colorado river, and any of its tributaries;

(6) Make findings as to the quantity of water of the upper Colorado river system used each year in the upper Colorado river basin and in each state thereof;

(7) Make findings as to the quantity of water deliveries at Lee ferry during each water year;

(8) Make findings as to the necessity for and the extent of the curtailment of use, required, if any, pursuant to article IV hereof;

(9) Make findings as to the quantity of reservoir losses and as to the share thereof chargeable under article V hereof to each of the states;

(10) Make findings of fact in the event of the occurrence of extraordinary drought or serious accident to the irrigation system in the upper basin, whereby deliveries by the

upper basin of water which it may be required to deliver in order to aid in fulfilling obligations of the United States of America to the United Mexican States arising under the treaty between the United States of America and the United Mexican States, dated February 3, 1944 (Treaty Series 994) become difficult, and report such findings to the governors of the upper basin states, the President of the United States of America, the United States section of the international boundary and water commission, and such other federal officials and agencies as it may deem appropriate to the end that the water allotted to Mexico under division III of such treaty may be reduced in accordance with the terms of such treaty;

(11) Acquire and hold such personal and real property as may be necessary for the performance of its duties hereunder and to dispose of the same when no longer required;

(12) Perform all functions required of it by this compact and do all things necessary, proper or convenient in the performance of its duties hereunder, either independently or in co-operation with any state or federal agency;

(13) Make and transmit annually to the governors of the signatory states and the President of the United States of America, with the estimated budget, a report covering the activities of the commission for the preceding water year.

(e) Except as otherwise provided in this compact the concurrence of four members of the commission shall be required in any action taken by it.

(f) The commission and its secretary shall make available to the governor of each of the signatory states any information within its possession at any time, and shall always provide free access to its records by the governors of each of the states, or their representatives or authorized representatives of the United States of America.

(g) Findings of fact made by the commission shall not be conclusive in any court, or before any agency or tribunal, but shall constitute prima facie evidence of the facts found.

(h) The organization meeting of the commission shall be held within four months from the effective date of this compact.

Article IX

(a) No state shall deny the right of the United States of America and, subject to the conditions hereinafter contained, no state shall deny the right of another signatory state, any person, or entity of any signatory state to acquire rights to the use of water, or to construct or participate in the construction and use of diversion works and storage reservoirs with appurtenant works, canals and conduits in one state for the purpose of diverting, conveying, storing, regulating and releasing water to satisfy the provisions of the Colorado river compact relating to the obligation of the states of the upper division to make deliveries of water at Lee ferry, or for the purpose of diverting, conveying, storing or regulating water in an upper signatory state for consumptive use in a lower signatory state, when such use is within the apportionment to such lower state made by this compact. Such rights shall be subject to the rights of water users, in a state in which such reservoir or works are located, to receive and use water, the use of which is within the apportionment to such state by this compact.

(b) Any signatory state, any person or any entity of any signatory state shall have the right to acquire such property rights as are necessary to the use of water in conformity with this compact in any other signatory state by donation, purchase or through the exercise of the power of eminent domain. Any signatory state, upon the written request of the governor of any other signatory state, for the benefit of whose water users property is to be acquired in the state to which such written request is made, shall proceed expeditiously to acquire the desired property either by purchase at a price satisfactory to the requesting state, or, if such purchase cannot be made, then through the exercise of its power of eminent domain and shall convey such property to the requesting state or such entity as may be designated by the requesting state; provided, that all costs of acquisition and expenses of every kind and nature whatsoever incurred in obtaining the requested property shall be paid by the requesting state at the time and in the manner prescribed by the state requested to acquire the property.

(c) Should any facility be constructed in a signatory state by and for the benefit of another signatory state or states or the water users thereof, as above provided, the construction, repair, replacement, maintenance and operation of such facility shall be subject to the laws of the state in which the facility is located, except that, in the case of a reservoir constructed in one state for the benefit of another state or states, the water administration officials of the state in which the facility is located shall permit the storage and release of any water which, as determined by findings of the commission, falls within the apportionment of the state or states for whose benefit the facility is constructed. In the case of a regulating reservoir for the joint benefit of all states in making Lee ferry deliveries, the water administration officials of the state in which the facility is located, in permitting the storage and release of water, shall comply with the findings and orders of the commission.

(d) In the event property is acquired by a signatory state in another signatory state for the use and benefit of the former, the users of water made available by such facilities, as a condition precedent to the use thereof, shall pay to the political subdivisions of the state in which such works are located, each and every year during which such rights are enjoyed for such purposes, a sum of money equivalent to the average annual amount of taxes levied and assessed against the land and improvements thereon during the ten years preceding the acquisition of such land. Said payments shall be in full reimbursement for the loss of taxes in such political subdivisions of the state, and in lieu of any and all taxes on said property, improvements and rights. The signatory states recommend to the President and the congress that, in the event the United States of America shall acquire property in one of the signatory states for the benefit of another signatory state, or its water users, provision be made for like payment in reimbursement of loss of taxes.

Article X

(a) The signatory states recognize La Plata river compact entered into between the states of Colorado and New Mexico, dated November 27, 1922, approved by the congress on January 29, 1925 (43 Stat. 796), and this compact shall not affect the apportionment therein made.

(b) All consumptive use of water of La Plata river and its tributaries shall be charged under the apportionment of article III hereof to the state in which the use is made; provided, that consumptive use incident to the diversion, impounding or conveyance of water in one state for use in the other shall be charged to the latter state.

Article XI

Subject to the provisions of this compact, the consumptive use of the water of the Little Snake river and its tributaries is hereby apportioned between the states of Colorado and Wyoming in such quantities as shall result from the application of the following principles and procedures:

(a) Water used under rights existing prior to the signing of this compact.

(1) Water diverted from any tributary of the Little Snake river or from the main stem of the Little Snake river above a point one hundred feet above the confluence of Savery creek and the Little Snake river shall be administered without regard to rights covering the diversion of water from any down-stream points.

(2) Water diverted from the main stem of the Little Snake river below a point one hundred feet below the confluence of Savery creek and the Little Snake river shall be administered on the basis of an interstate priority schedule prepared by the commission in conformity with priority dates established by the laws of the respective states.

(b) Water used under rights initiated subsequent to the signing of this compact.

(1) Direct flow diversions shall be so administered that, in time of shortage, the curtailment of use on each acre of land irrigated thereunder shall be as nearly equal as may be possible in both of the states.

(2) The storage of water by projects located in either state, whether of supplemental supply or of water used to irrigate land not irrigated at the date of the signing of this compact, shall be so administered that in times of water shortage the curtailment of storage of water available for each acre of land irrigated thereunder shall be as nearly equal as may be possible in both states.

(c) Water users under the apportionment made by this article shall be in accordance with the principle that beneficial use shall be the basis, measure and limit of the right to use.

(d) The states of Colorado and Wyoming each assent to diversions and storage of water in one state for use in the other state, subject to compliance with article IX of this compact.

(e) In the event of the importation of water to the Little Snake river basin from any other river basin, the state making the importation shall have the exclusive use of such imported water unless by written agreement, made by the representatives of the states of Colorado and Wyoming on the commission, it is otherwise provided.

(f) Water use projects initiated after the signing of this compact, to the greatest extent possible, shall permit the full use within the basin in the most feasible manner of the

waters of the Little Snake river and its tributaries, without regard to the state line; and, so far as is practicable, shall result in an equal division between the states of the use of water not used under rights existing prior to the signing of this compact.

(g) All consumptive use of the waters of the Little Snake river and its tributaries shall be charged under the apportionment of article III hereof to the state in which the use is made; provided, that consumptive use incident to the diversion, impounding or conveyance of water in one state for use in the other shall be charged to the latter state.

Article XII

Subject to the provisions of this compact, the consumptive use of the waters of Henry's fork, a tributary of Green river originating in the state of Utah and flowing into the state of Wyoming and thence into the Green river in the state of Utah; Beaver creek, originating in the state of Utah and flowing into Henry's fork in the state of Wyoming; Burnt fork, a tributary of Henry's fork, originating in the state of Utah and flowing into Henry's fork in the state of Wyoming; Birch creek, a tributary of Henry's fork originating in the state of Utah and flowing into Henry's fork in the state of Wyoming; and Sheep creek, a tributary of Green river in the state of Utah and their tributaries, are hereby apportioned between the states of Utah and Wyoming in such quantities as will result from the application of the following principles and procedures:

(a) Waters used under rights existing prior to the signing of this compact.

Waters diverted from Henry's fork, Beaver creek, Burnt fork, Birch creek and their tributaries, shall be administered without regard to the state line on the basis of an interstate priority schedule to be prepared by the states affected and approved by the commission in conformity with the actual priority of right of use, the water requirements of the land irrigated and the acreage irrigated in connection therewith.

(b) Waters used under rights from Henry's fork, Beaver creek, Burnt fork, Birch creek and their tributaries, initiated after the signing of this compact shall be divided fifty per cent to the state of Wyoming and fifty per cent to the state of Utah and each state may use said waters as and where it deems advisable.

(c) The state of Wyoming assents to the exclusive use by the state of Utah of the water of Sheep creek, except that the lands, if any, presently irrigated in the state of Wyoming from the water of Sheep creek shall be supplied with water from Sheep creek in order of priority and in such quantities as are in conformity with the laws of the state of Utah.

(d) In the event of the importation of water to Henry's fork, or any of its tributaries, from any other river basin, the state making the importation shall have the exclusive use of such imported water unless by written agreement made by the representatives of the states of Utah and Wyoming on the commission, it is otherwise provided.

(e) All consumptive use of waters of Henry's fork, Beaver creek, Burnt fork, Birch creek, Sheep creek, and their tributaries shall be charged under the apportionment of article III hereof to the state in which the use is made; provided, that consumptive use

incident to the diversion, impounding or conveyance of water in one state for use in the other shall be charged to the latter state.

(f) The states of Utah and Wyoming each assent to the diversion and storage of water in one state for use in the other state, subject to compliance with article IX of this compact. It shall be the duty of the water administrative officials of the state where the water is stored to release said stored water to the other state upon demand. If either the state of Utah or the state of Wyoming shall construct a reservoir in the other state for use in its own state, the water users of the state in which said facilities are constructed may purchase at cost a portion of the capacity of said reservoir sufficient for the irrigation of their lands thereunder.

(g) In order to measure the flow of water diverted, each state shall cause suitable measuring devices to be constructed, maintained and operated at or near the point of diversion into each ditch.

(h) The state engineers of the two states jointly shall appoint a special water commissioner who shall have authority to administer the water in both states in accordance with the terms of this article. The salary and expenses of such special water commissioner shall be paid, thirty per cent by the state of Utah and seventy per cent by the state of Wyoming.

Article XIII

Subject to the provisions of this compact, the rights to the consumptive use of the water of the Yampa river, a tributary entering the Green river in the state of Colorado, are hereby apportioned between the states of Colorado and Utah in accordance with the following principles:

(a) The state of Colorado will not cause the flow of the Yampa river at the Maybell gauging station to be depleted below an aggregate of 5,000,000 acre-feet for any period of ten consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification and approval of this compact. In the event any diversion is made from the Yampa river or from tributaries entering the Yampa river above the Maybell gauging station for the benefit of any water use project in the state of Utah, then the gross amount of all such diversions for use in the state of Utah, less any returns from such diversions to the river above Maybell, shall be added to the actual flow at the Maybell gauging station to determine the total flow at the Maybell gauging station.

(b) All consumptive use of the waters of the Yampa river and its tributaries shall be charged under the apportionment of article III hereof to the state in which the use is made; provided, that consumptive use incident to the diversion, impounding or conveyance of water in one state for use in the other shall be charged to the latter state.

Article XIV

Subject to the provisions of this compact, the consumptive use of the waters of the San Juan river and its tributaries is hereby apportioned between the states of Colorado and New Mexico as follows:

The state of Colorado agrees to deliver to the state of New Mexico from the San Juan river and its tributaries which rise in the state of Colorado a quantity of water which shall be sufficient, together with water originating in the San Juan basin in the state of New Mexico, to enable the state of New Mexico to make full use of the water apportioned to the state of New Mexico by article III of this compact, subject, however, to the following:

(a) A first and prior right shall be recognized as to:

(1) All uses of water made in either state at the time of the signing of this compact; and

(2) All uses of water contemplated by projects authorized, at the time of the signing of this compact under the laws of the United States of America whether or not such projects are eventually constructed by the United States of America or by some other entity.

(b) The state of Colorado assents to diversions and storage of water in the state of Colorado for use in the state of New Mexico, subject to compliance with article IX of this compact.

(c) The uses of the waters of the San Juan river and any of its tributaries within either state which are dependent upon a common source of water and which are not covered by (a) hereof, shall in times of water shortages be reduced in such quantity that the resulting consumptive use in each state will bear the same proportionate relation to the consumptive use made in each state during times of average water supply as determined by the commission; provided, that any preferential uses of water to which Indians are entitled under article XIX shall be excluded in determining the amount of curtailment to be made under this paragraph.

(d) The curtailment of water use by either state in order to make deliveries at Lee ferry as required by article IV of this compact shall be independent of any and all conditions imposed by this article and shall be made by each state, as and when required, without regard to any provision of this article.

(e) All consumptive use of the waters of the San Juan river and its tributaries shall be charged under the apportionment of article III hereof to the state in which the use is made; provided, that consumptive use incident to the diversion, impounding or conveyance of water in one state for use in the other shall be charged to the latter state.

Article XV

(a) Subject to the provisions of the Colorado river compact and of this compact, water of the upper Colorado river system may be impounded and used for the generation of electrical power, but such impounding and use shall be subservient to the use and consumption of such water for agricultural and domestic purposes and shall not interfere with or prevent use for such dominant purposes.

(b) The provisions of this compact shall not apply to or interfere with the right or power of any signatory state to regulate within its boundaries the appropriation, use and

control of water, the consumptive use of which is apportioned and available to such state by this compact.

Article XVI

The failure of any state to use the water, or any part thereof, the use of which is apportioned to it under the terms of this compact, shall not constitute a relinquishment of the right to such use to the lower basin or to any other state, nor shall it constitute a forfeiture or abandonment of the right to such use.

Article XVII

The use of any water now or hereafter imported into the natural drainage basin of the upper Colorado river system shall not be charged to any state under the apportionment of consumptive use made by this compact.

Article XVIII

(a) The state of Arizona reserves its rights and interest under the Colorado river compact as a state of the lower division and as a state of the lower basin.

(b) The state of New Mexico and the state of Utah reserve their respective rights and interests under the Colorado river compact as states of the lower basin.

Article XIX

Nothing in this compact shall be construed as:

(a) Affecting the obligations of the United States of America to Indian tribes;

(b) Affecting the obligations of the United States of America under the treaty with the United Mexican States (Treaty Series 994);

(c) Affecting any rights or powers of the United States of America, its agencies or instrumentalities, in or to the waters of the upper Colorado river system, or its capacity to acquire rights in and to the use of said water;

(d) Subjecting any property of the United States of America, its agencies or instrumentalities, to taxation by any state or subdivision thereof, or creating any obligation on the part of the United States of America, its agencies or instrumentalities, by reason of the acquisition, construction or operation of any property or works of whatever kind, to make any payment to any state or political subdivision thereof, state agency, municipality or entity whatsoever, in reimbursement for the loss of taxes;

(e) Subjecting any property of the United States of America, its agencies or instrumentalities, to the laws of any state to an extent other than the extent to which such laws would apply without regard to this compact.

Article XX

This compact may be terminated at any time by the unanimous agreement of the signatory states. In the event of such termination, all rights established under it shall continue unimpaired.

