Final
Environmental Impact Statement
Volume II — Appendices

Implementation Agreement, Inadvertent Overrun and Payback Policy, and Related Federal Actions

October 2002

U.S. Department of the Interior
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Appendix A

Implementation Agreement

IMPLEMENTATION AGREEMENT

The United States by and through the Secretary of the Interior (Secretary) hereby agrees with the Imperial Irrigation District (IID), the Coachella Valley Water District (CVWD), the Metropolitan Water District of Southern California (MWD), (these three districts are collectively referred to herein as the Districts), and the San Diego County Water Authority (SDCWA) as follows:

A. Predicates to Operative Terms

1. By regulations dated September 28, 1931, the Secretary incorporated the schedule of priorities provided in the Seven Party Agreement dated August 18, 1931, and established priorities One through Seven for use of the waters of the Colorado River within the State of California. The regulations were promulgated pursuant to the Boulder Canyon Project Act (BCPA) and required that contracts be entered into for the delivery of water within those priorities.

2. The Secretary has entered into contracts with, among others, the Palo Verde Irrigation District (PVID), IID, CVWD, and MWD and for the delivery of Colorado River water pursuant to Section 5 of the BCPA (Section 5 Contracts). Under those Section 5 Contracts, PVID, IID, CVWD and MWD have certain rights to the delivery of Colorado River water.

3. IID and MWD have entered into an Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water dated December 22, 1988 (1988 Agreement); IID, MWD, PVID and CVWD have entered into a related Approval Agreement, dated December 19, 1989 (1989 Approval Agreement); and MWD and CVWD have entered into an Agreement to Supplement Approval Agreement, dated December 19, 1989 (1989 Supplemental Agreement).

4. IID and SDCWA have entered into an Agreement for Transfer of Conserved Water, dated April 29, 1998, and a Third Amendment to Agreement For Transfer of Conserved Water dated as of _____ (as amended, the 1998 IID/SDCWA Transfer Agreement).

5. SDCWA and MWD have entered into an Agreement for the Exchange of Water, dated November 10, 1998 and an Amendment Agreement dated as of _____, (as amended, the MWD/SDCWA Exchange Agreement).

6. CVWD, IID and MWD have entered into a Quantification Settlement Agreement dated as of _____ (QSA).

7. IID, CVWD, MWD, PVID, the San Luis Rey Indian Water Rights Settlement Parties and the Secretary have entered into an Agreement pertaining to the water to be conserved from the All American Canal Lining Project and the Coachella Canal Lining Project of even date herewith (Allocation Agreement).

8. CVWD and MWD have entered into a Transfer and Exchange Agreement for 35,000 acre-feet of State Water Project entitlement for Colorado River water of even date herewith (MWD/CVWD Transfer and Exchange Agreement).

9. The 1988 Agreement, the 1989 Approval Agreement, and the 1989 Supplemental Agreement have been modified by Amendatory Agreements of even date herewith to reflect the terms of the QSA (as modified, the Amended 1988 and 1989 Agreements).

10. IID and CVWD have entered into an Agreement for Acquisition of Conserved Water (IID/CVWD Acquisition Agreement).

11. CVWD and MWD have entered into an Agreement for Acquisition of Water (CVWD/MWD Acquisition Agreement).

12. IID and MWD have entered into an Agreement for Acquisition of Conserved Water (IID/MWD Acquisition Agreement).

13. IID, CVWD, MWD and SDCWA desire that, for a temporary period, Priority 3a and 6a Colorado River water be delivered by the Secretary in the manner contemplated by the QSA and the other agreements specifically referenced herein.

14. The Secretary has determined that appropriate environmental review and compliance for this Implementation Agreement (Agreement) have been completed under federal law.

15. The Secretary finds that the water budget components of the QSA and the water budget components of the other agreements specifically referenced herein facilitate and will benefit the Secretary's management of the Colorado River.

16. The Secretary has the authority to enter into this Implementation Agreement on behalf of the United States pursuant to the BCPA, the Decree in Arizona v. California, and other applicable authorities.

B. Operative Terms

1. **Priorities 1, 2, 3b, 6b, and 7 are not affected by this Agreement.**

2. **Water Delivery Contracts**

   a. The Secretary agrees to deliver Colorado River water in the manner set forth in this Agreement during the Quantification Period. The Quantification Period shall commence on the Effective Date of the QSA and shall end on the Termination Date of the QSA. The Secretary shall begin to deliver water in the manner set forth in this Agreement when the Quantification Period begins and shall cease delivering water in the manner provided in this Agreement when the Quantification Period ends; provided, however, that the Secretary's delivery commitment to the San Luis Rey Indian Water Rights Settlement Parties shall not terminate at the

end of the Quantification Period but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended, subject to the terms of the Allocation Agreement.

b. The Districts' respective Section 5 Contracts shall remain in full force and effect throughout the Quantification Period and with this Agreement shall govern the delivery of Colorado River water during the Quantification Period.

c. At the end of the Quantification Period, the Agreement shall terminate; provided, however, that the rights of the Districts under their respective Section 5 Contracts shall be subject to any continuing reparation requirements under any agreements relating to the impacts of delivering surplus; and provided, further, the Secretary shall continue to deliver for the benefit of the San Luis Rey Indian Water Rights Settlement Parties, a maximum of 16,000 AFY of water made available by the lining of portions of the All American Canal and the Coachella Canal in accordance with Section 2.a of this Agreement.

3. **Priority 3a - IID's Entitlement**

a. Except as otherwise provided in this Section B.3, or as otherwise determined under the Inadvertent Overrun and Payback Program referenced in Section B.8.a hereof, the Secretary shall deliver Colorado River water to IID in an amount up to but not more than IID's QSA Priority 3a consumptive use quantification cap of 3.1 million AFY less the amount of water equal to that conserved by IID for the benefit of others as outlined in paragraphs b, c, d, e and f below. Colorado River water acquired by IID pursuant to a transaction permitted under the QSA or a Related Agreement (as defined in the QSA) and, where necessary, approved by the Secretary after appropriate environmental compliance, shall not count against this cap.

b. **The Amended 1988 and 1989 Agreements**

i. IID has implemented water conservation measures for the benefit of MWD under the Amended 1988 and 1989 Agreements and has reduced IID's diversion of Colorado River water accordingly by up to 110,000 AFY.

ii. The Secretary shall deliver Priority 3a water for the benefit of MWD in an amount equal to that amount of water conserved by IID for the benefit of MWD in accordance with the terms of the Amended 1988 and 1989 Agreements.

c. **1998 IID/SDCWA Transfer Agreement**

i. IID has agreed to implement water conservation measures for the benefit of SDCWA under the circumstances specified in the 1998 IID/SDCWA Transfer Agreement and to reduce IID's diversions of Colorado River water accordingly by up to 200,000 AFY.

ii. The Secretary shall deliver Priority 3a water for the benefit of SDCWA, in an amount equal to that water conserved by IID for the benefit of SDCWA, in accordance with the terms, including the point of delivery, of the 1998 IID/SDCWA Transfer Agreement. At SDCWA's election, the Secretary shall deliver that water to the intake facilities for the Colorado River Aqueduct and SDCWA may then exchange up to 200,000 AFY of Colorado River water with MWD at Lake Havasu pursuant to, and during the term of, the MWD/SDCWA Exchange Agreement.

iii. The rights and interests of SDCWA under this Agreement are limited to those provided in Section B.3.a., this Section B.3.c., and in Sections B.9, B.10 and B.11 hereof.

d. **Conserved Water for CVWD**

i. IID has agreed to implement water conservation measures for the benefit of CVWD under the circumstances specified in the IID/CVWD Acquisition Agreement in order to reduce IID's diversion of Priority 3a water by amounts up to a total of 100,000 AFY.

ii. The Secretary shall deliver such amount of Priority 3a water to CVWD at Imperial Dam, as and to the extent requested by CVWD in an amount equal to that amount of water conserved by IID for the benefit of CVWD in accordance with the terms of the IID/CVWD Acquisition Agreement. This water shall be in addition to CVWD's entitlement to Priority 3a water under Section B.4. hereof. In the event CVWD declines a portion of this water, and the water is not delivered to others in accordance with Section 5.e. of this Agreement so that CVWD is required to pay IID under the terms of Section 3.6 of the IID/CVWD Acquisition Agreement, the declined water may then be used by CVWD for any lawful purpose anywhere within CVWD's jurisdictional area.

e. **Canal Lining Projects**

i. Pursuant to California Water Code Sections 12560-12565, the State of California has agreed to provide funds to construct a new lined canal parallel to the unlined portion of the All American Canal from Pilot Knob to Drop 3 (the AAC Project), and to line the unlined portion of the Coachella Canal.

ii. The Secretary shall deliver Priority 3a water, available as a result of the AAC Project, to MWD, and/or to IID, and make available Colorado River water for the benefit of the San Luis Rey Indian Water Rights Settlement Parties, in accordance with the terms of the Allocation Agreement and in accordance with Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended.

f. **Miscellaneous and Indian Present Perfected Rights**

i. In any given Year (as Year is defined in the QSA), the Secretary may reduce the amount of water otherwise available for IID's consumptive use by up to 11,500 AFY as a result of the satisfaction within the State of California of the miscellaneous and Indian present perfected rights recognized in the Decree in Arizona v. California, as amended and supplemented.

ii. If the aggregate volume of such miscellaneous and Indian present perfected rights used in any year is less than 14,500 AF, then the maximum amount of reduction will be in accordance with the terms of the IID/CVWD Acquisition Agreement.

iii. Any such reduction shall be charged to IID's rights under Priorities 3a, 6a, or 7 to the extent such rights exist and water is available, as elected by IID for such year.

iv. Nothing herein waives the ability of IID to challenge the exercise of particular miscellaneous or Indian present perfected rights.

4. **Priority 3a - CVWD's Entitlement**

a. Except as otherwise provided in this Section B.4., or as otherwise determined under the Inadvertent Overrun and Payback Program referenced in Section B.8.a. hereof, the Secretary shall deliver Colorado River water to CVWD in an amount up to but not more than CVWD's QSA Priority 3a consumptive use quantification cap of 330,000 AFY less an amount of water equal to that conserved by CVWD for the benefit of others, as outlined in paragraphs c. and d. below. Colorado River water acquired by CVWD pursuant to a transaction permitted under the QSA, or a Related Agreement (as defined in the QSA) and, where necessary, approved by the Secretary after appropriate environmental compliance, shall not count against this cap.

b. CVWD may utilize Colorado River water, in accordance with the provisions of Section 4.5 of the QSA, outside of Improvement District No. 1 for the purpose of maximizing the effectiveness of Improvement District No.1's water use and recharge programs, so long as such utilization occurs within Coachella Valley and is otherwise consistent with the applicable provisions of the QSA.

c. **Canal Lining Projects**

The Secretary shall deliver Priority 3a water, available as a result of the lining of the unlined portion of the Coachella Canal to MWD and/or IID, and make available Colorado River water for the benefit of the San Luis Rey Indian Water Rights Settlement Parties, as and to the extent provided under the Allocation Agreement and in accordance with Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended.

d. **Miscellaneous and Indian Present Perfected Rights**

i. In any given Year (as Year is defined in the QSA), the Secretary may reduce the amount of water otherwise available for CVWD's consumptive use by up to 3,000 AFY as a result of the satisfaction within the State of California of the miscellaneous and Indian present perfected rights recognized in the Decree in Arizona v. California, as amended and supplemented.

ii. If the aggregate volume of such miscellaneous and Indian present perfected rights used in any year is less than 14,500 AF, then the maximum amount of reduction will be in accordance with the terms of the IID/CVWD Acquisition Agreement.

iii. Any such reduction shall be charged to CVWD's rights under Priorities 3a, 6a, or 7 to the extent such rights exist and water is available, as elected by CVWD for such year.

iv. Nothing herein waives the ability of CVWD to challenge the exercise of particular miscellaneous and Indian present perfected rights.