Article XXI

This compact shall become binding and obligatory when it shall have been ratified by the legislatures of each of the signatory states and approved by the congress of the United States of America. Notice of ratification by the legislatures of the signatory states shall be given by the governor of each signatory state to the governor of each of the other signatory states and to the President of the United States of America, and the President is hereby requested to give notice to the governor of each of the signatory states of approval by the congress of the United States of America.

IN WITNESS WHEREOF, the commissioners have executed six counterparts hereof each of which shall be and constitute an original, one of which shall be deposited in the archives of the department of state of the United States of America, and one of which shall be forwarded to the governor of each of the signatory states.

Done at the city of Santa Fe, state of New Mexico, this 11th day of October, 1948.

Charles A. Carlson,
Commissioner for the
State of Arizona.

Clifford H. Stone,
Commissioner for the
State of Colorado.

Fred E. Wilson,
Commissioner for the
State of New Mexico.

Edward H. Watson,
Commissioner for the
State of Utah.

L. C. Bishop,
Commissioner for the
State of Wyoming.

Grover A. Giles,
Secretary.

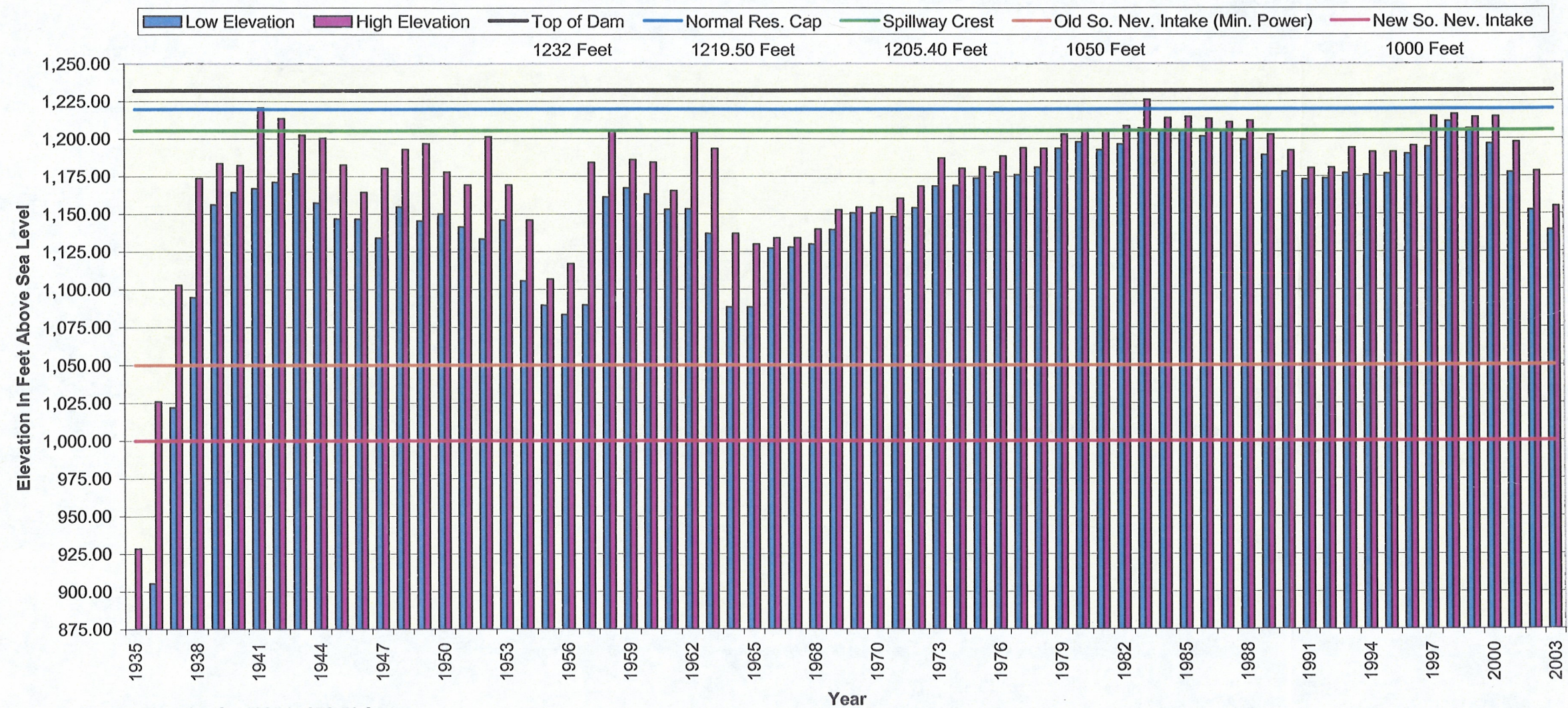
Approved:

Harry W. Bashore,

Representative of the

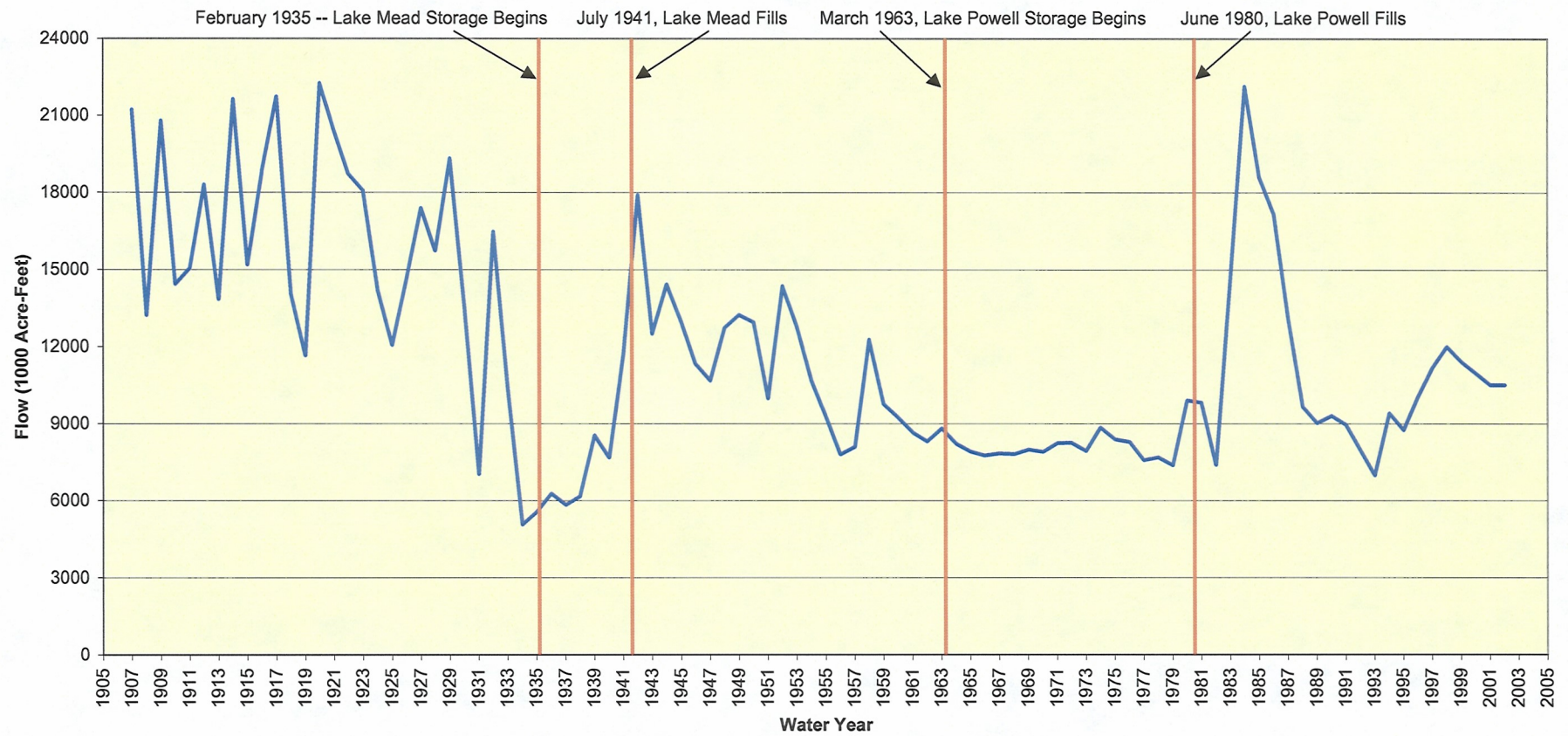
United States of America.

Lake Mead High and Low Elevations (1935-2003)



Note: Low Elevation for 1935 is 673.50 feet

Flow Below Hoover Dam in Thousands of Acre-Feet per Year, Water Years 1907 to 2002



1. CR Basin Storage – Approximately 60 MAF of Live System Storage Capacity in the Primary Units of CRSP, Mead, Mohave & Havasu. We will be approximately half full at the end of 2004.
2. CRSP Primary Storage Units. Flaming Gorge currently contains about 2.6 MAF of live storage and is anticipated to peak this year about 2.65 MAF, which is about 69% of full. Blue Mesa currently contains about .572 MAF of live storage and is expected to peak at about .687 MAF or about 82% of full. Navajo Reservoir currently contains about .990 MAF of live storage and is projected to peak at around 1.053 MAF which is 62% of full
3. Lake Powell live storage as of May 31, 2004 Lake Powell is approximately 10.5 MAF and is projected to be about 9.5 MAF at the end of this water year. This is the lowest level since Powell began filling in March 1963. This is not unprecedented, as Powell got very low in the early 1990's as well. Powell is doing its job. At the current rate of decline during this drought, we can count on Powell to do its job for another 3-5 years.
4. New page is some statistics concerning Lake Powell inflow. Currently we operate against a 12-year critical period of record of 12.1 MAF. So we may define a new critical period in a few years if this drought continues.
5. Graph of Lake Powell inflow and releases. Blue bar is inflow; red bar is inflow minus 8.23 MAF. Red bars extending below the zero line indicate the amount of storage in Lake Powell used to meet the 8.23 MAF delivery obligation in the Long-Range Operating Criteria. (7.5 MAF for Compact + .75 MAF for Mexico- .02MAF for Paria River inflow). Since Glen Canyon Dam closed, no more than 4-5 years in a row that required storage to make 8.23 MAF release.
6. Insert Lake Mead graph--Storage in Mead is almost always about equal to that in Powell because of equalization between the 2 reservoirs. However, since we are below 602(a) storage level, Lake Mead storage at the end of April is 14.8 MAF and is projected to be about 14.1 MAF at the end of the Water Year. This is because the Upper Basin to date has guaranteed 8.23 MAF and thus Mead only drops .7 to .8 MAF a year during drought conditions. A quick look at storage elevations in Mead shows they are currently sitting at about 1134 which is will above the minimum power elevation of 1050 and will above Southern Nevada's intakes which are at 1047 and 1000 feet MSL respectively.
7. Lower Basin releases have been around 9.3 to 9.4 MAF annually. (7.5 for Compact, 1.5 for Mexico and some additional releases to meet Minute 242 Salinity Standard and system losses.
8. Next several pages are summary pages from the CU&L reports prepared by Reclamation. Note that Lower Basin Uses are at 7.5 MAF but, more importantly, tributary uses are 3.0 to 3.5 MAF, which is well in excess of the additional 1.0 MAF they are entitled to under the Compact. That excess could be used to meet the Mexican Treaty and eliminate the deficiencies to Mexico that may be charged to the Upper Basin.
9. Graph of flows at Lee Ferry shows historic flows, estimated virgin flows, the 10-year running average of each and solid lines at the 8.23 MAF and 7.5 MAF flow levels. While the 10-year running average for historic flows has dipped below the 8.23 MAF average, it has not dropped below the 7.5 MAF level. Furthermore, the model runs that Reclamation is doing continue to verify this even as Upper Basin depletions increase to that allowed under the current hydrologic determination of 6.0 MAF to the Upper Basin. The only thing that will change this is the use of a drought scenario that is worse than what we have experienced over the last 100 plus years.

10. The current progressive 10-year running average flow at Lee Ferry is 102 MAF as shown on the graph and attached Table. Lower Basin interests will argue that it is less because .75 MAF goes to satisfaction of the Mexican Treaty. Our position is that we are only obligated to deliver one-half of any **deficiencies to the Mexican Treaty** and given the over use of tributary water in the Lower Basin, it is debatable if there is any deficiency. System wide accounting is likely required to determine whether or not any deficiencies actual occur or exist.
11. The next set of graphs is used to monitor California's progress in cutting back to the targets specified in the Interim Surplus Guidelines. So far, California is meeting the target set for 2003 to 2006. Also, levels in Lake Mead are such that only a partial domestic surplus has been available the last couple of years and the amount of the surplus has only been a couple of hundred thousand AF.
12. The bottom portion of the next page can be used to review Lower Basin uses by state and major water user if desired. Lower Basin uses in 2004 are presently projected to be slightly less than 7.5 MAF (7.338 MAF).
13. The next two pages show scheduled deliveries to Mexico, excess deliveries to meet Minute 242 and other excess deliveries. In 2003, excess deliveries totaled an estimated 175,878 AF of which 114,735 AF was for Minute 242. Excess deliveries in 2004 are down considerably to date (39,200 AF versus 67,538 AF last year at this time).
14. The next graph (in color) shows salinity at the Northern International Boundary. The standard is that salinity at NIB can not be more than 115 ppm +/- 30 ppm of that at Imperial (the standard at Imperial Dam is 879 mg/l). Blue bar shows salinity at Imperial Dam, red bar shows salinity at NIB and the number in black is the differential. As you can see in 2002, the differential was 141 ppm, thus we barely stayed within the standard with the excess releases. In addition, there were some cutbacks in pumping of the Yuma area groundwater mound. The pages following the graph allow you see on a monthly basis the salinity levels for the last couple of years at all of the monitoring points. The standard at each point is written in near the top of the table.

CONCLUSION: While the drought is certainly severe and prolonged, the Upper Basin is not in any immediate danger of violating any of the provisions of the Compact. While reservoir storage is about 50% or slightly less we still have 8-10 years before we have serious compact issues. Nevertheless, we can certainly foresee issues that a more severe or prolonged drought could cause and we should work to address those issues while we can do so in a thoughtful and responsible manner.

1. We have also provided a copy of the Upper Basin States current depletion projections that we expect others to use for making model runs and other planning purposes. Colorado's estimated depletions since 1970 and our projections out to 2060 are graphed at the back of the depletion tables. We may want to review those tables at the Upper Colorado River Commission. However, I do not foresee a great need to do such at this time. Andy Moore can help you review these tables if you desire.

[Federal Register: January 15, 2002 (Volume 67, Number 10)]
[Notices]
[Page 1986-1988]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr15ja02-72]

DEPARTMENT OF THE INTERIOR
Bureau of Reclamation

Review of Existing Coordinate Long Range Operating Criteria for
Colorado River Reservoirs

AGENCY: Bureau of Reclamation, Interior.
ACTION: Notice.

SUMMARY: The Operating Criteria for Colorado River Reservoirs (Operating Criteria), promulgated pursuant to Public Law 90-537, were published in the Federal Register on June 10, 1970. The Operating Criteria state that the Secretary will sponsor a formal review of the Operation Criteria at least every 5 years. As part of that 5-year review process, the Bureau of Reclamation invites written comments regarding whether the Operating Criteria should be modified, and if so, how they should be modified. The existing Operating Criteria are included at the end of this notice.

DATES: Written comments must be received on or before March 18, 2002.

ADDRESSES: Written comments may be mailed to: Regional Director, Attn: BCOO-4600, Lower Colorado Region, Bureau of Reclamation, P.O. Box 61470, Boulder City, NV 89006-1470.

FOR FURTHER INFORMATION CONTACT: Jayne Harkins at (702) 293-8190 or in writing at Bureau of Reclamation, Lower Colorado Region, P.O. Box 61470, Boulder City, NV 89006-1470 or by faxogram at (702) 293-8042 or Tom Ryan at (801) 524-3732 or in writing at Bureau of Reclamation, Upper Colorado Region, 125 South State Street, Salt Lake City, Utah 84138-1102. E-mail can be sent to LROC_Review@lc.usbr.gov.

SUPPLEMENTARY INFORMATION: The Operating Criteria provided for the coordinated long-range operation of the reservoirs constructed and operated under the authority of the Colorado River Storage Project Act, the Boulder Canyon Project Act, and the Boulder Canyon Project Adjustment Act for the purposes of complying with and carrying out the provisions of the Colorado River Compact, the Upper Colorado River Basin Compact, and the Mexican Water Treaty.

The Operating Criteria provide for a review at least every 5 years with participation by Colorado River Basin state representatives as each Governor may designate and other parties and agencies as the Secretary of the Interior may deem appropriate. As provided in Public Law 102-575 (The Grand Canyon Protection Act of 1992), the Secretary also consults in this review process with the general public including representatives of academic and scientific communities, environmental organizations, the recreation industry, and contractors for the

purchase of Federal power produced at Glen Canyon Dam. This will be the sixth 5-year review of the Operating Criteria since their initial promulgation in 1970. The Commissioner of the Bureau of Reclamation shall be the authorized agent of the Secretary of the Interior for the purposes of conducting and coordinating this review.

The Record of Decision, Colorado River Interim Surplus Guidelines Final Environmental Impact Statement (Interim Surplus Guidelines) states that 5-year reviews of the Interim Surplus Guidelines may be conducted and if so, such reviews would be coordinated with the Operating Criteria review. The Interim Surplus Guidelines were signed by former Secretary Bruce Babbitt on January 16, 2001, became effective in

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February 2001, and are to be applied in 2002. Accordingly, at this time, there is no need for a review of the Interim Surplus Guidelines.

Our practice is to make comments, including names and home addresses of respondents, available for public review. Individual respondents may request that we withhold their home address from public disclosure, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold a respondent's identity from public disclosure, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public disclosure in their entirety.

In addition to written comments, open public meetings will be conducted during calendar year 2002. Notification of dates, times, and locations for public meetings will be made through the Federal Register, media outlets, and to all respondents to this notice.

Dated: December 20, 2001.

John W. Keys, III,
Commissioner, Bureau of Reclamation.

Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1968 (Pub. L. 90-537)

These Operating Criteria are promulgated in compliance with Section 602 of Public Law 90-537. They are to control the coordinated long-range operation of the storage reservoirs in the Colorado River Basin constructed under the authority of the Colorado River Storage Act (hereinafter ``Upper Basin Storage Reservoirs'') and the Boulder Canyon Project Act (Lake Mead). The Operating Criteria will be administered consistent with applicable Federal laws, the Mexican Water Treaty, interstate compacts, and decrees relating to the use of the waters of the Colorado River.

The Secretary of the Interior (hereinafter the ``Secretary'') may modify the Operating Criteria from time to time in accordance with Section 602(b) of Pub. L. 90-537. The Secretary will sponsor a formal review of the Operating Criteria at least every 5 years, with participation by State representatives as each Governor may designate and such other parties and agencies as the Secretary may deem appropriate.

I. Annual Report

(1) On January 1, 1972, and on January 1 of each year thereafter, the Secretary shall transmit to the Congress and to the Governors of the Colorado River Basin States a report describing the actual operation under the adopted criteria for the preceding compact water year and the projected plan of operation for the current year.

(2) The plan of operation shall include such detailed rules and quantities as may be necessary and consistent with the criteria contained herein, and shall reflect appropriate consideration of the uses of the reservoirs for purposes, including flood control, river regulation, beneficial consumptive uses, power production, water quality control, recreation, enhancement of fish and wildlife, and other environmental factors. The projected plan of operation may be revised to reflect the current hydrologic conditions, and the Congress and the Governors of the Colorado River Basin States be advised of any changes by June of each year.

II. Operation of Upper Basin Reservoirs

(1) The annual plan of operation shall include a determination by the Secretary of the quantity of water considered necessary as of September 30 of each year to be in storage as required by Section 602(a) of Pub. L. 90-537 (hereinafter ``602(a) Storage''). The quantity of 602(a) Storage shall be determined by the Secretary after consideration of all applicable laws and relevant factors, including, but not limited to, the following:

- (a) Historic streamflows;
- (b) The most critical period of record;
- (c) Probabilities of water supply;
- (d) Estimated future depletions of the upper basin, including the effects of recurrence of critical periods of water supply;
- (e) The ``Report of the Committee on Probabilities and Test Studies to the Task Force on Operating Criteria for the Colorado River,' dated October 30, 1969, and such additional studies as the Secretary deems necessary;

(f) The necessity to assure that upper basing consumptive uses not be impaired because of failure to store sufficient water to assure deliveries under Section 602(a)(1) and (2) of Pub. L. 90.537.

(2) If, in the plan of operation, either:

(a) The Upper Basin Storage Reservoirs active storage forecast for September 30 of the current year is less than the quantity of 602(a) Storage determined by the Secretary under Article II(1) hereof, for that date; or

(b) The Lake Powell active storage forecast for that date is less than the Lake Mead active storage forecast for that date:

the objective shall be to maintain a minimum release of water from Lake Powell of 8.23 million acre-feet for that year. However, for the years ending September 30, 1971 and 1972, the release may be greater than 8.23 million acre-feet if necessary to deliver 75,000,000 acre-feet at Lee Ferry for the 10-year period ending September 30, 1972.

(3) If, the plan of operation, the Upper Basin Storage Reservoirs active storage forecast for September 30 of the current water year is greater than the quantity of 602(a) Storage determination for that

date, water shall be released annually from Lake Powell at a rate greater than 8.23 million acre-feet per year to the extent necessary to accomplish any or all of the following objectives:

(a) to the extent it can be reasonably applied in the States of the Lower Division to the uses specified in Article III(e) of the Colorado River Compact, but no such releases shall be made when the active storage in Lake Powell is less than the active storage in Lake Mead,

(b) to maintain, as nearly as practicable, active storage in Lake Mead equal to the active storage in Lake Powell, and

(c) to avoid anticipated spills from Lake Powell.

(4) In the application of Article II(3)(b) herein, the annual release will be made to the extent that it can be passed through Glen Canyon Powerplant when operated at the available capability of the powerplant. Any water thus retained in Lake Powell to avoid bypass of water at the Glen Canyon Powerplant will be released through the Glen Canyon Powerplant as soon as practicable to equalize the active storage in Lake Powell and Lake Mead.

(5) Releases from Lake Powell pursuant to these criteria shall not prejudice the position of either the upper or lower basin interests with respect to required deliveries at Lee Ferry pursuant to the Colorado River Compact.

III. Operation of Lake Mead

(1) Water released from Lake Powell, plus the tributary inflows between Lake Powell and Lake Mead, shall be regulated in Lake Mead and either pumped from Lake Mead or released to the Colorado River to meet requirements as follows:

(a) Mexican Treaty obligations;

(b) Reasonable consumptive use requirements of mainstream users in the Lower Basin;

[[Page 1988]]

(c) Net river losses;

(d) Net reservoir losses;

(e) Regulatory wastes.

(2) Until such time as mainstream water is delivered by means of the Central Arizona Project, the consumptive use requirements of Article III(1)(b) of these Operating Criteria will be met.

(3) After commencement of delivery of mainstream water by means of the Central Arizona Project, the consumptive use requirements of Article III(1)(b) of these Operating Criteria will be met to the following extent:

(a) Normal: The annual pumping and release from Lake Mead will be sufficient to satisfy 7,500 acre-feet of annual consumptive use in accordance with the decree in *Arizona v. California*, 376 U.S. 340 (1964).

Surplus: The Secretary shall determine from time to time when water in quantities greater than "Normal" is available for either pumping or release from Lake Mead pursuant to Article II(b)(2) of the decree in *Arizona v. California* after consideration of all relevant factors, including, but not limited to, the following:

(i) the requirements stated in Article III(1) of these Operating Criteria;

(ii) requests for water by holders of water delivery contracts with the United States, and of other rights recognized in the decree in

Arizona v. California;

(iii) actual and forecast quantities of active storage in Lake Mead and the Upper Basin Storage Reservoirs; and

(iv) estimated net inflow to Lake Mead.

(c) Shortage: The Secretary shall determine from time to time when insufficient mainstream water is available to satisfy annual consumptive use requirements of 7,500,000 acre-feet after consideration of all relevant factors, including, but not limited to, the following:

(i) The requirements stated in Article III(1) of these Operating Criteria;

(ii) actual and forecast quantities of active storage in Lake Mead;

(iii) estimated of net inflow to Lake Mead for the current year;

(iv) historic streamflows, including the most critical period of record;

(v) priorities set forth in Article II(A) of the decree in Arizona v. California; and

(vi) the purposes stated in Article I(2) of these Operating Criteria.

The shortage provisions of Article II(B)(3) of the decree in Arizona v. California shall thereupon become effective and consumptive uses from the mainstream shall be restricted to the extent determined by the Secretary to be required Section 301(b) of Public Law 90-537.

IV. Definitions

(1) In addition to the definitions in Section 606 of Pub. L. 90-537, the following shall also apply:

(a) ``Spills,'' as used in Article II(3)(c) herein, means water released from Lake Powell which cannot be utilized for project purposes, including, but not limited to, the general of power and energy.

(b) ``Surplus,'' as used in Article III(3)(b) herein, is water which can be used to meet consumptive use demands in the three Lower Division States in excess of 7,500,000 acre-feet annually. The term ``surplus'' as used in these Operating Criteria is not be construed as applied to, being interpretive of, or in any manner having reference to the term ``surplus'' in the Colorado River Compact.

(c) ``Net inflow to Lake Mead,'' as used in Article III(3)(b)(iv) and (c)(iii) herein, represents the annual inflow to Lake Mead in excess of losses from Lake Mead.

(d) ``Available capability,'' used in Article II(4) herein, means that portion of the total capacity of the powerplant that is physically available for generation.

MONITORING THE COLORADO RIVER COMPACTS

June 30, 2004

1. CR Basin Storage – There is approximately 60 MAF of Live System Storage Capacity in the Primary Units of CRSP (Flaming Gorge, Aspinall, Navajo & Powell) and including Mead, Mohave and Havasu. As of the end of June 2004, the system storage was 31.7 MAF or approximately 53% of full.
2. CRSP Primary Storage Units. As of the end of June, Flaming Gorge contains about 2.6 MAF of live storage and peaked this year at 2.64 MAF, which is about 70% of full. Aspinall contains about .654 MAF of live storage, which is the expected peak and is about 79% full. Navajo Reservoir currently contains about 1.028 MAF of live storage and is projected to peak at the same which is 60% of full
3. Lake Powell live storage as of June 30, 2004 is approximately 10.476 MAF and is projected to be about 9.5 MAF at the end of this water year. This is the lowest level since Powell began filling in March 1963. This is not unprecedented, as Powell got very low in the early 1990's as well. Powell is doing its job! At the current rate of decline during this drought, we can count on Powell to do its job for another 3-5 years.
4. Lake Powell Statistics. Currently we operate against a 12-year critical period of record of 12.1 MAF. So we may define a new critical period in a few years if this drought continues.
5. Graph of Lake Powell inflow and releases. Blue bar is inflow; red bar is inflow minus 8.23 MAF. Red bars extending below the zero line indicate the amount of storage in Lake Powell used to meet the 8.23 MAF delivery obligation in the Long-Range Operating Criteria. (7.5 MAF for Compact + .75 MAF for Mexico- .02MAF for Paria River inflow). Since Glen Canyon Dam closed, no more than 4-5 years in a row required storage to make 8.23 MAF release.
6. Lake Mead graph--Storage in Mead is almost always about equal to that in Powell because of equalization required between the 2 reservoirs. However, since Powell is below the 602(a) storage level the minimum objective release is 8.23 MAF. Lake Mead storage at the end of June is 14.086 MAF and is projected to be about 14.0 MAF at the end of the Water Year. This is because the Upper Basin to date has guaranteed 8.23 MAF and thus Mead only drops .7 to .8 MAF a year during drought conditions. A quick look at storage elevations in Mead shows they are currently sitting at about 1127 which is will above the minimum power elevation of 1050 and will above Southern Nevada's intakes which are at 1047 and 1000 feet MSL respectively.
7. Lower Basin releases have been around 9.3 to 9.4 MAF annually. (7.5 for Compact, 1.5 for Mexico and some additional releases to meet Minute 242 Salinity Standard and system losses.
8. The next several pages are summary pages from the Consumptive Uses and Losses reports prepared by Reclamation. Note that Lower Basin Uses are at 7.5 MAF from the main stem, but, more importantly, tributary uses are 3.0 to 3.6 MAF, which is well in excess of the additional 1.0 MAF they are entitled to under the Compact. That excess could be used to meet the Mexican Treaty and eliminate any deficiencies to Mexico that may be chargeable to the Upper Basin.
9. Graph of flows at Lee Ferry shows historic flows, estimated virgin flows, the 10-year running average of each and solid lines at the 8.23 MAF and 7.5 MAF flow levels. While

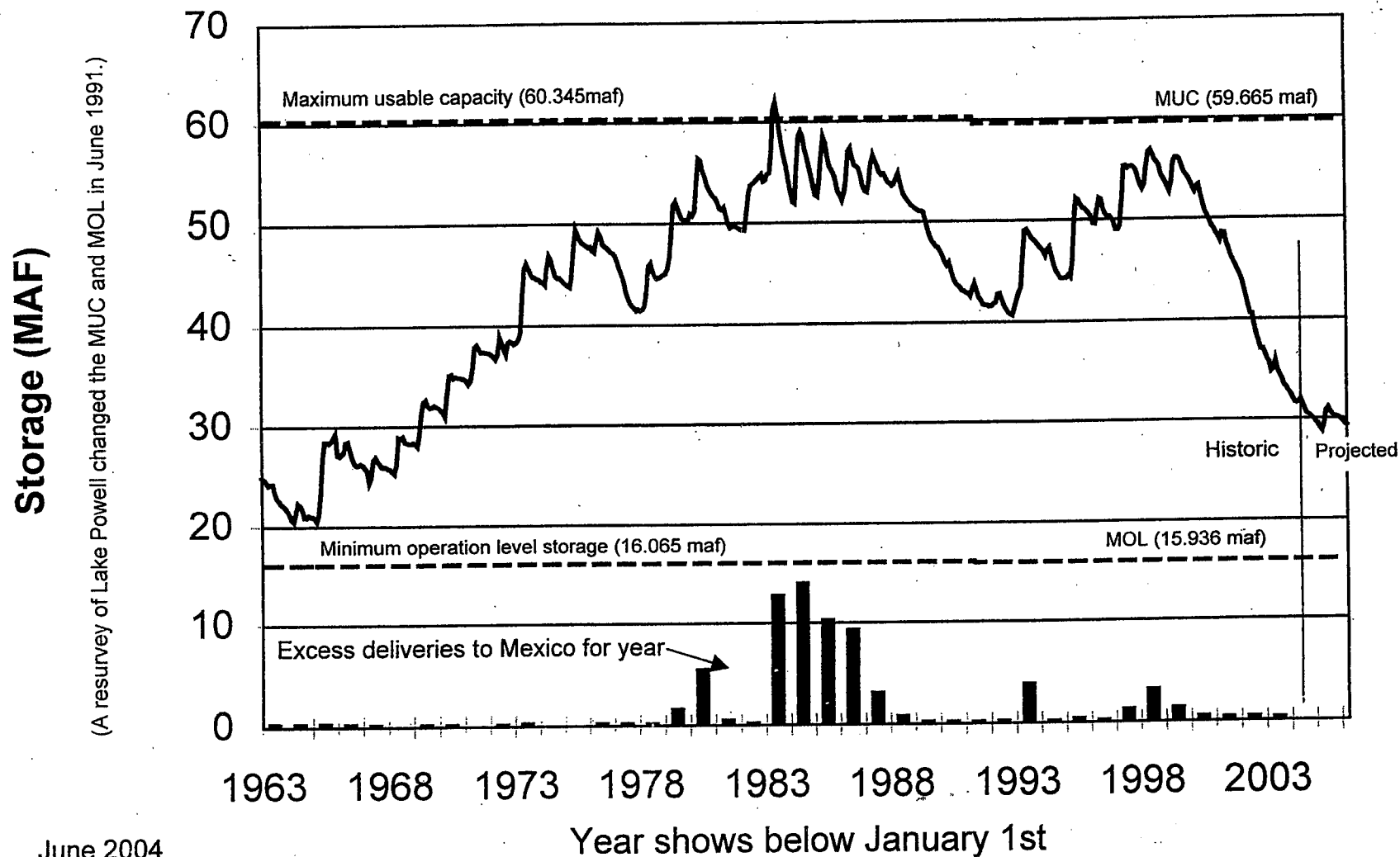
the 10-year running average for historic flows has dipped below the 8.23 MAF average, it has not dropped below the 7.5 MAF level. Furthermore, the model runs (not included) that Reclamation is doing show that trend will continue even as Upper Basin depletions increase to that allowed under the current hydrologic determination of 6.0 MAF to the Upper Basin. The only thing that will change this is the use of a drought scenario that is worse than what we have experienced over the last 100 plus years.