5. **MWD's Entitlement**

a. Except as otherwise provided in this Section B.5., or as otherwise determined under the Inadvertent Overrun and Payback Program referenced in Section B.8.a hereof, the Secretary shall deliver Colorado River water to MWD in an amount up to but not more than 550,000 AFY under Priority 4 and 662,000 AFY under Priority 5; provided, however, if in any given calendar year the use of Colorado River water in accordance with Priorities 1 and 2, together with the use of Colorado River water on PVID Mesa lands in accordance with Priority 3b, exceeds 420,000 AFY, the Secretary will reduce the amount of water available to MWD in Priorities 4, 5 or 6 by the amount that such use exceeds 420,000 AFY. To the extent that the amount of water used in accordance with Priorities 1, 2 and 3b is less than 420,000 AFY, the Secretary shall deliver to MWD the difference.

b. **MWD's Entitlement to be Made Available to CVWD**

i. The Secretary shall deliver to CVWD at Imperial Dam 20,000 AFY of Priority 3a water made available by MWD under the Amended 1989 Agreement.

ii. The Secretary shall deliver to CVWD at Imperial Dam up to 50,000 AFY of water made available by MWD in Year 46 (as Year 46 is defined in the QSA) and thereafter under the CVWD/MWD Acquisition Agreement.

iii. The Secretary shall deliver to CVWD at Imperial Dam up to 35,000 AFY of water under the terms of the MWD/CVWD Transfer and Exchange Agreement.

c. **Miscellaneous and Indian Present Perfected Rights**

i. In any given Year (as Year is defined in the QSA), the Secretary may reduce the amount of water otherwise available for MWD's consumptive use by the amount necessary to satisfy within the State of California the miscellaneous and Indian present perfected rights, recognized in the Decree in Arizona v. California, as amended and supplemented, to the extent those uses exceed 14,500 AF.

ii. Any such reduction shall be charged at MWD's election to any Priority pursuant to which MWD has water available.

iii. Nothing herein waives the ability of MWD to challenge the exercise of particular miscellaneous and Indian present perfected rights.

d. CVWD may decline to take a portion of the water to be conserved by IID pursuant to the IID/CVWD Acquisition Agreement. In this event, the Secretary shall instead deliver such portion of water to IID or MWD, or to other unspecified water users, as and to the extent requested by any of them; provided, however, that any such request must be in accordance with the provisions of the IID/MWD Acquisition Agreement; and provided, further, that any such delivery to an unspecified user is, where necessary, subject to Secretarial approval and must be otherwise lawful and will be subject to any necessary environmental review.

6. **Priority 6a Entitlements**

a. Except as otherwise provided under the Interim Surplus Guidelines, or under the agreements contemplated by those guidelines, the Secretary will deliver Priority 6a water to MWD, IID and CVWD in the following order and volumes: (i) 38,000 AFY to MWD; (ii) 63,000 AFY to IID; and (iii) 119,000 AFY to CVWD.

b. Any water not used by MWD, IID or CVWD as set forth above will be available to satisfy the next listed amount in Section 6.a. Any additional water available for Priority 6.a shall be delivered by the Secretary in accordance with IID and CVWD's entitlements under their respective Section 5 Contracts in effect as of October 15, 1999.

7. **Reasonable and Beneficial Use**

a. The Secretary has considered the water budget components and transactions contemplated by the QSA. Because of the substantial commitment by IID to implement water conservation measures in accordance with the terms of the QSA and its related agreements, the Secretary has determined no action by the United States Department of the Interior is necessary to consider whether the past use of Colorado River water by IID satisfies applicable requirements for reasonable and beneficial use.

b. The QSA contemplates major conservation activities to be implemented by IID over the course of many years. The Secretary will take IID's conservation measures and the schedule of implementation under the QSA and the related agreements into account in connection with any future assessment of IID's reasonable and beneficial use of water. Subject to IID's implementation of such conservation measures, and absent any material adverse change in IID's irrigation practices or material advances in technology associated with economically feasible irrigation efficiency, and assuming the continuing effectiveness of the QSA, the Secretary, as of the date of the execution of this Agreement, does not anticipate any need to assess IID's reasonable and beneficial use of water prior to Year 20 (as Year 20 is defined in the QSA).

8. **Decree Accounting**

a. The Secretary acknowledges the ongoing importance to the QSA of the Secretary's recently adopted Inadvertent Overrun and Payback Program, adopted _____, which is consistent in all material respects with that contemplated by the QSA and set forth in Exhibit B thereto. The Secretary also acknowledges that the application of such Program during the Quantification Period has been determined by each of IID, CVWD and MWD to be essential to their willingness to enter into the QSA's related agreements and this Agreement. Accordingly, so long as there is full and timely implementation of the water budget components of the QSA, the Secretary will not materially modify the Inadvertent Overrun and Payback Program for a 30 year period (during which the implementation of the California plan to reduce its use to 4.4 million acre-feet per year is anticipated), absent extraordinary circumstances such as significant Colorado River infrastructure failures, and subject to the provisions of Section 9 of this Agreement. In the event that extraordinary circumstances arise, the Secretary will consult with the Districts and other interested

parties before initiating any material change. If at any time implementation of the water budget components falls short of the requirements of the QSA, the Secretary may, after consultation with the Districts and other interested parties, change or alter the Inadvertent Overrun and Payback Program, including but not limited to putting into effect an immediate payback policy for inadvertent overruns.

b. The Secretary also acknowledges the ongoing importance to the QSA, and to the willingness of each of IID, CVWD and MWD to enter into the QSA's related agreements and this Agreement, of the recently adopted Interim Surplus Guidelines and the accompanying Record of Decision.

9. **Shortages**

a. The Secretary's authority under II.B.3 of the Decree in Arizona v. California is not limited in any way by this Agreement, by the QSA, or by the QSA's related agreements which include all agreements specifically referenced herein.

b. If for any reason there is less than 3.85 million AF available under Priorities 1, 2 and 3 during the Quantification Period, any water which is made available by the Secretary to IID shall be delivered to IID, CVWD, MWD and SDCWA in accordance with the shortage sharing provisions in the 1998 IID/SDWCA Transfer Agreement and the Acquisition Agreements.

10. **Amendments**

a. This Agreement may be modified or amended only by written amendment signed by the Secretary, IID, CVWD, and MWD (and, with respect to any modification or amendment of this Section B.3.a., B.3.c., B.10., B.11. or B.12., also by SDCWA).

i. No amendment of the QSA or of any of the QSA's related agreements, including the agreements specifically referenced in this Agreement, shall modify or otherwise affect any right or obligation of the Secretary with respect to the limitations on, or the timing or volume of, any Colorado River water deliveries to be made hereunder without the Secretary's written consent.

11. **Reservation of Legal Positions**

a. IID, CVID, MWD and SDCWA do not agree on the nature or scope of rights to the delivery, use or transfer of Colorado River water within the State of California.

b. IID, CVID, MWD and SDCWA agree not to use this Agreement or any provision hereof, as precedent for purposes of evidence, negotiation or agreement on any issue of California or federal law in any administrative,

judicial or legislative proceeding, including without limitation, any attempt by IID and SDCWA to obtain future approval of any water transaction.

c. By executing this Agreement, the Districts and SDCWA are not estopped from asserting in any administrative, judicial or leglislative proceeding, including those involving the United States, that neither this Agreement nor any of its terms was necessary or required in order to effectuate the transactions contemplated herein.

12. **Relation to Reclamation Law**

a. This Agreement shall not be deemed to be a new or amended contract for the purpose of Section 203(a) of the Reclamation Reform Act of 1982 (Public Law 97-293, 93 Stat. 1263).

UNITED STATES SECRETARY OF THE INTERIOR

_____
Gale A. Norton

COACHELLA VALLEY WATER DISTRICT

By_____
Tom Levy
General Manager-Chief Engineer

IMPERIAL IRRIGATION DISTRICT

By_____
Jesse Silva
General Manager

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

By_____
Ronald R. Gastelum
General Manager

SAN DIEGO COUNTY WATER AUTHORITY

By_____
Maureen Stapleton
General Manager

Appendix B

Quantification Settlement Agreement

DRAFT 12-12-00

QUANTIFICATION SETTLEMENT AGREEMENT

THIS AGREEMENT is made and entered into this ___ day of _____, 2000, by and among Imperial Irrigation District ("**IID**") a California irrigation district, The Metropolitan Water District of Southern California ("**MWD**"), a California metropolitan water district, and Coachella Valley Water District ("**CVWD**"), a California county water district, each of which is at times referred to individually as "**Party**" and which are at times collectively referred to as "**Parties**."

RECITALS:

A. IID is an irrigation district organized under the California Irrigation District Law, codified at § 20500 et seq. of the California Water Code, and delivers Colorado River water in Imperial County, California for potable and irrigation purposes.

B. MWD is a metropolitan water district organized under the California Metropolitan Water District Act, codified at § 109-1 of the Appendix to the California Water Code, engaged in developing, storing and distributing water in the counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura, California.

C. CVWD is a county water district organized under the California County Water District Law, codified at 30000 et seq. of the California Water Code, and delivers Colorado River water in Riverside County, California, for potable and irrigation purposes.

D. IID, MWD, PVID and CVWD are each contractors with the United States for delivery of Colorado River water as authorized by the Boulder Canyon Project Act (Act of December 21, 1928: 45 Stat. 1057, as amended.)

E. Pursuant to those contracts, PVID, the Yuma Project (Reservation Division), IID and CVWD (collectively "the agricultural agencies") hold California's first three priorities to Colorado River water and are collectively entitled to the beneficial consumptive use as reasonably required of not to exceed 3,850,000 AFY. The fourth and fifth priorities totaling 1,212,000 AFY are held by MWD. The sixth priority of 300,000 AFY is held by IID, CVWD and PVID. The seventh priority of all remaining water available for use within California is reserved for agricultural use in the Colorado River Basin within California, which includes the lands within IID, CVWD and PVID. MWD and CVWD also have surplus water delivery contracts with the Secretary of the Interior.

F. MWD, IID and CVWD recognize that they have differences of opinion over various legal questions including the right to transfer water and the volumes of water to which the various right holders are entitled, but each Party wishes to go forward with this Agreement and associated agreements without regard to certain current or future differences, subject to the provisions of Article 4 hereof.

G. This Agreement and the Related Agreements are intended to consensually settle longstanding disputes regarding the priority, use and transfer of Colorado River water, to establish by agreement the terms for the further distribution of Colorado River water among the Parties for up to seventy-five years based upon the water budgets set forth herein, and to facilitate agreements and actions which will enhance the certainty and reliability of Colorado River water supplies available to the Parties and assist the Parties in meeting their water demands within California's apportionment of Colorado River water by identifying the terms, conditions and incentives for the conservation and distribution of Colorado River water within California.

H. IID seeks to settle disputes with CVWD and MWD and to use proceeds from the acquisition of Conserved Water by those Parties from IID to improve the reliability, efficiency and management of its Colorado River supply.

I. CVWD seeks to settle disputes with IID and MWD and to acquire Conserved Water for agricultural uses to accommodate anticipated reductions in groundwater extraction.

J. MWD seeks to settle disputes with IID and CVWD and to ensure the reliability of its Colorado River supplies.

K. The Parties intend that the Effective Date (defined below) of this Agreement will be contingent upon the completion of review and adequate provision for any required mitigation under and in compliance with the California Environmental Quality Act, California Public Resources Code § 2100 et seq. ("**CEQA**").

ARTICLE 1
DEFINITIONS

1.1 **Definitions.** As used in this Agreement, the following terms have the following meanings:

(1) **Approval Agreement.** The agreement between IID, MWD, CVWD and PVID dated December 19, 1989, and entitled Approval Agreement.

(2) **1998 IID/SDCWA Transfer Agreement.** The Agreement for Transfer of Conserved Water by and between IID and the San Diego County Water Authority dated April 29, 1998 as amended by Conditional Amendment Agreement dated ___, 2000, with such changes thereto as IID and SDCWA may from time to time agree subject to the provisions of Section 4.9 hereof.

(3) **Acquisition Agreements.** Collectively, the 1998 IID/SDCWA Transfer Agreement, the IID/SDCWA Early Transfer Agreement, the CVWD/MWD Acquisition Agreement, the IID/MWD Acquisition Agreement, the IID/CVWD Acquisition Agreement, and the MWD/CVWD Transfer and Exchange Agreement.

(4) **AF.** Acre-foot, a measure of volume.

(5) **AFY.** Acre-feet per Calendar Year.

(6) **All-American Canal.** The canal and appurtenant works from Imperial Dam to the Imperial and Coachella Valleys authorized in Section 1 of the Boulder Canyon Project Act.

(7) **Allocation Agreement.** The Agreement dated as of the Closing Date among the Parties, SDCWA, PVID, City of Escondido, Vista Irrigation District, San Luis Rey River Indian Water Authority, the La Jolla, Pala, Pauma, Rincon and San Pasqual Bands of Mission Indians and the Secretary concerning the allocation of Conserved Water created by the lining of the All-American Canal and the Coachella Canal.

(8) **Assignment (or Assign).** Any sale, gift, pledge, hypothecation, encumbrance, or other transfer of all or any portion of the rights in or arising from this Agreement to any person or entity (excluding such a transfer by operation of law), regardless of the legal form of the transaction in which the attempted transfer occurs.

(9) **BOR.** The United States Bureau of Reclamation.

(10) **Business Day.** A day that is not a Saturday, Sunday, or federal or California state legal holiday.

(11) **Calendar Year.** The 12-month period running from January 1 through December 31.

(12) **CEQA.** As defined in Recital K.

(13) **Closing Date.** The date established by the Parties as soon as practicable after each Party determines that the respective conditions set forth in Section 6.2 applicable to all Parties and in Sections 7.1, 8.1 and 9.1 applicable to IID, CVWD and MWD, respectively, have been satisfied or waived, which date shall be no later than December 31, 2002.

(14) **Coachella Canal.** The Coachella branch of the All American Canal leading from the All American Canal to the CVWD service area authorized in Section 1 of the Boulder Canyon Project Act.

(15) **Colorado River Aqueduct.** The aqueduct system owned and operated by MWD and extending from Lake Havasu to Lake Mathews in Riverside County.

(16) **Conserved Water.** Water made available for acquisition under this Agreement and the Related Agreements attributable to: (a) Temporary Land Fallowing or crop rotation, if an allowed use is for irrigation, or (b) projects or programs that enable the use of less water to accomplish the same purpose or purposes of allowed use; provided, however, that such term does not include water attributable to:

(i) the activities described in (a) or (b) above not voluntarily undertaken; or

(ii) to the activities described in (a) above voluntarily undertaken in exchange for money payment or other valuable consideration received from a governmental source; and

(iii) the resulting volume of reduced water used from (i) or (ii) above cannot be used anywhere within the IID service area, as described in IID's Section 5 Contract as in effect on October 15, 1999.

(17) **Consumptive Use.** The diversion of water from the main stream of the Colorado River, including water drawn from the main stream by underground pumping, net of measured and unmeasured return flows.

(18) **Conveyance Loss.** The actual loss of water to evaporation, seepage, or other similar cause resulting from any transportation of Conserved Water from Imperial Dam to the CVWD service area or to the MWD service area, as the case may be.

(19) **CVWD.** As defined in Recital C.

(20) **CVWD/MWD Acquisition Agreement.** The agreement between CVWD and MWD date as of the Closing Date regarding the acquisition of Conserved Water in the form attached hereto as Exhibit ___, with such changes thereto as CVWD and MWD may from time to time agree subject to the provisions of Section 4.9 hereof.

(21) **CVWD/MWD Supplemental Agreement.** The agreement between CVWD and MWD dated December 19, 1989 and entitled Agreement to Supplement Approval Agreement.

(22) **Date of Non-consensual Termination of the 1998 IID/SDCWA Transfer Agreement.** The date on which the Non-consensual Termination of the 1998 IID/SDCWA Transfer Agreement becomes effective.

(23) **Delegation (or Delegate).** Any sale, gift, pledge, hypothecation, encumbrance, or other transfer of all or any portion of the obligations or liabilities in or arising from this Agreement to any person or entity (excluding such a transfer by operation of law), regardless of the legal form of the transaction in which the attempted transfer occurs.

(24) **Decree Accounting Program.** The BOR Program described in and contemplated under Section 9.1 (1) hereof.

(25) **Effective Date.** The "initial transfer date" as such term is defined in and determined under the 1998 IID/SDCWA Transfer Agreement.

(26) **Environmental Cost Sharing Agreement.** The Agreement among IID, CVWD, SDCWA and MWD dated as of ____, 2000, concerning the sharing and payment of certain environmental review and mitigation costs pertaining to this Agreement and the Related Agreements.

(27) **Environmental Cost Condition Precedent Test Date.** The ninetieth day after the first date on which all environmental review and assessment contemplated under Section 6.2(2) (a) hereof are completed and all resource approvals contemplated under Section 6.2 (2) (b) hereof have been obtained. In the event that any action is filed challenging any such review, assessment or approval and is not finally resolved before such ninetieth day, the "Second Environmental Cost Condition Precedent Test Date" shall be the ninetieth day after the first date on which all such actions are finally resolved.

(28) **Environmental Mitigation Insurance**. One or more insurance policies which may be obtained and maintained by and with the consent of each of the Parties and SDCWA insuring IID and SDCWA (and CVWD and MWD to the extent their interests may appear) by indemnity or other means, at coverage levels and upon other terms acceptable to them, in their discretion, against the risk of unanticipated environmental consequences that may result in mitigation costs with respect to the transactions contemplated by the 1998 IID/SDCWA Transfer Agreement in excess of the IID Environmental Cost Ceiling and the Authority Environmental Cost Ceiling, as such terms are defined in the 1998 IID/SDCWA Transfer Agreement.

(29) **Execution Date.** The date on which the Parties have signed this Agreement; provided, however, that, if the Parties sign on different dates, the Execution Date is the date on which the later-to-sign Party has signed this Agreement.

(30) **Flood Control Release.** The release of water from Lake Mead and the operation of Hoover Dam for flood control purposes pursuant to the reservoir operating criteria specified in the February 8, 1984 Field Working Agreement between the U. S. Army Corps of Engineers and the BOR, and the U. S. Army Corps of Engineers regulations contained in Volume 33 of the Code of Federal Regulations, Part 208.11.

(31) **Force Majeure.** An event, not within the control of the Parties, which materially and adversely affects the performance of their respective obligations and duties to properly construct, operate establish, implement or maintain the means of creating or receiving deliveries of Conserved Water.

(32) **IID.** As defined in Recital A.

(33) **IID/CVWD Acquisition Agreement.** The agreement between the IID and CVWD, dated as of the Closing Date, regarding the acquisition of Conserved Water, in the form attached hereto as Exhibit ___, with such changes thereto as the IID and CVWD may from time to time agree subject to the provisions of Section 4.9 hereof.

(34) **IID/MWD 1988 Agreement.** The agreement between IID and MWD dated December 22, 1988, and entitled Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water.

(35) **IID/MWD Acquisition Agreement.** The agreement between the IID and MWD dated as of the Closing Date regarding the acquisition of Conserved Water in the form attached hereto as Exhibit ___, with such changes thereto as the IID and MWD may from time to time agree subject to the provisions of Section 4.9 hereof.

(36) Inadvertent Overrun Program. The BOR program described in and contemplated under Section 6.2(4) hereof.

(37) Implementation Agreement. The agreement among the Parties, SDCWA, and the Secretary, dated as of the Closing Date, containing the terms of agreement with the Secretary to honor the terms of this Agreement and the Related Agreements in taking actions concerning the Colorado River, in the form attached hereto as Exhibit ___, with such changes thereto as the Parties and the Secretary may from time to time approve.

(38) Interim Surplus Guidelines. The federal guidelines described in and contemplated under Section 6.2(5) hereof.

(39) MWD. As defined in Recital B.

(40) Improvement District No. 1. That area of land described in Exhibit "B" of the Contract for Construction of Capacity in Diversion Dam, Main Canal and Appurtenant Structures and for delivery of Water between the United States and Coachella Valley County Water District dated October 15, 1934, as heretofore or hereafter modified under Section 15 of the Agreement of Compromise between Imperial Irrigation District and Coachella Valley County Water District dated February 14, 1934; provided, however, that any modification that requires IID's consent shall also require MWD's consent for purposes of this definition.

(41) Inflation Index. For the period starting January 1, 1999, the arithmetic average of the Producer Price Index for the Materials and Components for Construction (ID# WPU2200) published monthly by the United States _____; and the Gross Domestic Product Implicit Price Deflator (ID#_____) published monthly by the United States _____. If the publication of the Producers Price Index for the Materials and Components for Construction (ID# WPU2200) or the Gross Domestic Product Implicit Price Deflator (ID#_____) is discontinued, or if the Producers Price Index for the Materials and Components for Construction (ID# WPU2200) or the Gross Domestic Product Implicit Price Deflator (ID#_____) is altered in some material manner, including changing the name of the index, the geographic area covered, or the base year, the Parties must use their reasonable best efforts to agree on a substitute index or procedure that reasonably reflects and monitors inflation impacts on prices.

(42) MWD/CVWD Transfer and Exchange Agreement. The agreement between MWD and CVWD dated as of the Closing Date regarding the transfer by MWD to CVWD of thirty-five thousand AFY of MWD's State Water Project entitlement and the exchange of such water for Colorado River water, with such changes thereto as MWD and CVWD may from time to time agree subject to the provisions of Section 4.9 hereof.

(43) "N" Dollars. That nominal dollar amount which, when adjusted based on the Inflation Index, is equivalent to the specified dollar amount in the Agreement measured as of January 1, Year "N." The adjustment is calculated according to the following formula:

$$\text{Nominal-Dollar Amount} = \$nnn(\text{Year N}) \times \frac{\text{Inflation Index}_n}{\text{Inflation Index}_e}$$

Where:

Inflation $Index_e$ is the most currently available monthly published Inflation Index before January 1, Year N, and

Inflation $Index_n$ is the most currently available monthly published Inflation Index before the applicable adjustment date, and

$nnn (Year N) is the amount stated in the Agreement.

Suppose, for example, that the applicable provision requires payment of one hundred dollars ($100.00) in 1999 Dollars and the payment date is July 1, 2010. Assume further that the Inflation $Index_e$ is 161.5, and that the Inflation $Index_n$ is 172 because (i) the arithmetic average of the Producer Price Index for the Materials and Components for Construction and the Gross Domestic Product Implicit Price Deflator for the most current month published before January 1, 1999 equals 161.5, and (ii) the arithmetic average of the Producer Price Index for the Materials and Components for Construction and the Gross Domestic Product Implicit Price Deflator for the most current month published before July 1, 2010 equals 172.0. The actual amount that must be paid is:

$$\$106.50 = \$100.00\ (1999) \times \frac{172.0}{161.5}$$

(44) Neutral County. Any county other than Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego or Ventura.

(45) Non-consensual Termination of the 1988 IID/SDCWA Transfer Agreement. The termination of the 1998 IID/SDCWA Transfer Agreement after the Effective Date,

(i) other than by the mutual voluntary agreement or consent of IID and SDCWA;

(ii) by reason of the environmental condition subsequent contained in Sections 7.1 (b) (iii) and 8.1 (b) (iii) of the 1998 IID/SDCWA Transfer Agreement, but only after the later of December 31, 2016 or December 31 of the fifteenth (15th) year after the initial implementation of the Interim Surplus Guidelines, and after taking into account any proceeds of, or the value of other benefits provided by, any Environmental Mitigation Insurance, and without IID or SDCWA exercising rights under Sections 7.3 or 8.3 of the 1998 IID/SDCWA Transfer Agreement; or

(iii) by reason of the expiration of the Initial Term without the commencement of a Renewal Term in Year 46, as defined in the 1998 IID/SDCWA Transfer Agreement, as it existed on April 29, 1998, or as the Initial and Renewal Term may be modified to change Year 46 to Year 31.

(46) Priority "Z". The contractual priority level of the right to Colorado River water by the California agencies with Section 5 Contracts, with "Z" varying between Priority 1

and Priority 7, as set forth in the provisions of Article I, Sections 1-7 of the Seven-Party Agreement of 1931, which provisions are included in each Section 5 Contract.

(47) **PVID.** The Palo Verde Irrigation District, an irrigation district organized under the California Irrigation District Law, codified at § 20500 et seq. of the California Water Code.

(48) **Related Agreements.** The Acquisition Agreements, the Allocation Agreement, the Implementation Agreement, the IID/MWD 1988 Agreement, the 1989 Approval Agreement, the CVWD/MWD Supplemental Agreement, and any other agreements, amendments and waivers entered into or adopted by or with the written consent of all Parties in connection with this Agreement or made pursuant to Section 4.9 hereof.