10. The current progressive 10-year running average flow at Lee Ferry is 102 MAF as shown on the graph and attached Table. Lower Basin interests may argue that it is less because .75 MAF goes to satisfaction of the Mexican Treaty. However, the Upper Basin is only obligated to deliver one-half of any **deficiencies to the Mexican Treaty** and given the over use of tributary water in the Lower Basin, it is debatable if there is any deficiency.
11. The next set of graphs is used to monitor California's progress in cutting back to the targets specified in the Interim Surplus Guidelines. So far, California is meeting the target set for 2003 to 2006. Also, levels in Lake Mead are such that only a partial domestic surplus has been available the last couple of years and the amount of the surplus has only been a couple of hundred thousand AF.
12. The bottom portion of the next page can be used to review Lower Basin uses by state and major water user if desired. Lower Basin uses in 2004 are presently projected to be slightly less than 7.5 MAF (7.462 MAF).
13. The next two pages show scheduled deliveries to Mexico, excess deliveries to meet Minute 242 and other excess deliveries. In 2003, excess deliveries totaled an estimated 175,878 AF of which 114,735 AF was for Minute 242. Excess deliveries in 2004 are down considerably to date (61,600 AF versus 87,250 AF last year at this time).
14. The next graph (in color) shows salinity at the Northern International Boundary (NIB). The standard is that salinity at NIB can not be more than 115 ppm +/- 30 ppm of that at Imperial (the standard at Imperial Dam is 879 mg/l). Blue bar shows salinity at Imperial Dam, red bar shows salinity at NIB and the number in black is the differential. As you can see in 2002, the differential was 141 ppm, thus we barely stayed within the standard with the excess releases. In addition, there were some cutbacks in pumping of the Yuma area groundwater mound. The pages following the graph allow you see on a monthly basis the salinity levels for the last couple of years at all of the monitoring points. The standard at each point is written in near the top of the table.

CONCLUSION: While the drought is certainly severe and prolonged, the Upper Basin is not in any immediate danger of violating any of the provisions of the Compact. While reservoir storage is about 50% or slightly less we still have 8-10 years before we have serious compact issues. Nevertheless, we can certainly foresee issues that a more severe or prolonged drought could cause and we should work to address those issues while we can do so in a thoughtful and responsible manner.

1. We have also provided a copy of the Upper Basin States current depletion projections that we expect others to use for making model runs and other planning purposes. Colorado's estimated depletions since 1970 and our projections out to 2060 are graphed at the back of the depletion tables. We may want to review those tables at the Upper Colorado River Commission. However, I do not foresee a great need to do such at this time.

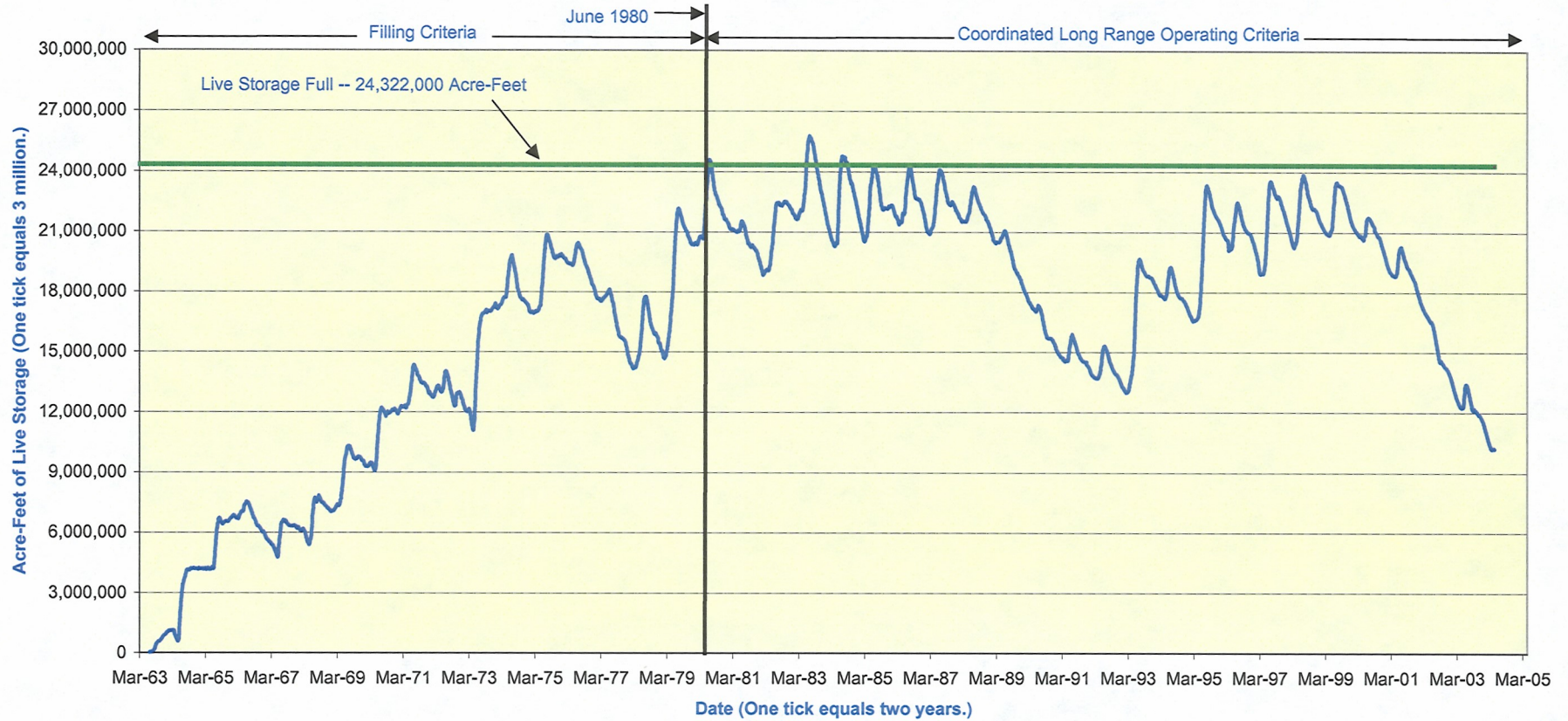
Monthly Total Colorado River Basin Storage



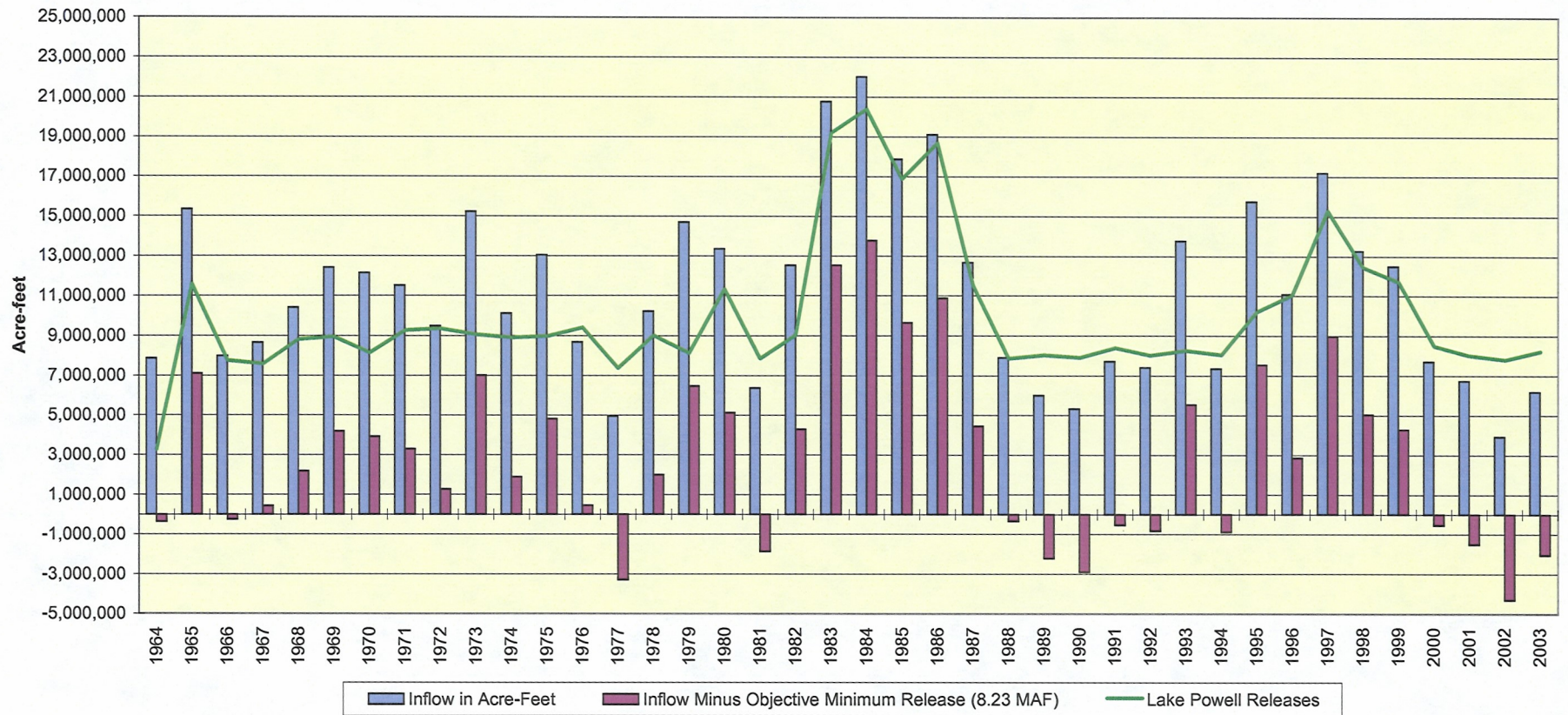
June 2004

Lake Powell Storage

Source: U. S. Bureau of Reclamation. All data is provisional and subject to modification.



Lake Powell Inflow and Releases



June 3, 2004 Forecast of Colorado River Flow into
Lake Powell (1) (Million Acre-feet)

	<u>USBR and National Weather Service</u>		<u>Change From Last</u>	
	<u>April-July</u>	<u>Water Year 2004</u>	<u>Month's Projected</u>	
			<u>April-July</u>	<u>Wat Yr 2004</u>
Maximum (2)	5.400	8.345	-0.900	-0.900
Mean	3.400 *	5.945 **	-0.600	-0.600
Minimum (2)	1.400	3.545	-0.400	-0.400

* This month's A-J observed is 43% of the 30-year A-J average shown below.

** This month's W-Y observed is 49% of the 30-year W-Y average shown below.

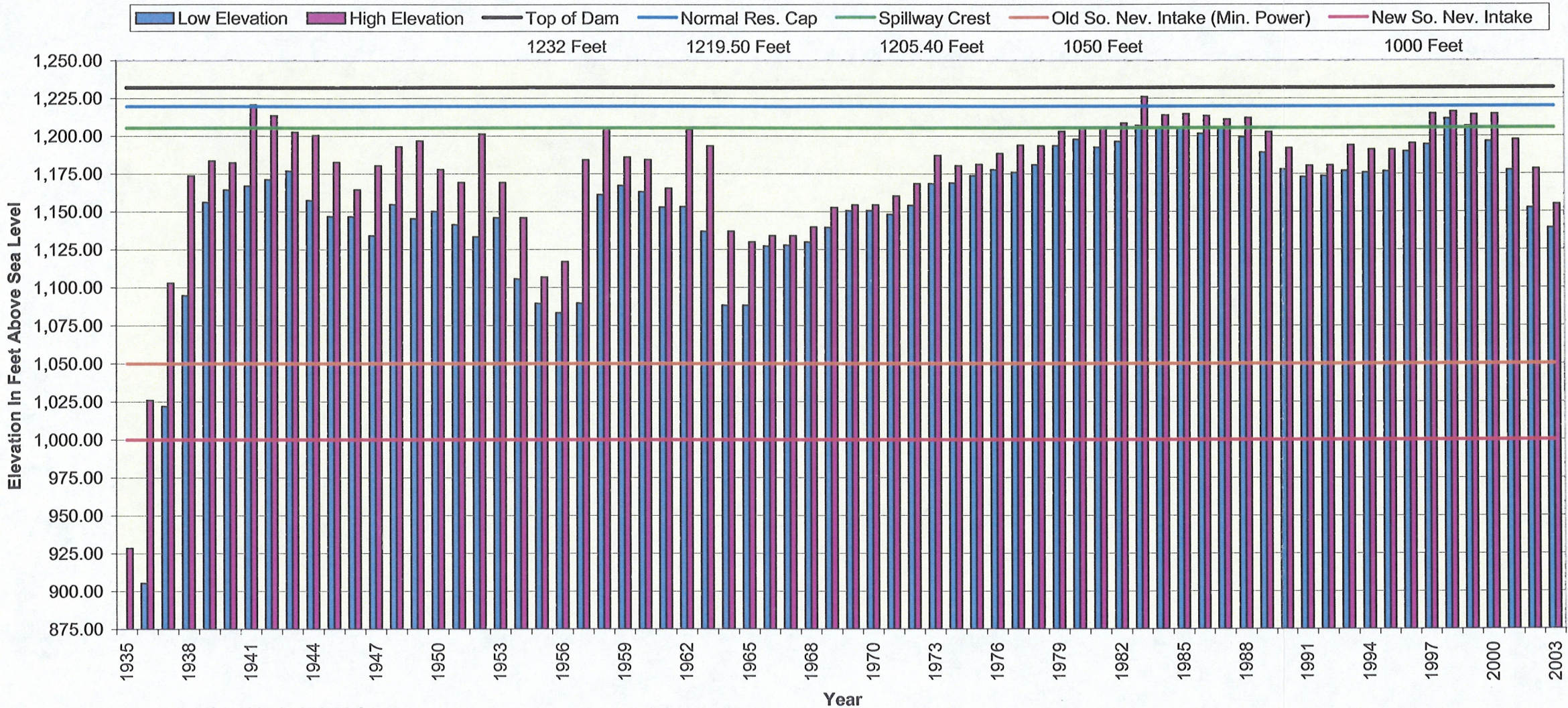
Comparison with past records
of Colorado River
inflow into Lake Powell
(at Lee Ferry prior to 1962)

	<u>April-July Flow</u>	<u>Water Year Flow</u>
Long-Time Average (1922-2003)	7.887	11.699
30-yr. Average (1961-90)	7.735	11.724
10-yr. Average (1994-2003)	7.027	11.260
Max. of Record	15.404 (1984)	21.873 (1984)
Min. of Record	1.115 (2002)	3.058 (2002)
Last Year (2003)	3.918	6.358

(1) Under conditions of no other Upper Basin reservoirs.