(49) **SDCWA.** The San Diego County Water Authority, a California county water authority incorporated under the California County Water Authority Act, Stats. 1943, c. 545 as amended.

(50) **Secretary.** The Secretary of the United States Department of the Interior, and duly appointed successors, representatives and others with properly delegated authority.

(51) **Section 5 Contract.** A contract between the Secretary and a California agency for permanent service for the delivery of Colorado River water, established pursuant to Section 5 of the Boulder Canyon Project Act, 43 U.S.C. § 617d.

(52) **SWRCB.** The California State Water Resources Control Board.

(53) **Temporary Land Fallowing.** The creation of Conserved Water from the retirement of land from crop production activities for a period starting no earlier than the Effective Date and ending on or prior to the Termination Date.

(54) **Termination Date.** If the Closing Date has not occurred by December 31, 2002, the Termination date is December 31, 2002; if the Closing Date has by then occurred, the Termination Date is the earlier of (i) the Date of Non-consensual Termination of the 1998 IID/SDCWA Transfer Agreement, or (ii) December 31 of Year 75.

(55) **"Year _____" (e.g., Year 25.)** One in the series of Calendar Years occurring after the Effective Date with Year 1 being the first full Calendar Year after the Effective Date; provided, however, that, if the Effective Date occurs on or before June 30th of any Calendar Year, Year 1 shall commence on the Effective Date and end on December 31st of that Calendar Year.

1.2 **Rules of Construction and Word Usage.** Unless the context clearly requires otherwise:

(1) The Recitals to this Agreement are a part of this Agreement to the same extent as the Articles;

(2) The Exhibits attached to this Agreement are incorporated by reference and are to be considered part of the terms of this Agreement;

(3) The plural and singular numbers include the other;

(4) The masculine, feminine, and neuter genders include the others;

(5) "Shall," "will," "must," and "agrees" are each mandatory;

(6) "May" is permissive;

(7) "May not" is prohibitory;

(8) "Or" is not exclusive;

(9) "Includes" and "including" are not limiting;

(10) "Between" includes the ends of the identified range;

(11) "Person" includes any natural person or legal entity; and

(12) "Transfer," when used herein or in the Related Agreeements in relation to a transaction involving Conserved Water, does not mean or imply that the Parties agree as to whether any such transaction is properly characterized as a transfer under California law or whether such transaction is subject to SWRCB jurisdiction.

ARTICLE 2
WATER BUDGETS

2.1 IID Water Budget.

(1) **Priority 3a Cap.** IID's Consumptive Use entitlement under its share of Priority 3a is capped by this Agreement at three million one hundred thousand (3,100,000) AFY at Imperial Dam, less (i) the Conserved Water made available by IID for use by others hereunder, and (ii) the water made available under Paragraph (2) of this Section 2.1 to the extent charged to Priority 3a. This cap shall be subject to adjustment in any Year to the extent permitted under or required by the Inadvertent Overrun Program. Any Colorado River water permitted to be acquired under Section 4.3 hereof shall be in addition to this cap.

(2) **Miscellaneous and Indian PPR's.** IID shall forbear Consumptive Use when necessary, in conjunction with the Inadvertent Overrun Program, to permit the Secretary to make available for Consumptive Use by holders of miscellaneous and Indian present perfected Colorado River water rights the aggregate amount necessary to satisfy individually their respective present perfected rights to Colorado River water, up to a maximum of eleven thousand five hundred (11,500) AFY. IID's obligation to forbear use of water for this purpose may be charged, at IID's option, to its rights under Priorities 6a, 7 or 3a as available. In the event it is not necessary in any Year for IID and CVWD to collectively forbear a total of fourteen thousand five hundred (14,500) AF for this purpose, then a credit equal to the difference between 14,500

AF and the amount of actual necessary forbearance responsibility shall be shared seventy-five percent (75%) to IID and twenty-five percent (25%) to CVWD.

(3) IID Priority 6a Forbearance and Priority 7 Use. IID agrees to forbear Consumptive Use under Priority 6a sufficient to enable IID, CVWD and MWD to Consumptively Use Priority 6a water as it may be available in accordance with the following order of use, except as may otherwise be required under the Interim Surplus Guidelines: first, thirty-eight thousand (38,000) AFY to MWD; second, sixty-three thousand (63,000) AFY to IID; third, one hundred nineteen thousand (119,000) AFY to CVWD; fourth, any balance of Priority 6a and 7 water available in accordance with the priorities identified in IID, CVWD and MWD Section 5 Contracts, as in effect on October 15, 1999. Should IID, CVWD or MWD not Consumptively Use all or any of the Priority 6a or 7 water available to it as provided above, any unused volume shall be available in the above order to meet the next lower order Consumptive Use needs.

(4) Acquisition Mechanism and Location. IID performs its obligations to make Conserved Water available for CVWD and MWD acquisition as contemplated by this Agreement by reducing its Consumptive Use at Imperial Dam by an amount equal to the Conserved Water to be acquired. When IID acts in that manner, IID has satisfied its obligation to make Conserved Water available for acquisition. CVWD and MWD each accept responsibility for any arrangements and facilities necessary to divert the Conserved Water made available to either of them and for any Conveyance Loss. CVWD and MWD have no duty to divert any or all of the Conserved Water. The payments by CVWD and MWD to IID under their respective Acquisition Agreements are for the conservation and acquisition of the Conserved Water, whether or not CVWD or MWD actually diverts that Conserved Water.

(5) Conserved Water for CVWD. IID shall make Conserved Water available to CVWD under and subject to the terms and conditions of the IID/CVWD Acquisition Agreement.

(6) Conserved Water for SDCWA. The terms and conditions applicable to IID's conservation and transfer of Conserved Water to SDCWA contemplated by this Agreement shall be as set forth in the 1998 IID/SDCWA Transfer Agreement and the IID/SDCWA Early Transfer Agreement.

(7) Conserved Water for MWD. IID shall make Conserved Water available to MWD under and subject to the terms and conditions of the IID/MWD Acquisition Agreement.

(8) Conserved Water from Canal Lining Projects. Conserved water resulting from the lining of the All American Canal and the Coachella Canal shall be made available to MWD under and subject to the terms and conditions of the Allocation Agreement.

2.2 CVWD Water Budget.

(1) Priority 3a Cap. CVWD's Consumptive Use entitlement under its share of Priority 3a is capped by this Agreement at three hundred thirty thousand (330,000) AFY at Imperial Dam, less (i) Conserved Water made available from the lining of the Coachella Canal,

as provided under Section ____ of the CVWD/MWD Acquisition Agreement, and (ii) the water made available under Paragraph (2) of this Section 2.2 to the extent charged to Priority 3a. This cap shall be subject to adjustment in any Year to the extent permitted under or required by the Inadvertent Overrun Program and Decree Accounting Program. Any Colorado River water acquired from any Party pursuant to a transaction contemplated by this Agreement or permitted to be acquired under Section 4.3 hereof shall be in addition to this cap.

(2) Miscellaneous and Indian PPR's. CVWD shall forbear Consumptive Use when necessary, in conjunction with the Inadvertent Overrun Program, to permit the Secretary to make available for Consumptive Use by holders of miscellaneous and Indian present perfected Colorado River water rights the aggregate amount necessary to satisfy individually their respective present perfected rights to Colorado River water, up to a maximum of three thousand (3,000) AFY. CVWD's obligation to forbear use of water for this purpose may be charged, at CVWD's option to its rights under Priorities 6, 7 or 3 as available. In the event that it is not necessary in any Year for IID and CVWD to collectively forbear a total of fourteen thousand five hundred (14,500) AF for this purpose, then a credit equal to the difference between 14,500 AF for this purpose and the amount of actual necessary forbearance responsibility shall be shared seventy-five percent (75%) to IID and twenty-five percent (25%) to CVWD.

(3) CVWD Priority 6a Forbearance and Priority 7 Use. CVWD agrees to forbear Consumptive Use under Priority 6a sufficient to enable IID, CVWD and MWD to Consumptively Use Priority 6a water as it may be available in accordance with the following order of use, except as may otherwise be provided under the Interim Surplus Guidelines: first, thirty-eight thousand (38,000) AFY to MWD; second, sixty-three thousand (63,000) AFY to IID; third, one hundred nineteen thousand (119,000) AFY to CVWD; fourth, any balance of Priority 6a and 7 water available in accordance with the priorities identified in the IID, CVWD and MWD Section 5 Contracts, as in effect on October 15, 1999. Should IID, CVWD or MWD not consumptively use all or any of the Priority 6a or 7 water available to it as provided above, any unused volume shall be available in the above order to meet the next lower order Consumptive Use needs.

(4) Acquisition From IID. The terms and conditions applicable the acquisition of Conserved Water by CVWD from IID, as contemplated by this Agreement, shall be as set forth in the IID/CVWD Acquisition Agreement.

(5) Acquisition From MWD. The terms and conditions of the acquisition of water and entitlement to water by CVWD from MWD, as contemplated by this Agreement, shall be as set forth in the CVWD/MWD Acquisition Agreement, the MWD/CVWD Transfer and Exchange Agreement.

2.3 MWD Water Budget.

(1) MWD Priority 4 and 5 Cap. MWD's Consumptive Use entitlements under Priorities 4 and 5 are capped by this Agreement at five hundred fifty thousand (550,000) AFY, and six hundred sixty-two thousand (662,000) AF, respectively, at Lake Havasu, less the

water made available under paragraph (2) of this Section 2.3 to the extent charged to Priority 4 or 5. This cap shall be subject to adjustment in any Year to the extent permitted under or required by the Inadvertent Overrun Program. Water made available by MWD to CVWD in any Year pursuant to this Agreement shall be charged at MWD's option to any water available to MWD in that Year. Any Colorado River water acquired from any Party pursuant to a transaction contemplated by this Agreement or permitted to be acquired under Section 4.3 hereof shall be in addition to this cap.

(2) Miscellaneous and Indian PPR's. MWD shall forbear Consumptive Use when necessary, in conjunction with the Inadvertent Overrun Program, to permit the Secretary to make available for Consumptive Use by holders of miscellaneous and Indian present perfected Colorado River water rights the aggregate amount necessary to satisfy individually their respective present perfected rights to Colorado River water in excess of fourteen thousand five hundred (14,500) AFY. MWD's obligation to forbear Consumptive Use for this purpose shall be charged at MWD's option to any Priority pursuant to which MWD has water available.

(3) Priorities 1 & 2 Consumptive Use Over and Under 420,000 AF. MWD shall be responsible when necessary, in conjunction with the Inadvertent Overrun Program and the Decree Accounting Program, for repayment of any overrun as a result of aggregate use by Priorities 1, 2 and 3b in excess of four hundred twenty thousand (420,000) AFY; and to the extent that Priorities 1, 2 and 3b use is less than 420,000 AFY, MWD shall have the exclusive right to Consumptively Use such unused water.

(4) Acquisitions From IID. The terms and conditions applicable to the acquisition of Conserved Water by MWD from IID, as contemplated by this Agreement, shall be as set forth in the IID/MWD Acquisition Agreement and the Implementation Agreement.

(5) Acquisition From CVWD. The terms and conditions of the acquisition of water by MWD from CVWD, as contemplated by this Agreement, shall be as set forth in the CVWD/MWD Acquisition Agreement.

(6) Acquisition by CVWD. The terms and conditions of the acquisition of water and entitlement to water by CVWD from MWD, as contemplated by this Agreement, shall be as set forth in the CVWD/MWD Acquisition Agreement, the MWD/CVWD Transfer and Exchange Agreement.

ARTICLE 3
TERM/CLOSING/EFFECTIVE DATE

3.1 Term. This Agreement shall commence on the Execution Date and shall terminate on the Termination Date.

3.2 Closing Date. As of the Closing Date, provided that the parties shall each have completed any necessary public or other review process and shall each have received a final determination of approval from its governing board concerning the obligations contemplated by this Agreement, each Party shall execute and deliver the Acquisition Agreements and the

Implementation Agreement to which it is a signatory and shall use its reasonable efforts to obtain the execution and delivery of the Implementation Agreement by the Secretary.

3.3 Effective Date. Notwithstanding any other provision of this Agreement, the obligations of the Parties under Articles 2 and 4, and under the related provisions of the Acquisition Agreements and the Implementation Agreement contemplated by this Agreement, shall be contingent upon the occurrence of, and shall not become effective until, the Effective Date.