(2) USBR and NWS forecasts indicate the probability of 19 chances out of 20 that the actual flow will not exceed the maximum value, and will not be less than the minimum value.

Lake Mead High and Low Elevations (1935-2003)



Note: Low Elevation for 1935 is 673.50 feet

Flow Below Hoover Dam in Thousands of Acre-Feet per Year, Water Years 1907 to 2002

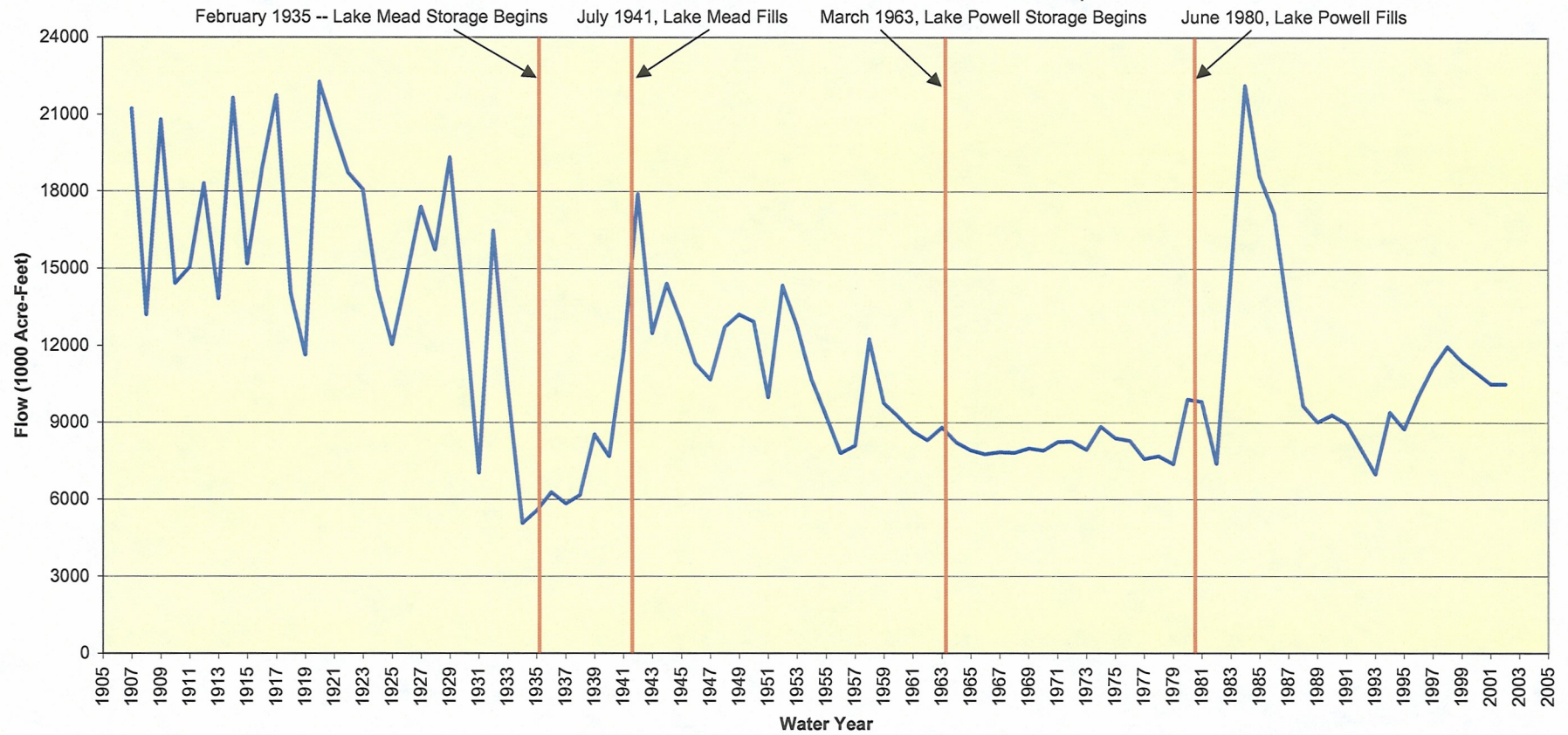


Table: Summary
Colorado River System: Water Use by States, Basins, and Tributaries¹
(1,000 acre-feet)

STATE AND BASIN OF USE	1991	1992	1993	1994	1995	Average 1991-95
ARIZONA						
Upper Basin	39	40	39	41	40	40
Lower Basin Mainstem	1,720	1,757	2,102	1,945	2,029	1,911
Lower Basin Tributaries	3,389	2,964	2,683	2,991	3,216	3,049
TOTAL	5,148	4,761	4,824	4,977	5,285	4,999
CALIFORNIA						
Lower Basin Mainstem	4,948	4,493	4,780	5,189	4,837	4,849
TOTAL	4,948	4,493	4,780	5,189	4,837	4,849
COLORADO						
Upper Basin	2,168	2,207	2,056	2,251	1,711	2,079
TOTAL	2,168	2,207	2,056	2,251	1,711	2,079
NEVADA						
Lower Basin Mainstem	180	178	208	226	216	202
Lower Basin Tributaries	102	126	126	145	134	127
TOTAL	282	304	334	371	350	329
NEW MEXICO						
Upper Basin	401	363	394	392	385	387
Lower Basin Tributaries	25	22	24	23	28	24
TOTAL	426	385	418	415	413	411
UTAH						
Upper Basin	821	868	823	957	791	852
Lower Basin Tributaries	87	96	98	105	110	99
TOTAL	908	964	921	1,062	901	951
WYOMING						
Upper Basin	442	544	420	604	437	489
TOTAL	442	544	420	604	437	489
OTHER²						
Upper Basin	475	499	550	597	625	549
Lower Basin	1,104	794	1,185	1,117	1,054	1,051
TOTAL	1,579	1,293	1,785	1,714	1,679	1,600
COLORADO RIVER SYSTEM						
Upper Basin	3,871	4,022	3,732	4,245	3,364	3,847
Lower Basin Mainstem	6,848	6,428	7,090	7,360	7,081	6,962
Lower Basin Tributaries	3,603	3,208	2,931	3,264	3,488	3,299
Other	1,579	1,293	1,735	1,714	1,679	1,600
TOTAL	15,901	14,951	15,488	16,583	15,612	15,708
WATER PASSING TO MEXICO						
Treaty	1,500	1,500	1,500	1,500	1,500	1,500
Minutes 218, 241, and 242	141	101	61	124	126	111
Regulatory Waste	21	81	3,693	26	212	807
TOTAL	1,662	1,682	5,254	1,650	1,838	2,418
COLORADO RIVER SYSTEM GRAND TOTAL	17,563	18,633	20,742	18,233	17,450	18,126

¹ Consumptive uses and losses; includes water uses satisfied by ground-water overdraft (Tables C-2 through C-6).

² Mainstem reservoir evaporation in the Upper and Lower Basins.

Table: Summary
Colorado River System: Water Use by States, Basins, and Tributaries¹
(1,000 acre-feet)

STATE AND BASIN OF USE	1986	1987	1988	1989	1990	Average 1986-90
ARIZONA						
Upper Basin	39	38	41	40	36	39
Lower Basin Mainstem	1,213	1,589	1,780	2,086	2,117	1,757
Lower Basin Tributaries	2,988	3,186	3,342	3,705	3,347	3,314
TOTAL	4,240	4,813	5,163	5,831	5,500	5,110
CALIFORNIA						
Lower Basin Mainstem	4,749	4,837	4,983	5,088	5,163	4,964
TOTAL	4,749	4,837	4,983	5,088	5,163	4,964
COLORADO						
Upper Basin	1,808	1,896	2,280	2,406	2,102	2,098
TOTAL	1,808	1,896	2,280	2,406	2,102	2,098
NEVADA						
Lower Basin Mainstem	112	109	129	156	178	137
Lower Basin Tributaries	136	133	137	140	133	136
TOTAL	248	242	266	296	311	273
NEW MEXICO						
Upper Basin	368	340	315	380	362	353
Lower Basin Tributaries	24	28	26	28	24	26
TOTAL	392	368	341	408	386	379
UTAH						
Upper Basin	735	768	754	742	784	757
Lower Basin Tributaries	92	85	93	86	87	89
TOTAL	827	853	847	828	871	846
WYOMING						
Upper Basin	474	478	561	478	520	502
TOTAL	474	478	561	478	520	502
OTHER²						
Upper Basin	649	706	694	650	566	653
Lower Basin	1,096	1,033	924	989	1,049	1,018
TOTAL	1,745	1,739	1,618	1,639	1,615	1,671
COLORADO RIVER SYSTEM						
Upper Basin	3,424	3,520	3,951	4,046	3,804	3,749
Lower Basin Mainstem	6,074	6,535	6,892	7,330	7,458	6,858
Lower Basin Tributaries	3,240	3,432	3,598	3,959	3,591	3,564
Other	1,745	1,739	1,618	1,639	1,615	1,671
TOTAL	14,483	15,226	16,059	16,974	16,468	15,842
WATER PASSING TO MEXICO						
Treaty	1,700	1,700	1,700	1,500	1,500	1,620
Minutes 218, 241, and 242	130	98	128	139	134	126
Regulatory Waste	9,094	2,946	631	89	42	2,560
TOTAL	10,924	4,744	2,459	1,728	1,676	4,306
COLORADO RIVER SYSTEM GRAND TOTAL	25,407	19,970	18,518	18,702	18,144	20,148

¹ Consumptive uses and losses; includes water uses satisfied by ground-water overdraft (Tables C-2 through C-6 and LC-3).
² Mainstem reservoir evaporation in the Upper and Lower Basins.

Summary.--Colorado River System Uses and Losses Report, Public Law 90-537
Water use by states, basins, and tributaries¹ (1981-1985)
(Units: 1,000 acre-feet)

State and basin of use	Water year					Average 1981-85
	1981	1982	1983	1984	1985	
Arizona	6,167	5,143	4,237	5,041	4,838	5,085
Upper Basin	(42)	(40)	(42)	(44)	(44)	(42)
Lower Basin main stem	(1,282)	(1,127)	(910)	(999)	(1,032)	(1,070)
Lower Basin tributaries	(4,843)	(3,976)	(3,285)	(3,998)	(3,762)	(3,973)
California	4,839	4,349	3,953	4,679	4,710	4,506
Lower Basin main stem	(4,839)	(4,349)	(3,953)	(4,679)	(4,710)	(4,506)
Colorado	2,086	2,106	1,920	1,865	1,994	1,994
Upper Basin	(2,086)	(2,106)	(1,920)	(1,865)	(1,994)	(1,994)
Nevada	350	352	339	355	373	354
Lower Basin main stem	(109)	(106)	(92)	(99)	(103)	(102)
Lower Basin tributaries	(241)	(246)	(247)	(256)	(270)	(252)
New Mexico	342	425	425	417	401	402
Upper Basin	(314)	(399)	(400)	(394)	(375)	(377)
Lower Basin tributaries	(28)	(26)	(25)	(23)	(26)	(25)
Utah	782	746	718	762	879	777
Upper Basin	(666)	(633)	(596)	(638)	(755)	(657)
Lower Basin tributaries	(116)	(113)	(122)	(124)	(124)	(120)
Wyoming	341	330	346	307	336	332
Upper Basin	(341)	(330)	(346)	(307)	(336)	(332)
Other ²	1,598	1,403	1,896	1,197	1,783	1,575
Upper Basin Colorado River Storage Project reservoir evaporation	(541)	(501)	(614)	(659)	(645)	(592)
Lower Basin main stem reservoir evaporation and channel loss	(1,057)	(902)	(1,282)	(538)	(1,138)	(983)
Total--Colorado River System						
Upper Basin	3,449	3,508	3,304	3,248	3,504	3,402
Lower Basin main stem	6,230	5,582	4,955	5,777	5,845	5,678
Lower Basin tributaries	5,228	4,361	3,679	4,401	4,182	4,370
Other--Reservoir evaporation and channel loss	1,598	1,403	1,896	1,197	1,783	1,575
	16,505	14,854	13,834	14,623	15,314	15,025
Water passing to Mexico	3,997	1,817	9,782	16,992	13,396	9,197
Treaty	(1,751)	(1,495)	(1,646)	(1,694)	(1,671)	(1,652)
Minutes 218, 241, and 242	(131)	(146)	(166)	(138)	(131)	(142)
Excess release	(2,115)	(176)	(7,970)	(15,160)	(11,594)	(7,403)
Total--Colorado River System and water passing to Mexico	20,502	16,671	23,616	31,615	28,710	24,222

¹ Onsite consumptive uses and losses; includes water uses satisfied by ground-water overdraft (from tables C-2 through C-6 and LC-3).

² Represents main stem reservoir evaporation in the Upper Basin and main stem reservoir evaporation and channel loss below Lee Ferry in the Lower Basin.

SUMMARY

Water Use by States ^{1/}

1976-1980

State	(1,000 acre-feet)					
	1976	1977	1978	1979	1980	Average 1976-1980
Arizona	5,033	5,369	5,351	5,409	5,641	5,361
California	4,813	4,837	4,624	4,591	4,680	4,709
Colorado	1,679	1,608	1,937	1,824	1,744	1,758
Nevada	226	227	224	228	233	228
New Mexico	310	239	361	432	457	360
Utah	705	462	746	798	738	690
Wyoming	282	219	333	348	337	304
Other ^{2/}	1,931	1,832	1,887	2,070	2,063	1,956
Total - Colorado River System	14,979	14,793	15,463	15,700	15,893	15,366
Water Passing to Mexico						
Treaty	1,475	1,554	1,513	1,668	1,707	1,583
Minute 242	205	209	194	171	185	193
Excess Releases	69	68	38	927	4,251	1,071
Total - Water Passing to Mexico	1,749	1,831	1,745	2,766	6,143	2,847
Total - Colorado River System and Water Passing to Mexico	16,728	16,624	17,208	18,466	22,036	18,213

^{1/} On site consumptive uses and losses; includes water uses satisfied by ground water overdrafts.

^{2/} Represents mainstem reservoir evaporation in the Upper Basin and mainstream reservoir evaporation and channel losses below Lee Ferry in the Lower Basin.

SUMMARY—Colorado River System Consumptive Uses and Losses Report, P.L. 90-537
Water Use By States, Basins, and Tributaries ¹

(1,000 A.F.)