3.4 Early Termination. In the event of Non-consensual Termination of the 1998 IID/SDCWA Transfer Agreement:

(1) Advance Notice. IID shall to the extent reasonably possible, give the other Parties, SWRCB, BOR and the Secretary at least 12 months advance written notice of such event together with a written explanation of the underlying factors and calculations;

(2) Relief or Contribution. Any termination pursuant to Section 1.1 (44) (ii) shall not be effective and shall be of no further force or effect, if, prior to the Date of Non-consensual Termination of the 1998 IID/SDCWA Transfer Agreement, SDCWA or IID, as applicable, shall have exercised its rights under Sections 7.3 or 8.3 of the 1998 IID/SDCWA Transfer Agreement, or funding for or other relief from the environmental excess costs, as reasonably determined pursuant to the 1998 IID/SDCWA Transfer Agreement, shall have been covered by Environmental Mitigation Insurance or authorized by enactment of California or federal legislation, or by final California or federal administrative action, or one or both of the other Parties shall have agreed to fund the excess cost amount; and

(3) Base Obligation. In the event that relief or contribution is timely provided or agreed to in accordance with the foregoing, IID shall undertake the additional measures and pay for the excess environmental costs, subject to its entitlement to such relief or contribution.

3.5 Effect of Termination. As of the Termination Date, neither the terms of this Agreement nor the conduct of the Parties in performance of this Agreement shall be construed to enhance or diminish the rights of any of the Parties as such rights existed at the Execution Date, including any enhancement or diminishment by reason of an alleged application of common law principles of reliance, estoppel, intervening public use, domestic or municipal priority, shortage or emergency, or equitable apportionment. Notwithstanding any provision to the contrary in this Agreement, in the Acquisition Agreements, or in the Implementation Agreement, all water budget components contemplated under Article 2 of this Agreement and all state and federal approvals, permits and water contract amendments issued or adopted in connection therewith, other than environmental related permits with continuing mitigation obligations, shall thereupon terminate by consent of each of the Parties, which consents are hereby given, and which consents shall be reaffirmed in writing at the request of any Party, and the rights of the Parties shall revert to the status quo as though the Parties had never entered into, or intended to enter into, this Agreement, the Acquisition Agreements, or the Implementation Agreement.

ARTICLE 4
ADDITIONAL SETTLEMENT PROVISIONS

4.1 General Settlement Provisions; No Admission of Settlement Terms; Reservation of Rights and Claims. The Parties do not agree on the nature or scope of their relative rights to the delivery, use or transfer of Colorado River water. This Agreement is a consensual, comprehensive settlement arrangement acceptable to all Parties. It does not reflect any Party's rights or claims singularly or collectively, nor does it reflect the anticipated, predicted or possible outcome to any of the many disputes between the Parties if they were to be resolved without consensus. The Parties acknowledge that this Agreement is, in fact, a settlement and thus may not be used for any purpose in any judicial, legislative or administrative proceeding, and may not be used in any future attempt to reallocate water or water rights or to reorder the priorities of the Parties upon the termination of this Agreement. Subject to the provisions of this Agreement which compromise such matters, the legal rights, duties, obligations, powers and claims of each Party are preserved and may be acted upon by any Party during the term of this Agreement.

4.2 All American Canal and Coachella Canal Lining Projects Conserved Water.

(1) The Parties agree that sixty seven thousand seven hundred (67,700) AFY and twenty six thousand (26,000) AFY are to be the amounts of Conserved Water from the completed All American Canal Lining Project and the Coachella Canal Lining Project, respectively.

(2) After the Effective Date, subject to the terms and conditions of the Allocation Agreement, up to sixteen thousand (16,000) AFY of Conserved Water attributable to the lining of the All American and Coachella Canals will be made available to be utilized by the Secretary to facilitate implementation of the San Luis Rey Indian Water Rights Settlement Act. The volume of Conserved Water from each canal lining project made available for this purpose shall be in proportion to its percentage of the total water conserved, eleven thousand five hundred (11,500) AFY from the All American Canal and four thousand five hundred (4,500) AFY from the Coachella Canal. The remaining amount of Conserved Water from such canal lining projects shall be made available to MWD, except under the circumstances specified in the Allocation Agreement.

(3) For decree accounting purposes, Consumptive Use of the Conserved Water utilized by the Secretary to facilitate implementation of the San Luis Rey Indian Water Rights Settlement Agreement will be assigned and will not be charged to IID or CVWD, but will be deducted from IID's Consumptive Use cap under Section 2.1(1) and CVWD's Consumptive Use cap under Section 2.2(1) in proportion to the Conserved Water from the All American Canal and Coachella Canal, respectively. For decree accounting purposes, Consumptive Use of the Conserved Water utilized by MWD will be deducted from IID's Consumptive Use cap under Section 2.1 (1) and CVWD's Consumptive Use cap under Section 2.2 (1) in proportion to the Conserved Water from the All American Canal and Coachella Canal, respectively.

(4) As the Conserved Water to be made available by the lining of the All American and Coachella Canals is produced, it will be made available 83 percent to MWD and

17 percent to the Secretary for the benefit of the San Luis Rey Settlement Parties, except under the circumstances specified in the Allocation Agreement.

(5) The specific terms and conditions governing the distribution of Conserved Water as contemplated by this Section 4.2 shall be as set forth in the Allocation Agreement.

4.3 **Other Acquisitions of Colorado River Water.** During the period from the Effective Date to the Termination Date, the Parties may acquire Colorado River water from any person, without objection by any of the Parties, so long as any such acquisition is not inconsistent with any other term of this Agreement for the Related Agreements and does not materially reduce the water available to the Parties.

4.4 **Salinity Control Act Interim Period.** IID, CVWD and MWD will submit annual estimates of water diversions to the BOR with the modifier "to the extent Colorado River water is available to this requesting agency under its entitlements, the Quantification Settlement Agreement and otherwise."

4.5 **CVWD Utilization of Water.**

(1) Other than as provided in Section 3.6 of the IID/CVWD Acquisition Agreement, CVWD shall not utilize its water budget to facilitate any water use outside of Improvement District No. 1 other than for direct and in lieu recharge, and shall use its best efforts to utilize its water budget to address the groundwater overdraft problem in Improvement District No. 1 and to implement a program that is designed to achieve a safe yield within Improvement District No. 1 by the end of CVWD's water budget ramp-up in approximately Year 30.

(2) IID and MWD shall not object to the utilization of Colorado River water in the Coachella Valley, but outside Improvement District No. 1 in order to maximize the effectiveness of Improvement District No. 1's water use and recharge programs.

(3) CVWD shall make no claim as a matter of right to any additional Colorado River water in Priorities 3 or 6.

(4) This Agreement does not affect CVWD's rights under its surplus contract with the Secretary dated [_____], including its right to use water delivered under that contract anywhere within its boundaries.

4.6 **CVWD Groundwater Storage of IID Water.** Subject to the physical availability of storage in the Coachella Valley after accounting for the storage to be utilized by CVWD for the MWD/CVWD conjunctive use program, if implemented, CVWD will provide groundwater storage for IID's use in accordance with the IID/CVWD Acquisition Agreement.

4.7 **Public Awareness Program.** The Parties will each implement and maintain a water conservation public awareness program.

4.8 **Shortage and Sharing of Reduced Water Availability.** If for any reason there is less than 3.85 million (3,850,000) AF available to Priorities 1, 2 and 3 in any Year, there will

be no termination of this Agreement. Shortages will be shared pursuant to the particular provisions of the Acquisition Agreements and the Allocation Agreement.

4.9 Amendments to Acquisition Agreements. The Parties to each Acquisition Agreement shall have the right to amend that Agreement from time to time without the consent of any other Party hereto (a "non-signatory Party"); provided, however, that prompt notice and a copy of any such amendment is provided to each non-signatory Party, the Secretary, BOR and, with respect to the transfers to SDCWA contemplated under the 1998 IID/SDCWA Transfer Agreement and acquisitions from IID by CVWD under the IID/CVWD Acquisition Agreement, SWRCB; and provided, further, that no such amendment shall be given any force or effect, or be binding on any Party, if:

(1) such amendment would affect in any respect the rights of any non-signatory Party to Colorado River water; or

(2) such amendment could reasonably have a significant adverse effect on the interests of a non-signatory Party; unless or until

(3) in the circumstances of either (1) or (2), the written consent to such amendment shall have been obtained from each non-signatory Party, which consent shall not be unreasonably withheld and, if determined to have been unreasonably withheld, shall be effective retroactively to the date originally requested.

4.10 MWD Mitigation of Certain Effects of Interim Surplus Guidelines. In the event that Priority 3a Consumptive Use by IID and CVWD, consistent with and as adjusted by this Agreement, are reduced as a direct result of the application and operation of Interim Surplus Guidelines, referenced in Section 6.2 (5) hereof, MWD will assume any such resulting water use overruns by IID and CVWD as MWD overruns up to the amount of surplus water Consumptively Used by MWD under the Full Domestic Surplus and/or Partial Domestic Surplus conditions specified in the Interim Surplus Guidelines.

4.11 SWRCB Proceeding. The terms and conditions applicable to the Parties in connection with the matters referenced in Section 6.2 (11) hereof shall be as set forth in the Protest Dismissal Agreement attached hereto as Exhibit [ ].

ARTICLE 5
REPRESENTATIONS AND WARRANTIES

5.1 IID's Representations and Warranties.

(1) Subject only to the determinations and approvals contemplated by Section 6.2(2) of this Agreement and compliance with environmental laws as contemplated by Section 6.2(2) of this Agreement: (i) IID has all legal power and authority to enter into this Agreement and to perform its obligations hereunder on the terms set forth in this Agreement and (ii) the execution and delivery hereof by IID and the performance by IID of its obligations hereunder

will not violate or constitute an event of default under the terms or provisions of any agreement, document or instrument to which IID is a party or by which IID is bound.

(2) **Signatories.** The persons executing this Agreement on behalf of IID have the full power and authority to bind IID to the terms of this Agreement. In addition, the persons signing this Agreement on IID's behalf personally warrant and represent that they have such power and authority. Furthermore, the persons signing this Agreement on the IID's behalf personally warrant and represent that they have reviewed this Agreement, understand its terms and conditions, and have been advised by counsel regarding the same.

(3) **Enforceability.** Subject only to the determinations and approvals contemplated by Section 6.2(2) of this Agreement, compliance with environmental laws as contemplated by Section 6.2(2) of this Agreement, and satisfaction or waiver of the conditions set forth in Sections 6.2 and 7.1 of this Agreement, this Agreement constitutes a valid and binding agreement of IID, enforceable against IID in accordance with its terms.

(4) **No Pending or Threatened Disputes.** Except as disclosed in Appendix 5.1, attached to this Agreement, there are no actions, suits, legal or administrative proceedings, or governmental investigations pending or, to IID's knowledge, threatened against or affecting the IID relating to the performance contemplated by this Agreement.

(5) **Notice of Developments.** IID agrees to give prompt notice to the parties if the IID discovers that any of its own representations and warranties were untrue when made or determines that any of its own representations and warranties will be untrue as of the Closing Date.

5.2 **CVWD's Representations and Warranties.**

(1) Subject only to the determinations and approvals as contemplated by Section 6.2(2) of this Agreement and compliance with environmental laws as contemplated by Section 6.2(2) of this Agreement: (i) CVWD has all legal power and authority to enter into this Agreement and to perform its obligations hereunder on the terms set forth in this Agreement and (ii) the execution and delivery hereof by CVWD and the performance by CVWD of its obligations hereunder will not violate or constitute an event of default under the terms or provisions of any agreement, document or instrument to which CVWD is a party or by which CVWD is bound.

(2) **Signatories.** The persons executing this Agreement on behalf of CVWD have the full power and authority to bind CVWD to the terms of this Agreement. In addition, the persons signing this Agreement on CVWD's behalf personally warrant and represent that they have such power and authority. Furthermore, the persons signing this Agreement on CVWD's behalf personally warrant and represent that they have reviewed this Agreement, understand its terms and conditions, and have been advised by counsel regarding the same

(3) **Enforceability.** Subject only to the determinations and approvals contemplated by Section 6.2(2) of this Agreement, compliance with environmental laws as contemplated Section 6.2(2) of this Agreement, and satisfaction or waiver of the conditions set

forth in Sections 6.2 and 8.1 of this Agreement, this Agreement constitutes a valid and binding agreement of CVWD, enforceable against CVWD in accordance with its terms.