STATE AND BASIN OF USE	WATER YEAR					Average 1971-75
	1971	1972	1973	1974	1975	
Arizona	4756	5040	5128	5464	5514	5180
Upper Basin	(11)	(12)	(11)	(19)	(25)	(16)
Lower Basin Mainstream	(1181)	(1129)	(1068)	(1185)	(1208)	(1154)
Lower Basin Tributaries	(3564)	(3899)	(4049)	(4260)	(4281)	(4010)
California	5122	5328	5068	5475	4937	5186
Lower Basin	(5122)	(5328)	(5068)	(5475)	(4937)	(5186)
Colorado	1700	1775	1536	1855	1778	1729
Upper Basin	(1700)	(1775)	(1536)	(1855)	(1778)	(1729)
Nevada	131	148	154	160	154	149
Lower Basin Mainstream	(34)	(60)	(65)	(76)	(68)	(60)
Lower Basin Tributaries	(97)	(88)	(89)	(84)	(86)	(89)
New Mexico	213	218	357	237	322	270
Upper Basin	(180)	(183)	(320)	(200)	(290)	(235)
Lower Basin Tributaries	(33)	(35)	(37)	(37)	(32)	(35)
Utah	794	823	823	874	698	803
Upper Basin	(729)	(749)	(730)	(785)	(615)	(722)
Lower Basin Tributaries	(65)	(74)	(93)	(89)	(83)	(81)
Wyoming	334	304	304	364	291	319
Upper Basin	(334)	(304)	(304)	(364)	(291)	(319)
Other	1916	1919	2066	2175	2087	2033
Upper Basin Colorado River Storage Project Reservoir Evaporation	(458)	(477)	(502)	(596)	(607)	(528)
Lower Basin Mainstream Reservoir Evaporation and Channel Loss	(1458)	(1442)	(1564)	(1579)	(1480)	(1505)
Total—Colorado River System						
Upper Basin	2954	3023	2901	3223	2999	3021
Lower Basin Mainstream	6337	6517	6202	6736	6213	6400
Lower Basin Tributaries	3759	4096	4268	4470	4482	4215
Other—Reservoir Evaporation and Channel Loss	1916	1919	2066	2175	2087	2033
	14966	15555	15437	16604	15781	15669
Water Passing to Mexico	1561	1600	1594	1720	1656	1626
Treaty	(1501)	(1515)	(1444)	(1563)	(1429)	(1490)
Minutes 218, 241, and 242	(55)	(79)	(120)	(151)	(214)	(124)
Regulatory Waste	(5)	(6)	(30)	(6)	(13)	(12)
Total—Colorado River System and Water Passing to Mexico	16527	17155	17031	18324	17437	17295

¹ Onsite consumptive uses and losses; includes water uses satisfied by ground water overdraft.

Colorado River Flow at Lee Ferry, Arizona

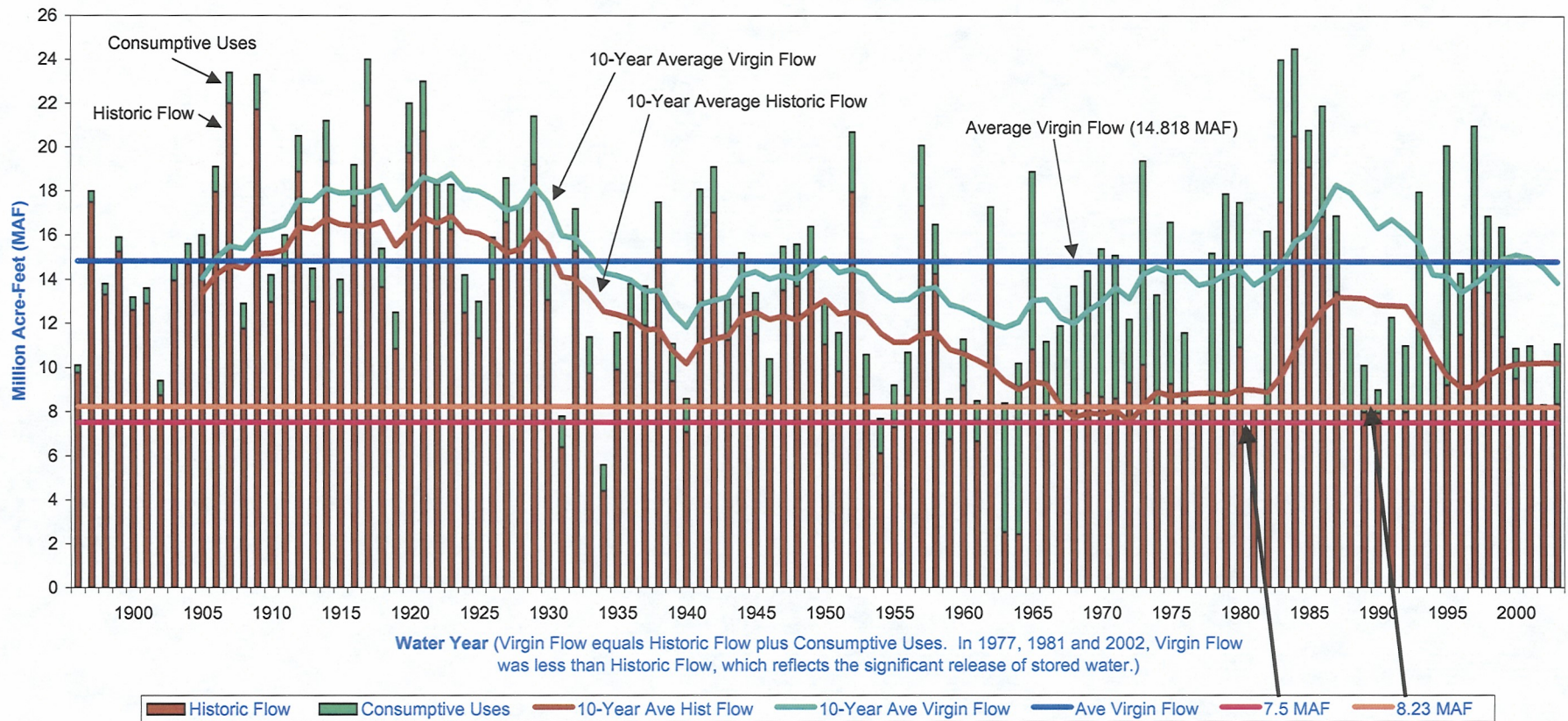


Table 4
HISTORIC FLOW AT LEE FERRY
1953-2003

Water Year Ending Sept. 30	Historic Flow (1,000 a.f.)	Progressive 10- Year Total (1,000 a.f.)
1954	6,116	
1955	7,307	
1956	8,750	
1957	17,340	
1958	14,260	
1959	6,756	
1960	9,192	
1961	6,674	
1962	14,790	
1963	2,520	93,705
1964	2,427	90,016
1965	10,835	93,544
1966	7,870	92,664
1967	7,824	83,148
1968	8,358	77,246
1969	8,850	79,340
1970	8,688	78,836
1971	8,607	80,769
1972	9,330	75,309
1973	10,141	82,930
1974	8,277	88,780
1975	9,274	87,219
1976	8,494	87,843
1977	8,269	88,288
1978	8,369	88,299
1979	8,333	87,782
1980	10,950	90,044
1981	8,316	89,753
1982	8,323	88,746
1983	17,520	96,125
1984	20,518	108,366
1985	19,109	118,201
1986	16,866	126,573
1987	13,450	131,754
1988	8,160	131,545
1989	7,995	131,207
1990	8,125	128,382
1991	8,132	128,198
1992	8,023	127,898
1993	8,137	118,515
1994	8,306	106,303
1995	9,242	96,436
1996	11,530	91,100
1997	13,857	91,507
1998	13,444	96,791
1999	11,428	100,224
2000	9,603	101,702
2001	8,362	101,932
2002	8,346	102,255
2003*	8,333	102,451

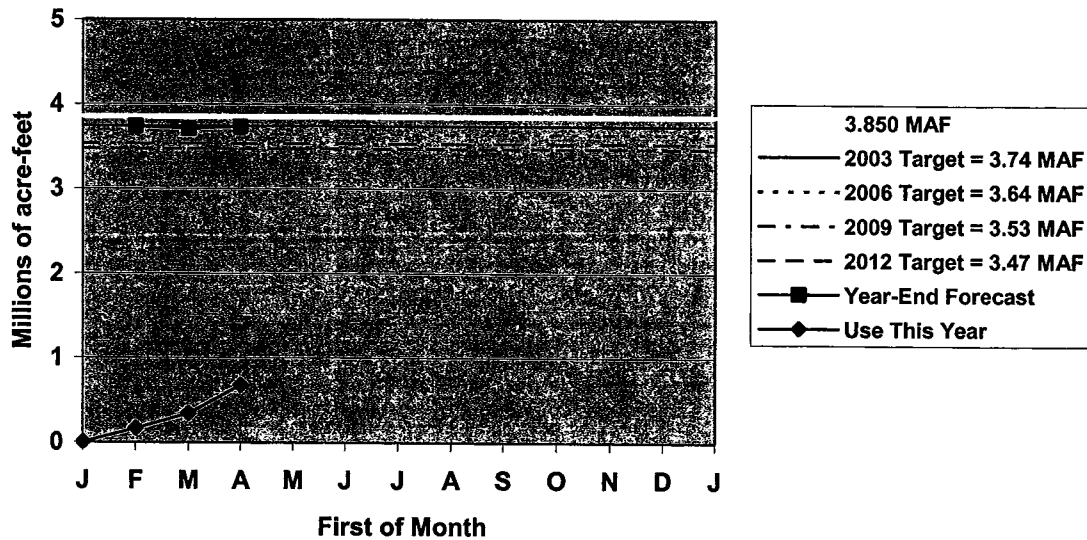
Storage in Flaming Gorge and Navajo Reservoirs began in 1962.

Storage in Glen Canyon Reservoir began in 1963.

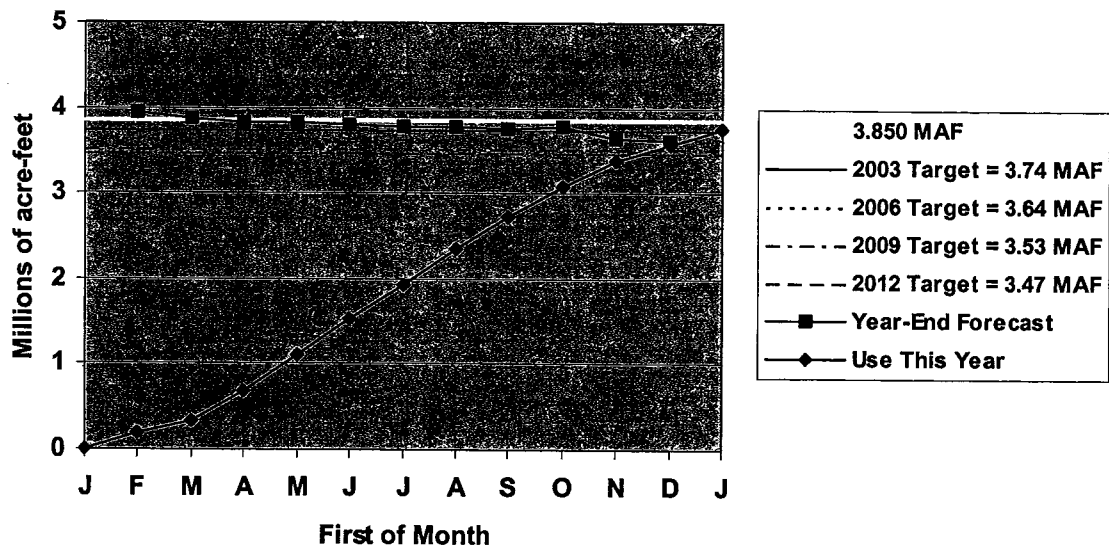
Storage in Fontenelle reservoir began in 1964.

*Based upon provisional streamflow records subject to revision.

May 1 Forecast of 2004 Year-End Colorado River Water Use by the California Agricultural Agencies



January 1 Forecast of 2003 Year-End Colorado River Water Use by the California Agricultural Agencies



**SUMMARY WATER REPORT
COLORADO RIVER BASIN
June 3, 2004**

RESERVOIR STORAGE (as of midnight June 3)	MAF	ELEV. IN FEET	% Of Capacity
Lake Powell	10.575	3,587.3	43
Flaming Gorge	2.593	6,008.5	69
Navajo	0.988	6,027.9	58
Lake Mead	14.284	1,129.3	52
Lake Mohave	1.724	643.9	95
Lake Havasu	0.578	447.9	93
Total System Storage	31.632	-	52
System Storage Last Year	35.346		59

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Colorado Water Conservation Board

WY 2004 Precipitation (Basin Weighted Avg) 10/1 through 6/3/04	82 percent
WY 2004 Snow pack Water Equivalent (Basin Weighted Avg) on day of 6/3/04 (Above two values based on average of data from 116 sites.)	24 percent
June 3, 2004 Projected Unregulated Lake Powell Inflow (WY 03-04)	MAF % of Avg
2004 April through July unregulated inflow projected	3.400 43 %
2004 Water Year unregulated inflow projected	5.945 49 %

USBR Predicted Year-End 2004 Consum. Use a./				MAF		
				<u>2004</u>	<u>2003</u>	<u>2002</u>
Nevada (Estimated Total)				0.294	0.300	0.321
Arizona (Total)				2.816	2.824	2.806
CAP Total				1.611	1.685	1.582
Az. Water Banking Authority				0.308	0.213	0.349
OTHERS				1.205	1.139	1.426
California (Total)				4.352	4.407	5.268
MWD				0.551	0.684	1.238
3.85 Agriculture	<u>Total</u>	<u>Conserved</u>	<u>Forecasted</u>	<u>Measured</u>	<u>Measured</u>	
IID b./	3.026	-0.1219	2.904	2.978	3.153	
CVWD	0.335	0	0.335	0.297	0.331	
PVID	0.488	0	0.488	0.380	0.485	
YPRD	0.046	0	0.046	0.052	0.046	
Island c./	0.007	0	0.007			
Total Ag.	3.902	-0.1219	3.780	3.707	4.015	
Others			0.02	0.016	0.015	
PVID-MWD following to storage			0	0	0	
Arizona, California, and Nevada Total			7.462	7.531	8.395	

a./ Includes unmeasured return credits

b./ 0.1019 MAF conserved by IID-MWD Agreement as amended for 2003, plus another 20,000 AF for SDCWA under the IID-SDCWA Transfer Agreement as amended, being diverted by MWD.

c./ Includes estimated amount of 7,056 acre-feet of disputed uses by Yuma Island pumpers being charged by USBR to priority 2.