(4) **No Pending or Threatened Disputes.** Except as disclosed in Appendix 5.2, attached to this Agreement, there are no actions, suits, legal or administrative proceedings, or governmental investigations pending or, to CVWD's knowledge, threatened against or affecting CVWD relating to the performance contemplated by this Agreement.

(5) **Notice of Developments.** CVWD agrees to give prompt notice to the parties if CVWD discovers that any of its own representations and warranties were untrue when made or determines that any of its own representations and warranties will be untrue as of the Closing Date.

5.3 **MWD's Representations and Warranties.**

(1) Subject only to the determinations and approvals contemplated by Section 6.2(2) of this Agreement and compliance with environmental laws as contemplated by Section 6.2(2) of this Agreement: (i) MWD has all legal power and authority to enter into this Agreement and to perform its obligations hereunder on the terms set forth in this Agreement and (ii) the execution and delivery hereof by MWD and the performance by MWD of its obligations hereunder will not violate or constitute an event of default under the terms or provisions of any agreement, document or instrument to which MWD is a party or by which MWD is bound.

(2) **Signatories.** The persons executing this Agreement on behalf of MWD have the full power and authority to bind MWD to the terms of this Agreement. In addition, the persons signing this Agreement on MWD's behalf personally warrant and represent that they have such power and authority. Furthermore, the persons signing this Agreement on MWD's behalf personally warrant and represent that they have reviewed this Agreement, understand its terms and conditions, and have been advised by counsel regarding the same.

(3) **Enforceability.** Subject only to the determinations and approvals contemplated by Section 6.2(2) of this Agreement, compliance with environmental laws as contemplated by Section 6.2(2) of this Agreement, and satisfaction or waiver of the conditions set forth in Sections 6.2 and 9.1 of this Agreement, this Agreement constitutes a valid and binding agreement of MWD, enforceable against MWD in accordance with its terms.

(4) **No Pending or Threatened Disputes.** Except as disclosed in Appendix 5.3, attached to this Agreement, there are no actions, suits, legal or administrative proceedings, or governmental investigations pending or, to MWD's knowledge, threatened against or affecting MWD relating to the performance contemplated by this Agreement.

(5) **Notice of Developments.** MWD agrees to give prompt notice to the parties if MWD discovers that any of its own representations and warranties were untrue when made or determines that any of its own representations and warranties will be untrue as of the Closing Date.

ARTICLE 6
GENERAL CONDITIONS TO IID, MWD AND CVWD OBLIGATIONS

6.1 Performance by IID, CVWD and MWD. IID's, MWD's and CVWD's obligations under Articles 2 and 4 of this Agreement are subject to the satisfaction or waiver of the general conditions set forth in Section 6.2 and the particular conditions set forth in Articles 7, 8 and 9, in each case on or before December 31, 2002. IID, MWD and CVWD shall each proceed in good faith with reasonable diligence and use reasonable efforts to satisfy the conditions for which it has responsibility, including the conditions set forth in the Related Agreements and in the Implementation Agreement.

6.2 Satisfaction of General Conditions to IID's, MWD's and CVWD's Obligations.

(1) Representations and Warranties. The representations and warranties of each of the Parties shall be true as of the date each such Party signs this Agreement, and as of the Closing Date.

(2) Environmental Obligations.

(a) Environmental Review. All environmental review and assessment required under CEQA, NEPA and applicable federal, state and agency regulations implementing the same have been completed, to the extent required to authorize implementation of the activities contemplated by this Agreement. An environmental review process will be deemed "completed" only when all required Notices of Determination pursuant to CEQA have been duly filed; all required Records of Decision pursuant to NEPA have been duly issued; all administrative appeal periods have expired; all statutes of limitation for filing an action challenging any environmental process pursuant to CEQA have expired; as of the deadline for satisfying these conditions, no action challenging any environmental process has been filed, or, if filed, has been resolved by a final judgment which upholds or sustains the environmental review process and allows implementation of the covered activities and all judicial appeal periods have expired. The environmental review processes described above shall include, but are not limited to:

(1) The federal programmatic Environmental Assessment (or EIS if BOR determines that an EIS is required) in connection with this Agreement, to be prepared by BOR as the lead agency;

(2) The EIS relating to the Interim Surplus Guidelines, to be prepared by BOR as the lead agency;

(3) Any federal assessment required to implement the Inadvertent Overrun Program and the Decree Accounting Program, to be prepared by BOR as the lead agency;

(4) The program EIR relating to this Agreement, to be prepared by IID, MWD, CVWD and SDCWA as co-lead agencies;

(5) The joint EIR/EIS relating to the conservation and transfer by IID of up to three hundred thousand (300,000) AFY and IID's Priority 3 cap, to be prepared by IID as the lead agency under CEQA and BOR as the lead agency under NEPA;

(6) Final approval by all necessary federal and state agencies of a mitigation plan, a cultural resources plan and any other documents required to allow implementation of the All American Canal Lining project pursuant to the certified EIR/EIS for that project;

(7) Final approval by all necessary federal and state agencies of a mitigation plan, a cultural resource plan and any other documents required to allow implementation of the Coachella Canal Lining project pursuant to the certified EIR/EIS for that project; and

(8) The program EIR for the CVWD Groundwater Recharge project, to be prepared by CVWD as the lead agency.

(b) **Resource Approvals.** All permits, approvals, authorizations, opinions, assessments and agreements pursuant to the federal Endangered Species Act ("ESA"), the California Endangered Species Act ("CESA") and any other federal or state environmental resource protection laws, and applicable federal or state regulations implementing the same (collectively "Resource Approvals"), have been finalized, to the extent required by such statutes or regulations or deemed necessary or appropriate by the U.S. Fish and Wildlife Service ("USFWS"), the California Department of Fish and Game ("CDFG"), BOR or IID to document compliance therewith and to authorize implementation of the 1998 IID/SDCWA Transfer Agreement, the conservation by IID of up to three hundred thousand (300,000) AFY and IID's Priority 3a cap. A Resource Approval shall be deemed "final" only when all required environmental review has been completed as described in Section 6.2(2)(a) above; final action has been taken and all required documents have been approved and executed by the resource agencies and the applicant; all required biological assessments and biological opinions have been issued; all administrative appeal periods have expired; as of the deadline for satisfying these conditions, no action challenging any Resource Approval has been filed, or, if filed, has been resolved by a final judgment which upholds or sustains the Resource Approval in a manner acceptable to the resource agencies and the applicant and all judicial appeal periods have expired. The Resource Approvals described above shall include, but are not limited to, all required approvals by federal and state agencies of:

(1) The change in the point of diversion on the Colorado River and transfer of up to three hundred thousand (300,000) AFY of water to be conserved by IID;

(2) Incidental take authorization pursuant to ESA and CESA, to the extent required to implement the change in the point of diversion on the Colorado River, the water transfer described above, the Interim Surplus Criteria, the Inadvertent Overrun Program and the Decree Accounting Program, the All American Canal Lining project, and the Coachella Canal Lining project; and

(3) A habitat conservation plan and an incidental take permit and execution of an implementation agreement by and among USFWS, CDFG and IID, permitting implementation of conservation and water use activities within the IID service area consistent with this Agreement, including impacts on the Salton Sea and areas outside of IID's service area, and including "No Surprises" assurances pursuant to ESA Section 10(a), all of the foregoing acceptable in form, substance, scope and coverage to IID.

(c) **Party Approvals of Environmental Requirements.** Each Party, by action of its governing board, has approved and accepted the terms, conditions and mitigation measures of the environmental review processes described in Section 6.2(2)(a) above and the Resource Approvals described in Section 6.2(2)(b) above (collectively, "Environmental Requirements"), to the extent such Party is responsible, in whole or in part, for compliance, performance or payment of the costs of such Environmental Requirements.

(d) **Assurances.** "No Surprises" assurances pursuant to ESA Section 10 (a) shall have been obtained by IID and CVWD for 50 years for the first fifty thousand (50,000) AFY acquisition by CVWD and through Year 50 or, if appropriate, Year 45 for the second fifty thousand (50,000) AFY acquisition by CVWD, as contemplated under Sections 2.1(5) and 2.2(4) hereof and the IID/CVWD Acquisition Agreement.

(3) **Yuma Island.** The Secretary shall have appointed an independent panel to conduct a public review and, based thereon, to provide recommendations to the Secretary regarding the determination of the amount of Consumptive Use of water on the Yuma Island and whether such use is charged to Priority 2.

(4) **Inadvertent Overrun Program.** The BOR shall have adopted on or before the Closing Date standards and procedures for an Inadvertent Overrun Program to be implemented over a period commencing on or before the Effective Date and ending on or after the Termination Date that is in all material respects in conformity with the proposal set forth in Exhibit [ ] hereto, or is otherwise acceptable to IID, MWD and CVWD.

(5) **Interim Surplus Guidelines.** The BOR shall have adopted on or before the Closing Date interim surplus guidelines, to be implemented over a period commencing on or before the Effective Date and ending on or after Year 15, which guidelines are in all material respects in conformity with the proposal set forth in Exhibit __ hereto, or are otherwise acceptable to MWD.

(6) **PVID Waiver.** PVID shall have agreed for the period commencing on or before the Effective Date and ending on the Termination Date: (a) to waive any call rights on Conserved Water from the lining of the All American Canal and the Coachella Canal, as contemplated by this Agreement, (b) to limit use on the PVID Mesa, (c) to forego any rights to Priority 6b water, and (d) to the amendment to the 1989 Approval Agreement contemplated under the CVWD/MWD Acquisition Agreement.

(7) **The IID/CVWD Acquisition Agreement** shall have been executed by the Parties signatory thereto for delivery as of the Closing Date.

(8) **The IID/MWD Acquisition Agreement** shall have been executed by the Parties signatory thereto for delivery as of the Closing Date.

(9) **The CVWD/MWD Acquisition Agreement and the MWD/CVWD Transfer and Exchange Agreement** shall have been executed by the Parties signatory thereto for delivery as of the Closing Date.

(10) **The Implementation Agreement** shall have been executed by the Parties, SDCWA, and the Secretary for delivery as of the Closing Date.

(11) **SWRCB Approval.** The SWRCB shall have entered a final order of approval of the Petition for Change relating to the 1998 IID/SDCWA Transfer Agreement and the IID/CVWD Acquisition Agreement in conformity with the Protest Dismissal Agreement attached hereto as Exhibit __, which order in effect establishes that:

(a) IID has presented substantial evidence to support the transfers to SDCWA and the acquisitions by CVWD contemplated hereunder;

(b) As of the effective date of such final order, such substantial evidence, which includes the provisions of the Petition Process Agreement, satisfies any existing SWRCB concerns with respect to IID reasonable and beneficial use and with respect to injury to junior right holders;

(c) Pursuant to the request of IID, CVWD, MWD and SDCWA, such final order shall have no binding precedential effect on the applicability of California or any other law to any other water transfer transaction;

(d) In light of the substantial evidence, and based upon the continuing effectiveness of this Agreement and the continuing fulfillment of IID's contractual commitments to undertake major conservation activities, the SWRCB does not anticipate a need to reassess the reasonable and beneficial use of water by IID until the end of the Year 20, absent any substantial material adverse change in IID's irrigation practices or advances in economically feasible technology associated with irrigation efficiency.

(e) The order by its terms shall lapse and be of no force or effect if this Agreement terminates.

(12) **Effectiveness of 1998 IID/SDCWA Transfer Agreement.** IID's obligations to undertake "water conservation" efforts and to transfer "conserved water," as defined in and determined under the 1998 IID/SDCWA Transfer Agreement, shall have become effective as of the Closing Date, subject only to the execution and delivery of the other Acquisition Agreements and the Implementation Agreement contemplated by Section 3.2 hereof.

(13) **Environmental Cost Sharing Agreement.** The Environmental Cost Sharing Agreement shall be in full force and effect, and each party thereto shall be in full compliance with the provisions thereof applicable to it.

6.3 Contribution to Satisfaction of Environmental Obligations Condition. With respect to any required environmental mitigation, contemplated under Section 6.2(2), and except as otherwise expressly provided under an Acquisition Agreement, a Party may, but shall not be in any way compelled to, contribute the additional cost, in excess of a specified cap, such that the net economic effect to the responsible Party is the same as if the condition had been satisfied directly. In that event, the condition shall be deemed satisfied with respect to that Party, and such Party may not terminate this Agreement on the basis that the condition has not been satisfied.

6.4 Written Waiver of Conditions. The Parties agree that a Party may waive in writing any one or more of the conditions to its obligations under Articles 2 and 4, provided, however, that no Party shall waive compliance with CEQA, NEPA or other requirements under applicable laws. A written waiver of a condition must be delivered in accordance with the notice provisions of Section 11.1 hereof. As to any condition to the obligations of all Parties, a waiver of that condition will be effective only if made by all Parties.

6.5 Determination of Environmental Cost Conditions. The Parties shall cooperate in their determinations of costs applicable to their respective environmental cost ceilings for purposes of Articles 7, 8 and 9 hereof. Each Party shall use reasonable assumptions and methods in making such determinations, and, at the request of any other Party, shall promptly provide a written explanation of such assumptions and methods. In the event of any disagreement between or among Parties as to the reasonableness of any such method or assumption, the Parties shall in good faith try to resolve such disagreement through negotiation.

ARTICLE 7
PARTICULAR CONDITIONS TO IID'S OBLIGATIONS

7.1 Conditions to IID's Obligations.

(1) IID Environmental Costs. IID shall have determined that the environmental process and mitigation costs for which it is responsible under the terms and conditions of the Environmental Cost Sharing Agreement will not exceed in total present value as of the Environmental Cost Condition Precedent Test Date (and, if applicable, the Second Environmental Cost Condition Precedent Test Date) $15,000,000 (in 1998 Dollars) after taking into account any contribution to such costs by any other person.

ARTICLE 8
PARTICULAR CONDITIONS TO CVWD'S OBLIGATIONS

8.1 Conditions to CVWD's Obligations.

(1) Salinity Control Act. The Amendment to Amendatory Contract between the United States of America and Coachella Valley Water District for Replacing a Portion of the Coachella Canal in the form attached as Exhibit __ shall have been executed by the United States.

(2) **CVWD Environmental Costs.** CVWD shall have determined that the environmental process and mitigation costs for which it is responsible under the terms and conditions of the Environmental Cost Sharing Agreement will not exceed in total present value as of the Environmental Cost Condition Precedent Test Date (and, if applicable, the Second Environmental Cost Condition Precedent Test Date) $2,100,000 (in 2001 Dollars) after taking into account any contribution to such costs by any other person.

ARTICLE 9
PARTICULAR CONDITIONS TO MWD'S OBLIGATIONS

9.1 Conditions to MWD's Obligations.

(1) Decree Accounting.

(a) BOR shall have adopted and implemented standards and procedures for decree accounting for annual Consumptive Use by Priorities 1, 2 and 3b which utilize a 25-year running average, that is in all material respects in conformity with the proposal set forth in Exhibit __ hereto.

(b) BOR shall have agreed with the Parties to develop a process for establishing a statistically significant trend test for increases in use by Priorities 1, 2 and 3b.

(2) Waiver. SDCWA shall have waived any and all rights under the 1998 IID/SDCWA Transfer Agreement with respect to Conserved Water that may be acquired by MWD pursuant to the IID/MWD Acquisition Agreement, in conjunction with MWD's agreement that, should IID transfer less than the full two hundred thousand (200,000)AFY to SDCWA as part of the stabilized primary quantity under the 1998 IID/SDCWA Transfer Agreement, but later make available additional Conserved Water for transfer to SDCWA, MWD will exchange such additional amounts up to a total of two hundred thousand (200,000) AFY under the terms of the 1998 Agreement between MWD and SDCWA for the Exchange of Water.

(3) MWD Environmental Costs. MWD shall have determined that the environmental process and mitigation costs for which it is responsible under the terms and conditions of the Environmental Cost Sharing Agreement will not exceed in total present value as of the Environmental Cost Condition Precedent Test Date (and, if applicable, the Second Environmental Cost Condition Precedent Test Date) $5,000,000 (in 2001 Dollars) after taking into account any contribution to such costs by any other person.

ARTICLE 10
REMEDIES

10.1 Specific Performance. Each Party recognizes that the rights and obligations of the Parties under this Agreement are unique and of such a nature as to be inherently difficult or impossible to value monetarily. If one Party does not perform in accordance with this Agreement, the other Parties will likely suffer harm curable only by the imposition of an injunction requiring specific performance. Thus, each of the Parties agrees that any breach of this Agreement by any Party shall entitle the non-breaching Parties, or any one of them, to

injunctive relief, including but not limited to a decree of specific performance, in addition to any other remedies at law or in equity that may be available in the circumstances.

10.2 **Cumulative Rights and Remedies.** The Parties do not intend that any right or remedy given to a Party on the breach of any provision under this Agreement be exclusive; each such right or remedy is cumulative and in addition to any other remedy provided in this Agreement or otherwise available at law or in equity. If the non-breaching Party fails to exercise or delays in exercising any such right or remedy, the non-breaching Party does not thereby waive that right or remedy. In addition, no single or partial exercise of any right, power or privilege precludes any other or further exercise of a right, power or privilege granted by this Agreement or otherwise.

10.3 **Action or Proceeding between the Parties.** Each Party acknowledges that it is a "local agency" within the meaning of § 394(c) of the California Code of Civil Procedure (CCP). Each Party further acknowledges that any action or proceeding commenced by one Party against the other would, under § 394(a) of the CCP, as a matter of law be subject to:

(1) being transferred to a "Neutral County," or instead

(2) having a disinterested judge from a Neutral County assigned by the Chairman of the Judicial Council to hear the action or proceeding.

(3) A "Neutral County" is any county other than Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego or Ventura. In the event an action is filed by either Party against the other to enforce this Agreement and to obtain damages for its alleged breach, each Party hereby:

(i) Stipulates to the action or proceeding being transferred to a Neutral County or to having a disinterested judge from a Neutral County assigned to hear the action;

(ii) Waives the usual notice required under the law-and-motion provisions of Rule 317 of the California Rules of Court;

(iii) Consents to having any motion under § 394(c) heard with notice as an ex parte matter under Rule 379 of the California Rules of Court; and

(iv) Acknowledges that this Agreement, and in particular this Paragraph 8.3, may be submitted to the court as part of the moving papers.

(4) Nothing in this Section, however, shall impair or limit the ability of a Party to contest the suitability of any particular county to serve as a Neutral County, or shall operate to waive any other rights.

ARTICLE 11
GENERAL PROVISIONS

11.1 **Notices.** All notices, requests, demands, or other communications under this Agreement must be in writing, and sent to the addresses of each Party set forth below. Notice will be sufficiently given for all purposes as follows:

Personal Delivery. When personally delivered to the recipient. Notice is effective on delivery.

Certified Mail. When mailed certified mail, return receipt requested. Notice is effective on receipt, if a return receipt confirms delivery.

Overnight Delivery. When delivered by an overnight delivery service such as Federal Express, charges prepaid or charged to the sender's account. Notice is effective on delivery, if delivery is confirmed by the delivery service.

Facsimile Transmission. Notice is effective on receipt, provided that the facsimile machine provides the sender a notice that indicates the transmission was successful, and that a copy is mailed by first-class mail on the facsimile transmission date.

Addresses for purpose of giving notice are as follows:

To IID:	Imperial Irrigation District Attn.: General Manager
Address for U.S. Mail	P.O. Box 937 Imperial, California 92251
Address for Personal or Overnight Delivery:	333 E. Barioni Boulevard Imperial, California 92251
	Telephone: 760-398-9477 Facsimile: 760-398-5893

With a copy delivered by the same means to:

Horton, Knox, Carter & Foote
895 Broadway
El Centro, CA 92243

Attention: John P. Carter, Esq.

Telephone: 760-352-2821
Facsimile: 760-352-8540

To MWD:	The Metropolitan Water District of Southern California Attn.: General Manager
Address for U.S. Mail	P.O. Box 54153 Los Angeles, California 90054
Address for Personal or Overnight Delivery:	700 North Alameda Street Los Angeles, California 90012-2944
	Telephone: 213-217-6000 Facsimile: 213-217-6950

With a copy delivered by the same means and at the same address to:

The Metropolitan Water District of Southern California
Attn: General Counsel

To CVWD:	Coachella Valley Water District Attn.: General Manager-Chief Engineer
Address for U.S. Mail	P.O. Box 1058 Coachella, California 92236
Address for Personal or Overnight Delivery:	Highway 111 and Avenue 52 Coachella, California 92236
	Telephone: 760-398-2651 Facsimile: 760-398-3711

With a copy delivered by the same means and at the same address to:

Redwine & Sherrill
1950 Market Street
Riverside, CA 92501

Telephone: 909-684-2520
Facsimile: 909-684-9583

(1) A correctly addressed notice that is refused, unclaimed, or undeliverable because of an act or omission by the Party to be notified will be deemed effective as of the first date that notice was refused, unclaimed, or deemed undeliverable by the postal authorities, messenger, or overnight delivery service.

(2) A Party may change its address by giving the other Parties notice of the change in any manner permitted by this Agreement.

11.2 Waiver. No waiver of a breach, failure of condition, or any right or remedy contained in or granted by the provisions of this Agreement is effective unless it is in writing and signed by the Party waiving the breach, failure, right or remedy. No waiver of a breach, failure of condition or right or remedy is or may be deemed a waiver of any other breach, failure, right or remedy, whether similar or not. In addition, no waiver will constitute a continuing waiver unless the writing so specifies.

11.3 Post-Closing Notices. Each Party will give the other Parties prompt notice from time to time after the Closing Date and prior to the Termination Date of any actions, suits, legal or administrative proceedings, or governmental investigations pending or, to such Party's knowledge, threatened against or affecting any Party relating to the performance contemplated by this Agreement and the Related Agreements.

11.4 Counterparts. This Agreement may be executed in three or more counterparts, each of which, when executed and delivered, shall be an original and all of which together shall constitute one instrument, with the same force and effect as though all signatures appeared on a single document.

11.5 No Third-Party Rights. This Agreement is made solely for the benefit of the Parties and their respective permitted successors and assigns (if any). Except for such a permitted successor or assign, no other person or entity may have or acquire any right by virtue of this Agreement.

11.6 Ambiguities. Each Party and its counsel have participated fully in the drafting, review and revision of this Agreement. A rule of construction to the effect that ambiguities are to be resolved against the drafting Party will not apply in interpreting this Agreement, including any amendments or modifications.

11.8 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of California, without giving effect to conflict of law provisions; provided, however, that federal law shall be applied as appropriate to the extent it bears on the resolution of any claim or issue relating to the permissibility of the acquisitions of Colorado River water contemplated herein.

11.9 Binding Effect and No Assignment. This Agreement is and will be binding upon and will inure to the benefit of the Parties and, upon dissolution, the legal successors and assigns of their assets and liabilities. No Party may assign any of its rights or Delegate any of its duties under this Agreement or the Related Agreements, and any such Assignment or Delegation made in violation of this Section 11.8 shall be void and of no force or effect.

11.10 Joint Defense. The Parties agree to cooperate, to proceed with reasonable diligence, and to use reasonable best efforts to defend any lawsuit or administrative proceeding challenging the legality, validity or enforceability of any term of this Agreement, or any Party's right to act in accordance with any of the terms of this Agreement. Except as otherwise provided in the Environmental Cost Sharing Agreement, each Party shall bear its own costs of participation and representation in any such defense.

11.11 Entire Agreement. This Agreement (including the exhibits and other agreements attached to and referenced in this agreement) constitutes the final, complete, and exclusive statement of the terms of the Agreement among the Parties pertaining to its subject matter and supersedes all prior and contemporaneous understandings or agreements of the Parties. No Party has been induced to enter into this Agreement by, nor is any Party relying on, any representation or warranty outside those expressly set forth in this Agreement.

11.12 Modification. This Agreement may be supplemented, amended, or modified only by the written agreement of the Parties. No supplement, amendment, or modification will be binding unless it is in writing and signed by all Parties.