VI. Scheduled Flows to Mexico — Arrivals and excess arrivals of Water for Calendar Year 2003
(Acre-feet)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<u>Scheduled Flow</u>	<u>Total Arrivals</u>	<u>Excess Arrivals in accord with Minute 242</u>	<u>Other Excess Arrivals</u>	<u>Total Excess Arrivals</u>	<u>Cumulative Excess Arrivals</u>	<u>Flow Through NIB and Limitrophe</u>	<u>Flow Pass South Inland Boundary</u>
Jan.	130,284	145,023	10,542	4,197	14,739	14,739	125,763	8,718
Feb.	154,940	190,408	8,917	26,551	35,468	50,207	172,199	9,293
March	199,770	217,101	10,090	7,241	17,331	67,538	196,293	10,718
April	193,325	213,037	8,320	11,392	19,712	87,250	191,749	12,965
May	108,570	120,970	8,611	3,789	12,400	99,650	101,456	10,903
June	111,372	120,795	9,305	118	9,423	109,073	101,519	9,971
July	121,512	131,840	9,664	664	10,328	119,401	111,113	11,064
August	99,884	110,625	9,748	993	10,741	130,142	90,299	10,577
Sept.	90,358	103,031	10,195	2,478	12,673	142,815	81,868	10,968
Oct.	71,655	82,859	10,266	938	11,204	154,019	59,353	13,241
Nov.	98,904	110,471	10,038	1,529	11,567	165,586	87,093	13,340
Dec.	119,427	129,719	9,039	1,253	10,292	175,878	109,418	11,262
	<u>1,500,001</u>	<u>1,675,879</u>	<u>114,735</u>	<u>61,143</u>	<u>175,878</u>			

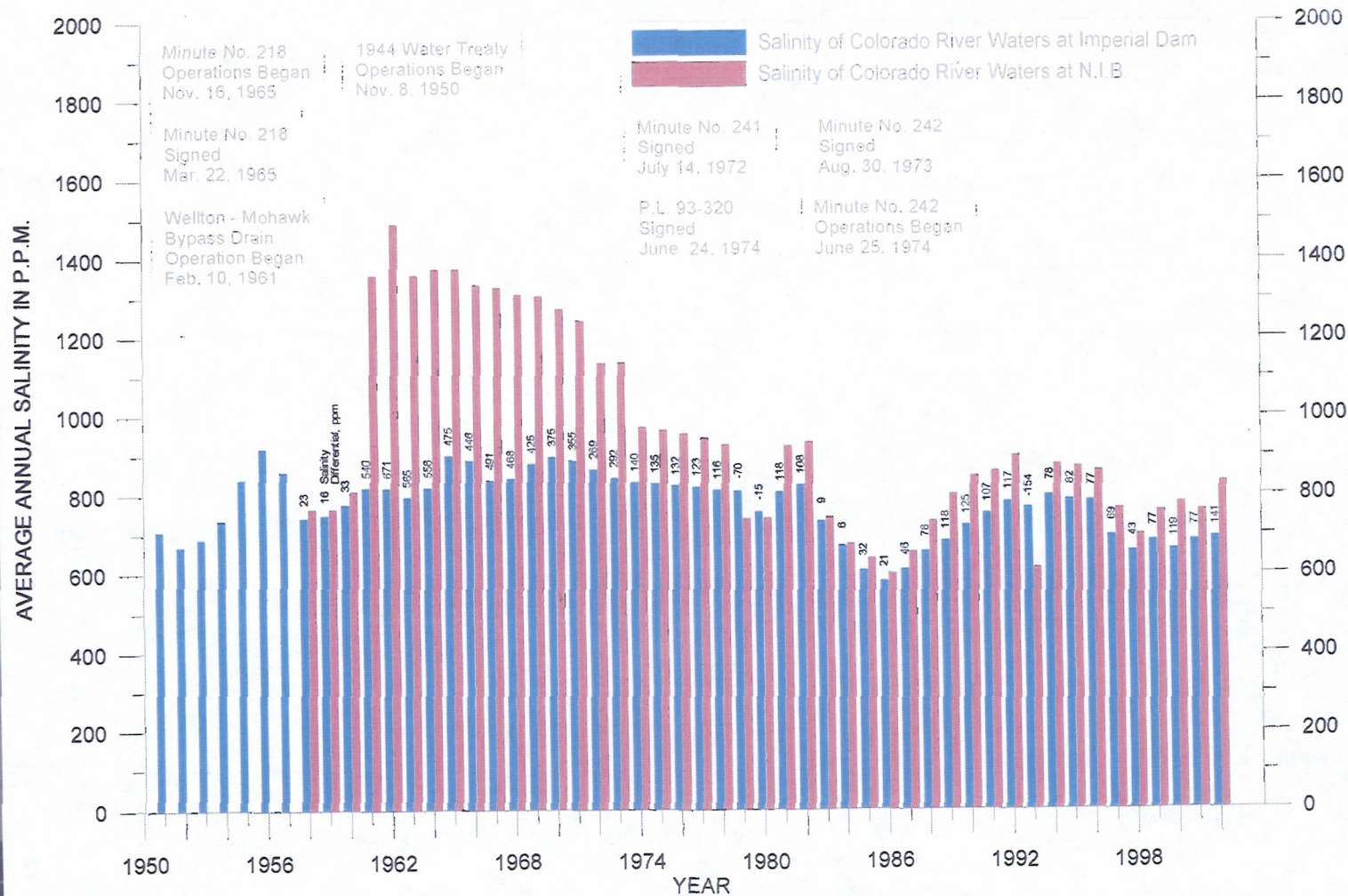
- Column (1). Flow schedule requested by Mexico. In surplus years as determined by the United States, Mexico can schedule up to 1.7 rather than 1.5 million acre-feet.
- (2). Total Colorado River waters reaching Mexico. It is the sum of: 1) Colorado River water measured at the Northerly International Boundary, 2) drainage waters measured at the Southerly International Boundary near San Luis, Arizona, and 3) Wellton-Mohawk drainage waters measured at the Southerly International Boundary. It is the sum of Columns (1) + (5).
- (3). Arizona's Wellton-Mohawk District drainage water. This water is discharged to the Santa Clara Slough in Mexico via a concrete-lined canal.
- (4). Excess arrivals other than Wellton-Mohawk drainage. It is the sum of: 1) a delivery of about 5,000 a. f. per year to ensure that Mexico receives what is scheduled, 2) releases from Parker Dam which are not used due to unexpected rainfall in the Palo Verde, Coachella, Imperial, and Yuma areas, 3) controlled flood releases on the Gila and Colorado River, and 4) local runoff.
- (5). Sum of Columns (3) and (4).
- (6). Cumulation of Column (5).
- (7). Including Colorado River flow at the Northerly International Boundary plus flow from Cooper, 11 mile, 21 mile spillways.
- (8). Including flow at the Southerly International Boundary, East and West main canals, Yuma Vally main, 242 Lateral plus Tijuana.

VI. Scheduled Flows to Mexico — Arrivals and excess arrivals of Water for Calendar Year 2004
(Acre-feet)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<u>Scheduled</u> <u>Flow</u>	<u>Total</u> <u>Arrivals</u>	<u>Excess</u> <u>Arrivals</u> <u>in accord</u> <u>with</u> <u>Minute 242</u>	<u>Other</u> <u>Excess</u> <u>Arrivals</u>	<u>Total</u> <u>Excess</u> <u>Arrivals</u>	<u>Cumulative</u> <u>Excess</u> <u>Arrivals</u>	<u>Flow</u> <u>Through</u> <u>NIB and</u> <u>Limitrophe</u>	<u>Flow</u> <u>Pass South</u> <u>Inland</u> <u>Boundary</u>
Jan.	128,113	137,254	8,585	556	9,141	9,141	119,110	9,560
Feb.	158,444	177,333	8,688	10,201	18,889	28,030	160,673	7,972
March	199,769	210,939	8,889	2,281	11,170	39,200	193,242	8,808
April	197,528	219,928	7,601	14,799	22,400	61,600	202,514	9,813
May	108,570							
June	109,271							
July	119,428							
August	97,713							
Sept.	89,307							
Oct.	73,669							
Nov.	98,763							
Dec.	119,427							
	<u>1,500,002</u>							

- Column (1). Flow schedule requested by Mexico. In surplus years as determined by the United States, Mexico can schedule up to 1.7 rather than 1.5 million acre-feet.
- (2). Total Colorado River waters reaching Mexico. It is the sum of: 1) Colorado River water measured at the Northerly International Boundary, 2) drainage waters measured at the Southerly International Boundary near San Luis, Arizona, and 3) Wellton-Mohawk drainage waters measured at the Southerly International Boundary. It is the sum of Columns (1) + (5).
- (3). Arizona's Wellton-Mohawk District drainage water. This water is discharged to the Santa Clara Slough in Mexico via a concrete-lined canal.
- (4). Excess arrivals other than Wellton-Mohawk drainage. It is the sum of: 1) a delivery of about 5,000 a. f. per year to ensure that Mexico receives what is scheduled, 2) releases from Parker Dam which are not used due to unexpected rainfall in the Palo Verde, Coachella, Imperial, and Yuma areas, 3) controlled flood releases on the Gila and Colorado River, and 4) local runoff.
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- (6). Cumulation of Column (5).
- (7). Including Colorado River flow at the Northerly International Boundary plus flow from Cooper, 11-mile, 21-mile spillways.
- (8). Including flow at the Southerly International Boundary, East and West Main canals, Yuma Vally Main, 242 Lateral plus Tijuana.

EXHIBIT 2 SALINITY OF COLORADO RIVER TREATY WATERS AT IMPERIAL DAM AND THE NORTHERLY INTERNATIONAL BOUNDARY



WEIGHTED MONTHLY SALINITY AT
SELECTED COLORADO RIVER STATIONS ^{1/}
AND RUNNING 12-MONTH NIB-IMPERIAL FLOW-WEIGHTED SALINITY DIFFERENTIAL
(in parts per million)

Month	Below Hoover Dam			Below Parker Dam			Palo Verde Canal Near Blythe			At Imperial Dam			At Northerly Inter- national Boundary			Running 12-Month Flow-Wtd. Differential ^{3/}	
	5-Year avg. ^{2/}			5-Year avg. ^{2/}			5-Year avg. ^{2/}			5-Year avg. ^{2/}			5-Year avg. ^{2/}				
	1974-78	2003	2004	1974-78	2003	2004	1974-78	2003	2004	1974-78	2003	2004	1974-78	2003	2004	2003	2004
	723			747						879			Imperial #115±30				
Jan.	690	623	653	709	665		751	648		913	711	766	1,041	891	890	143.5	132.8
Feb.	675	640	657	706	627		732	636		835	700	708	998	798	817	137.3	134.8
March	684	601	648	699	621		727	629		805	679	695	925	787	787	137.7	133.3
April	680	615	645	700	628		714	631		801	680	704	892	777	770	134.9	128.9
May	677	621		698	625		709	633		822	723		962	878		130.8	
June	678	621		695	632		712	634		812	711		956	844		127.2	
July	682	623		688	635		709	637		797	671		909	810		127.6	
August	690	620		686	631		706	635		800	689		907	867		131.0	
Sept.	672	618		686	634		737	643		815	708		952	869		133.2	
Oct.	680	628		689	634		739	639		854	726		1,070	930		133.0	
Nov.	682	641		692			746			897	766		1,010	952		136.4	
Dec.	681	645		702			731			877	772		999	896		136.0	

General Notes:

^{1/} Salinity based on "sum of constituents".

^{2/} 5-Year averages are arithmetical.

^{3/} 12-month flow-weighted differential between NIB and Imperial Dam through month shown in left column.

WEIGHTED MONTHLY SALINITIES AT
SELECTED COLORADO RIVER STATIONS ^{1/}
AND RUNNING 12-MONTH NIB-IMPERIAL FLOW-WEIGHTED SALINITY DIFFERENTIAL
(in parts per million)

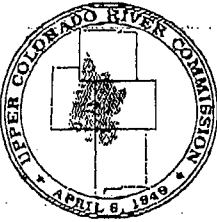
Month	Below Hoover Dam			Below Parker Dam			Palo Verde Canal Near Blythe			At Imperial Dam			At Northerly International Boundary			Running 12-Month Flow-Wtd. Differential ^{3/}	
	5-Year avg. ^{2/}			5-Year avg. ^{2/}			5-Year avg. ^{2/}			5-Year avg. ^{2/}			5-Year avg. ^{2/}				
	1974-78	2002	2003	1974-78	2002	2003	1974-78	2002	2003	1974-78	2002	2003	1974-78	2002	2003	2002	2003
Jan.	690	582	623	709	600	665	751	613	648	913	708	711	1,041	856	891	139.1	143.5
Feb.	675	611	640	706	608	627	732	615	636	835	676	700	998	839	798	147.0	137.3
March	684	605	601	699	608	621	727	549	629	805	675	679	925	783	787	152.2	137.7
April	680	600	615	700	609	628	714	607	631	801	658	680	892	781	777	157.7	134.9
May	677	595	621	698	602	625	709	617	633	822	679	723	962	871	878	157.6	130.8
June	678	600	621	695	604	632	712	625	634	812	684	711	956	855	844	157.7	127.2
July	682	610	623	688	607	635	709	625	637	797	684	671	909	821	810	159.3	127.6
August	690	606	620	686	609	631	706	616	635	800	701	689	907	828	867	156.1	131.0
Sept.	672	603	618	686	612	634	737	619	643	815	699	708	952	820	869	151.8	133.2
Oct.	680	603	628	689	602	634	739	603	639	854	711	726	1,070	899	930	146.3	133.0
Nov.	682	609	641	692	609		746	614		897	719	766	1,010	850	952	142.1	136.4
Dec.	681	609	645	702	615		731	629		877	756	772	999	887	896	140.9	136.0

General Notes:

^{1/} Salinities based on "sum of constituents".

^{2/} 5-Year averages are arithmetic

^{3/} 12-month flow-weighted differential between NIB and Imperial Dam through month shown in left column.



UPPER COLORADO RIVER COMMISSION

355 South 400 East • Salt Lake City • Utah 84111 • 801-531-1150 • FAX 801-531-9705

DEC 21 1999
Colorado Water
Conservation Board
Dan
Ran

MEMORANDUM

To: Interested Agencies/Parties

From: Executive Director

Date: December 23, 1999

Subject: ESTIMATES OF FUTURE DEPLETIONS IN THE
UPPER DIVISION STATES

For several years, prior to July 1994, there had been substantial concern surrounding "Official" depletion schedules for use of Colorado River water in the Upper Basin. However, there is a need to use depletion schedules for long-range planning and power-rate studies on a continuing basis. The Upper Division States, through the Commission, recognize this ongoing need and have been actively reviewing and revising estimates of future uses of Colorado River water in their respective States. These reviews have been completed utilizing the most recent information on future water, power and energy developments.

Upper Division States depletion schedules were revised in July 1994 and also revised unofficially in 1996. The Upper Colorado River Commission at its December 15, 1999 meeting passed a resolution not objecting to the use of the January 2000 States' depletions schedule for planning and water supply studies as appropriate. The resolution and schedule are enclosed.

If you have any questions about the schedules, please contact either Commission staff or the individual State water resources agencies.

WEC:pj

Enclosures

Wayne E. Cook

RESOLUTION
OF THE
UPPER COLORADO RIVER COMMISSION
RE: JANUARY 2000 STATES' DEPLETION TABLES

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 their compact delivery requirements 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 may be sufficient to meet the apportionments to the Lower Basin provided for in Article III (a) and (b) of the Colorado River Compact and the entire Mexican Treaty delivery obligation; and

WHEREAS, it is the understanding and expectation of the **Upper Colorado River Commission** and the **Upper Division States** that appropriate authorities will take all actions necessary to ensure that all States have access to their respective apportionments as specified in the Upper Colorado River Basin Compact; and

WHEREAS, planning for future development of the water resources available to the Upper Basin is facilitated by the projection of future uses in respective Upper Basin States.

WHEREAS, the Bureau of Reclamation has determined that at least 6.0 million acre-feet (MAF) annually of firm yield is available to the Upper Basin States based on a minimum objective release of 8.23 MAF from Glen Canyon Dam;

WHEREAS, the **Commission** resolved at its Special Meeting in Denver, Colorado on June 2, 1987 that it "... would not object to a determination by the Bureau [of Reclamation] that the Upper Basin yield is at least 6.0 million acre-feet annually";

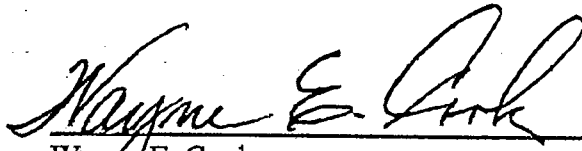
NOW, THEREFORE BE IT RESOLVED, that while the **Upper Colorado River Commission** disagrees with the assumption of a minimum release of 8.23 MAF annually from Glen Canyon Dam, the **Commission** does not object to the use of the January 2000 depletion projections for planning purposes and water supply studies within the Colorado River Basin.

BE IT FURTHER RESOLVED, that this Resolution be transmitted to the Regional Director, Upper Colorado Region, Bureau of Reclamation, Salt Lake City, Utah, and, as appropriate, to other Federal, State and Congressional officials who may need to use these depletion projections.

CERTIFICATE

I, WAYNE E. COOK, Executive Director and Secretary of the **Upper Colorado River Commission**, do hereby certify that the above Resolution was adopted by the **Upper Colorado River Commission** at a meeting held in Las Vegas, Nevada on December 15, 1999.

WITNESS my hand this 15th day of December 1999.



Wayne E. Cook
Executive Director and Secretary

January 2000

Upper Colorado River Division States Depletion Schedule (Total)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	2717	2717	2717	2717	2717	2717	2717	2717
Municipal/Domestic	58	58	58	58	58	58	58	58
Power/Industrial	178	181	182	183	184	184	184	184
Minerals	30	30	30	30	30	30	30	30
Export	886	886	886	886	886	886	886	886
Reservoir Evaporation	168	169	169	169	169	169	169	169
TOTAL CURRENT DEPLETIONS	4037	4040	4041	4042	4043	4043	4043	4043
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	21	166	212	210	205	202	204
Municipal/Domestic	0	18	90	130	165	196	230	257
Power/Industrial	0	40	60	71	85	93	105	114
Minerals	0	3	14	27	44	50	53	57
Export	0	45	205	227	275	313	338	359
Reservoir Evaporation	0	3	4	4	4	5	6	7
TOTAL ANTICIPATED DEPLETIONS	0	129	539	671	784	862	933	998
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	1	26	32	35	46	101	105
Municipal/Domestic	0	0	1	6	8	11	33	56
Power/Industrial	0	1	3	6	22	34	48	61
Minerals	0	0	1	3	14	21	51	66
Export	0	0	0	8	14	21	24	27
Reservoir Evaporation	0	0	0	1	3	4	6	8
TOTAL POTENTIAL DEPLETIONS	0	2	31	56	95	137	262	323
Summary of Depletions	4037	4171	4612	4769	4922	5042	5239	5365
Evap-Storage Units	546	546	546	546	546	546	546	546
TOTAL DEPLETIONS	4583	4717	5158	5315	5468	5588	5785	5911
Upper Division Allocation	5950	5950	5950	5950	5950	5950	5950	5950
Remaining Available	1367	1233	792	635	482	362	165	39
Percent Unused	23%	21%	13%	11%	8%	6%	3%	1%

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In this schedule, the Upper Division Allocation is listed, for planning purposes only, as 5,950,000 acre-feet. For planning purposes, the total Upper Colorado River Basin Allocation, is 6,000,000 acre-feet, of which 50,000 acre-feet is the Upper Basin allocation to Arizona. This estimate does not constitute an endorsement of the Bureau of Reclamation's 1988 Hydrologic Determination.

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January 2000

Upper Colorado River Division States Depletion Schedule (Colorado)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	1500	1500	1500	1500	1500	1500	1500	1500
Municipal/Domestic	19	19	19	19	19	19	19	19
Power/Industrial	35	35	35	35	35	35	35	35
Minerals	21	21	21	21	21	21	21	21
Export	606	606	606	606	606	606	606	606
Reservoir Evaporation	84	84	84	84	84	84	84	84
TOTAL CURRENT DEPLETIONS	2265	2265	2265	2265	2265	2265	2265	2265
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	20	49	49	52	52	54	57
Municipal/Domestic	0	18	76	81	82	82	85	86
Power/Industrial	0	40	57	64	73	73	77	80
Minerals	0	0	7	17	32	32	32	32
Export	0	45	122	142	162	182	182	182
Reservoir Evaporation	0	2	2	2	2	2	2	2
TOTAL ANTICIPATED DEPLETION	0	125	313	355	403	423	432	439
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	1	1	5	5	12	64	65
Municipal/Domestic	0	0	1	1	1	1	13	13
Power/Industrial	0	0	0	0	1	2	2	2
Minerals	0	0	0	0	1	2	2	2
Export	0	0	0	0	0	0	0	0
Reservoir Evaporation	0	0	0	0	0	0	0	0
TOTAL POTENTIAL DEPLETIONS	0	1	2	6	7	15	79	80
Summary of Depletions	2265	2391	2580	2626	2675	2703	2776	2784
Evap-Storage Units	295	295	295	295	295	295	295	295
TOTAL DEPLETIONS	2560	2686	2875	2921	2970	2998	3071	3079
Colorado Allocation	3079	3079	3079	3079	3079	3079	3079	3079
Remaining Available	519	393	204	158	109	81	8	0
Percent of State Share	17%	13%	7%	5%	4%	3%	0%	0%

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January 2000

Upper Colorado River Division States Depletion Schedule (New Mexico)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	246	246	246	246	246	246	246	246
Municipal/Domestic	10	10	10	10	10	10	10	10
Power/Industrial	56	56	56	57	58	58	58	58
Minerals	0	0	0	0	0	0	0	0
Export	108	108	108	108	108	108	108	108
Reservoir Evaporation	29	29	29	29	29	29	29	29
TOTAL CURRENT DEPLETIONS	449	449	449	450	451	451	451	451
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	0	80	121	121	121	121	121
Municipal/Domestic	0	0	5	11	16	17	18	18
Power/Industrial	0	0	0	0	0	2	3	4
Minerals	0	0	0	0	0	0	0	0
Export	0	0	0	0	0	0	0	0
Reservoir Evaporation	0	0	1	1	1	1	1	1
TOTAL ANTICIPATED DEPLETION	0	0	86	133	138	141	143	144
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	0	0	0	0	0	0	0
Municipal/Domestic	0	0	0	5	7	10	10	10
Power/Industrial	0	1	1	3	4	5	5	5
Minerals	0	0	0	0	0	0	0	0
Export	0	0	0	4	6	9	9	9
Reservoir Evaporation	0	0	0	0	0	0	0	0
TOTAL POTENTIAL DEPLETIONS	0	1	1	12	17	24	24	24
Summary of Depletions	449	450	536	595	606	616	618	619
Evap-Storage Units	58	58	58	58	58	58	58	58
TOTAL DEPLETIONS	507	508	594	653	664	674	676	677
State Share of 6.0 MAF	669	669	669	669	669	669	669	669
Remaining Available	162	161	75	16	5	-5	-7	-8
Percent of State Share	24%	24%	11%	2%	1%	-1%	-1%	-1%

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January 2000

Upper Colorado River Division States Depletion Schedule (Utah)

ITEM	YEAR							
	1991-95	2000	2010	2020	2030	2040	2050	2060+
CURRENT DEPLETIONS								
Agricultural-Irrig & Stock	591	591	591	591	591	591	591	591
Municipal/Domestic	23	23	23	23	23	23	23	23
Power/Industrial	46	46	46	46	46	46	46	46
Minerals								
Export	154	154	154	154	154	154	154	154
Reservoir Evaporation	19	19	19	19	19	19	19	19
TOTAL CURRENT DEPLETIONS	833	833	833	833	833	833	833	833
ANTICIPATED DEPLETIONS								
Agricultural-Irrig & Stock	0	0	29	33	27	21	15	11
Municipal/Domestic	0	0	7	35	63	91	119	143
Power/Industrial								
Minerals								
Export	0	0	81	81	106	120	141	157
Reservoir Evaporation								
TOTAL ANTICIPATED DEPLETION	0	0	118	149	196	232	275	311
POTENTIAL DEPLETIONS								
Agricultural-Irrig & Stock	0	0	25	25	25	25	25	25
Municipal/Domestic								
Power/Industrial	0	0	2	3	8	9	13	16
Minerals	0	0	1	3	8	9	13	16
Export								
Reservoir Evaporation								
TOTAL POTENTIAL DEPLETIONS	0	0	28	31	40	43	50	57
Summary of Depletions	833	833	979	1013	1070	1108	1158	1202
Evap-Storage Units	120	120	120	120	120	120	120	120
TOTAL DEPLETIONS	953	953	1099	1133	1190	1228	1278	1322
State Share of 6.0 MAF	1369	1369	1369	1369	1369	1369	1369	1369
Remaining Available	416	416	270	236	179	141	91	47
Percent of State Share	30%	30%	20%	17%	13%	10%	7%	3%

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In this schedule, the Upper Division Allocation is listed, for planning purposes only, as 5,950,000 acre-feet. For planning purposes, the total Upper Colorado River Basin Allocation, is 6,000,000 acre-feet, of which 50,000 acre-feet is the Upper Basin allocation to Arizona. This estimate does not constitute an endorsement of the Bureau of Reclamation's 1988 Hydrologic Determination.

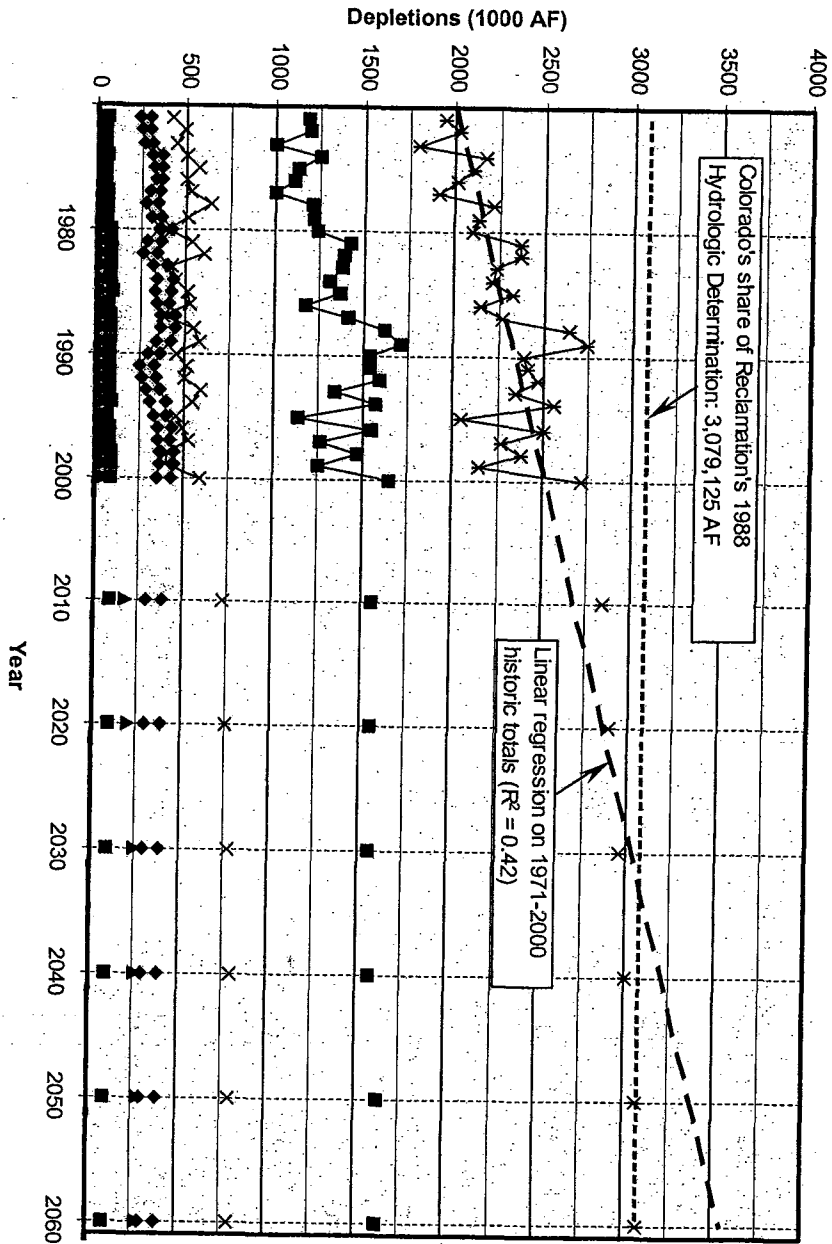
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Upper Colorado River Division States Depletion Schedule (Wyoming)

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State of Colorado Upper Colorado River Depletions: Historic and Projected 1971 to 2060

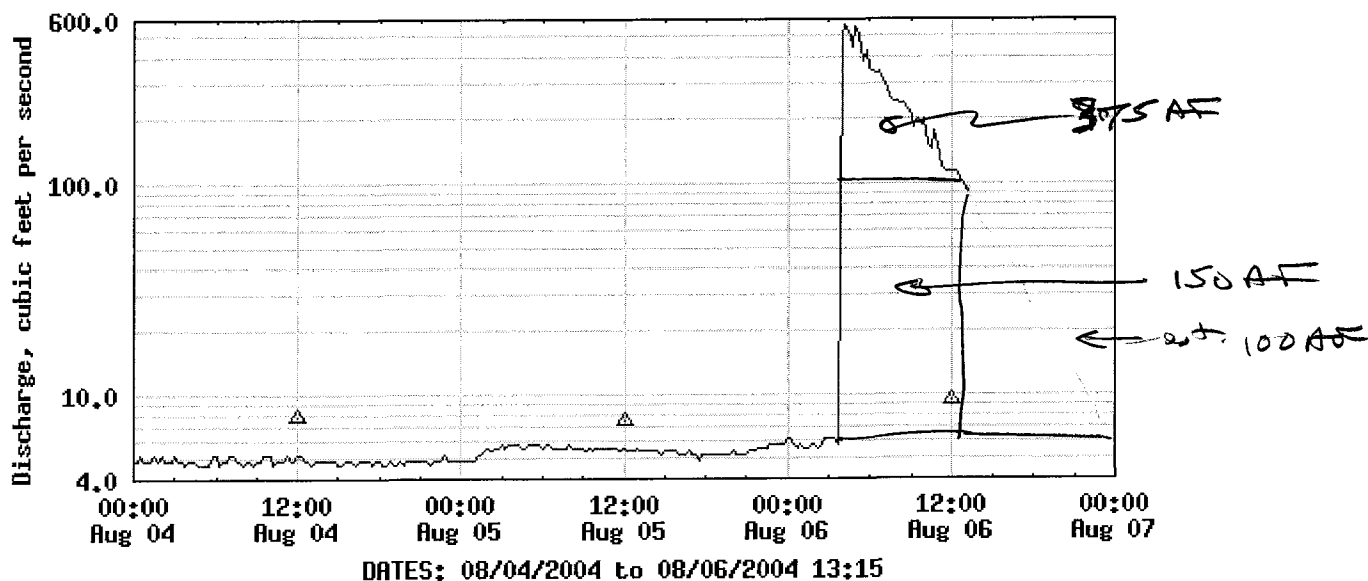


- *— TOTAL
- Irrigated Agriculture
- *— Exports
- ◆— Total Evaporation
- ◆— Main Stem Evaporation
- ▲— M&I
- Reservoir Evaporation
- F&W Recreation
- — Trendline USBR Total Depletions 1971-2000

Note: 1971-2000 historic values are numbers reported in Reclamation's Consumptive Uses and Losses reports; other values are future depletion estimates from the Colorado Water Conservation Board.



USGS 09382000 PARIA RIVER AT LEES FERRY, AZ



EXPLANATION

— DISCHARGE

△ MEDIAN DAILY STREAMFLOW BASED ON 80 YEARS OF RECORD

Provisional Data Subject to Revision

Short line

$$\frac{18 \text{ hrs} \times 500 \text{ cfs (ave)} \times 2 \text{ AF/cfs-d}}{24 \text{ hrs/d}} = 375 \text{ AF}$$

$$\frac{18 \text{ hrs}}{24} \times 100 \times 2 = 150$$

$$\frac{24 \text{ hrs}}{24 \text{ hrs}} \times 100 \times 2 = 100 \text{ AF}$$

Approx 625 AF of Flow —
how much sediment was
really moved??