IMPERIAL IRRIGATION DISTRICT

_____ By:_____
Dated JESSE SILVA
GENERAL MANAGER

COACHELLA VALLEY WATER DISTRICT

_____ By:_____
Dated TOM LEVY
GENERAL MANAGER-CHIEF
ENGINEER

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

_____ By:_____
Dated RONALD R. GASTELUM
GENERAL MANAGER

Appendix C

Technical Memorandum No. 2
Evaluation of Hydrologic Effects of
Proposed Draft Inadvertent Overrun
and Payback Policy

TECHNICAL MEMORANDUM NO. 2

EVALUATION OF HYDROLOGIC EFFECTS OF THE PROPOSED DRAFT INADVERTENT OVERRUN AND PAYBACK POLICY

Prepared as Part of the

ENVIRONMENTAL IMPACT STATEMENT FOR THE IMPLEMENTATION AGREEMENT, INADVERTENT OVERRUN AND PAYBACK POLICY, AND RELATED FEDERAL ACTIONS

October 18, 2002

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TECHNICAL MEMORANDUM NO. 2
EVALUATION OF POTENTIAL HYDROLOGIC EFFECTS OF THE PROPOSED DRAFT INADVERTENT OVERRUN POLICY

The Bureau of Reclamation (Reclamation) proposes a policy that will identify inadvertent overruns, establish procedures that account for inadvertent overruns, and define subsequent payback requirements to the Colorado River mainstream. This Inadvertent Overrun and Payback Policy (IOP) is a condition precedent of the Quantification Settlement Agreement (QSA) between three California water agencies. The implementation of an IOP is a federal action. As such, the National Environmental Policy Act (NEPA) requires the evaluation of potential environmental impacts resulting from this proposed federal action.

This technical memorandum describes the methodology employed to evaluate the potential hydrologic effects resulting from the proposed implementation of the IOP. Also included in this technical memorandum is a summary of the evaluation results, findings and conclusions.

BACKGROUND

In its June 3, 1963 opinion in the case of *Arizona v. California* (373 U.S. 546), the Supreme Court of the United States held that the Congress has directed the Secretary of the Interior (Secretary) to administer a network of useful projects constructed by the Federal Government on the lower Colorado River, and it has entrusted the Secretary with sufficient power to direct, manage, and coordinate their operation. The Court held that this power must be construed to permit the Secretary to allocate and distribute the waters of the mainstream of the Colorado River within the boundaries set down by the Boulder Canyon Project Act (45 Stat. 1057, 43 U.S.C. 617) (BCPA). The Secretary has entered into contracts for the delivery of Colorado River water with entities in Arizona, California, and Nevada in accordance with section 5 of the BCPA.

The Secretary has the responsibility of operating Federal facilities on the Colorado River and delivering mainstream Colorado River water to users in Arizona, California, and Nevada that hold entitlements, including present perfected rights, to such water.

Article V of the Decree of the Supreme Court of the United States in *Arizona v. California* dated March 9, 1964 (376 U.S. 340) requires the Secretary to compile and maintain records of diversions of water from the mainstream, of return flow of such water to the mainstream as is available for consumptive use in the United States or in satisfaction of the Mexican Treaty obligation, and of consumptive use of such water. Reclamation reports this data each year in the Decree Accounting Record.

Pursuant to the Criteria for Coordinated Long-Range Operation of Colorado River reservoirs developed as a result of the Colorado River Basin Project Act of September 30, 1968, the Secretary annually consults with representatives of the governors of the Colorado River Basin States, general public and others and issues an Annual Operating Plan (AOP) for the coordinated operation of the Colorado River reservoirs. Reclamation also requires the major Colorado River water users in the Lower Basin to schedule water deliveries in advance for the following calendar year (calendar year is the annual basis for

Decree Accounting of consumptive use in the lower Colorado basin). Reclamation requires each water user to later report its actual water diversions and returns to the mainstream.

Pursuant to 43 CFR part 417, prior to the beginning of each calendar year, Reclamation consults with entities holding BCPA section 5 contracts (Contractor) for the delivery of water. Under these consultations, Reclamation makes recommendations relating to water conservation measures and operating practices in the diversion, delivery, distribution, and use of Colorado River water. Reclamation also makes a determination of the Contractor's estimated water requirements for the ensuing calendar year to the end that deliveries of Colorado River water to each Contractor will not exceed those reasonably required for beneficial use under the respective BCPA contract or other authorization for use of Colorado River water. Reclamation then monitors the actual water orders, receives reports of measured diversions and return flows from major contractors and federal establishments, estimates unmeasured diversions and return flows, calculates consumptive use from preliminary diversions and measured and unmeasured return flows, and reports these records on an individual and aggregate monthly basis. Later, when final records are available, Reclamation prepares and publishes the final Decree Accounting Record on a calendar year basis.

For various reasons, a user may inadvertently consumptively use Colorado River water in an amount that exceeds the amount available under its entitlement (inadvertent overrun). Further, the final Decree Accounting Record may show that an entitlement holder inadvertently diverted water in excess of the quantity of the entitlement that may not have been evident from the preliminary records. Reclamation is therefore considering an administrative policy to define inadvertent overruns, establish procedures that account for the inadvertent overruns and define the subsequent requirements for payback to the Colorado River mainstream.

IOP FEATURES CONSIDERED

The following features of Reclamation's proposed Lower Colorado River Basin IOP were considered in this evaluation:

a. Inadvertent overruns are those that the Secretary deems to be beyond the control of the water user. Examples of inadvertent overruns include; overruns resulting from discrepancies between preliminary and final stream flow and diversion records and overruns resulting from an unanticipated but lawful use by a higher-priority water user.

b. An inadvertent overrun is Colorado River water diverted, pumped or received by an entitlement holder of the Lower Division States that is in excess of the water user's entitlement for that year. The inadvertent overrun policy provides a structure to pay back the amount of water diverted, pumped or received in excess of entitlement. The inadvertent overrun policy does not create any right or entitlement to this water, nor does it expand the underlying entitlement in any way. An entitlement holder has no right to order, divert, pump or receive an inadvertent overrun. If, however, water is diverted, pumped or received inadvertently in excess of entitlement, and the Contractor's State's apportionment of Colorado River water for that year is exceeded, the inadvertent overrun policy will govern the payback. The IOP cannot be applied to diversion or acreage based entitlements without appropriate methodology, nor does this policy apply in any manner to the deliveries made under the United States Mexico Water Treaty of 1944.

c. Payback will be required to commence in the calendar year that immediately follows the release date of a Decree Accounting Record that reports uses that are in excess of an individual's entitlement.

d. Payback must be made only from measures that are above and beyond the normal consumptive use of water (extraordinary conservation measures). Extraordinary conservation measures mean actions taken to conserve water that otherwise would not return to the mainstream of the Colorado River and be available for beneficial consumptive use in the United States or to satisfy the Mexican treaty obligation. Any entitlement holder with a payback obligation must submit to Reclamation, along with its water order, a plan that will show how it will intentionally forbear use of Colorado River water by extraordinary conservation and/or fallowing measures sufficient to meet its payback obligation and that demonstrates that the measures being proposed are in addition to those being implemented to meet an existing transfer or conservation agreement, and that are in addition to the measures found in its Reclamation approved conservation plan. Plans for payback could also include supplementing Colorado River system water supplies with non-system water supplies through exchange or forbearance or other accepTable arrangements, provided that non-system water is not physically introduced into the system. Water banked off-stream or groundwater from areas not hydrologically connected to the Colorado River or its tributaries are examples of such supplemental supplies. Water ordered but subsequently not diverted is not included in this policy in any manner. If such water is not charged against a user's entitlement, it will not be counted in any other manner with respect to decree accounting.

e. Maximum cumulative inadvertent overrun accounts will be specified for individual entitlement holders as ten percent of an entitlement holder's normal year consumptive use entitlement. With regard to a conservation transfer, the specific terms of the transfer would address whether or not the proportionate overrun account is also transferred. (Normal year means a year for which the Secretary has determined that sufficient mainstream Colorado River water is available for release to satisfy 7.5 maf of annual consumptive use in the States of California, Arizona and Nevada.)

f. The number of years within which an overrun (calculated from consumptive uses reported in final Decree Accounting Records) must be paid back and the minimum payback required for each year shall be as follows:

   1. In a year in which the Secretary makes a flood control release or a space building release, any accumulated amount in the overrun account will be forgiven.

   2. If the Secretary has declared a 70R surplus in the AOP, any payback obligation will be deferred at the entitlement holder's option.

   3. In a year when the Lake Mead water surface elevation is between the elevation for a 70R surplus declaration and elevation 1,125 feet above mean sea level on January 1, the payback obligation incurred in that year must be paid back in full within 3 years of the reporting of the obligation, with a minimum payback each year being the greater of 20 percent of the individual entitlement holder's maximum allowable cumulative overrun account amount or 33.3 percent of the total account balance.

4. In a year when the Lake Mead water surface elevation is at or below elevation 1,125 feet above mean sea level on January 1, the total account balance will be paid back in full in that calendar year.
5. For any year in which the Secretary declares a shortage under the Decree, the total account will be paid back in full that calendar year, and further accumulation of inadvertent overruns will be suspended as long as shortage conditions prevail.

g. A separate inadvertent overrun account may be established in those limited cases in which a lower priority user is, or has agreed to be, responsible for consumptive uses by one or more un-quantified senior water entitlement or right holders having finite service area acreage. The separate inadvertent overrun account will be limited to a maximum cumulative amount of 10 percent of the senior right holders average consumptive use. Such inadvertent overrun accounts will be the assigned responsibility of the lower priority user in addition to their own entitlement based inadvertent overrun account. If, however, such senior entitlement or right holders' approved aggregate calendar year water orders are in excess of the specified amount above which the lower priority user will be responsible, such excess will not be deemed inadvertent and the lower priority user's water order for that year will be reduced accordingly by Reclamation.

h. Each month, Reclamation will monitor the actual water orders, receive reports of measured diversions and return flows from Contractors and federal establishments, estimate unmeasured diversions and return flows, and project individual and aggregate consumptive uses for the year. Should preliminary determinations indicate that monthly consumptive uses by individual users, or aggregate uses, when added to the approved schedule of uses for the remainder of that year, exceed contract entitlements but are not exceeding the maximum inadvertent overrun account amount, Reclamation will notify in writing the appropriate entities that the preliminary determinations are forecasting annual uses in excess of their entitlements.

i. During years in which an entitlement holder is forbearing use to meet its payback obligation, Reclamation would monitor the implementation of the extra-ordinary conservation measures and require that the district's consumptive use be at or below their adjusted entitlement. Should the district's actual monthly deliveries for about the first five months of the year exceed their forecasted orders, and projections indicate the district's end-of-year use is likely to be five percent above their adjusted entitlement, Reclamation will notify the district in writing. At the end of about seven months, if it continues to appear that the district is likely to be above their adjusted entitlement, Reclamation will notify the district that they are at risk of exceeding their adjusted entitlement and having their next years orders placed under enforcement proceedings.

j. Under enforcement proceedings, during the year, Reclamation would again monitor the implementation of the extra-ordinary conservation measures and require that the districts consumptive use be at or below their re-adjusted entitlement. Should the district's actual monthly deliveries for about the first five months exceed their forecasted orders and projections indicate the district's end-of-year use is likely to be five percent above their re-adjusted entitlement, Reclamation will notify the district in writing that they are at risk of being subjected to enforcement proceedings. Should the district's actual monthly deliveries for the first seven months exceed their forecasted orders, and projections indicate the district's end-of-year use is likely to be above their adjusted entitlement Reclamation would advise the entitlement holder in writing by

July 31, consult with the entitlement holder on a modified diversion schedule and then limit diversions to the entitlement holder for the remainder of the year such that by the end of the year, the individual entitlement holder has met their payback obligation.

k. Procedures will be established for accounting for inadvertent overruns on an annual basis and for supplementing the final Decree Accounting Record. The procedures and measures for administering the IOP will be reviewed every five years under the Long Range Operating Procedures review.

MODELING APPROACH

A numeric model was used to analyze the potential hydrological effects associated with the proposed implementation of the IOP. The model was used to provide projections of potential future Colorado River system conditions (i.e., reservoir releases, reservoir surface elevations, diversions and depletions, and river flows) under the various operational scenarios being considered under the IOP. The modeling results were then used to compare the potential future conditions under the action and no action alternatives. Specifically, the analyses presented herein are based on potential effects of changed river flows and water levels within the Colorado River and mainstream reservoirs. The analysis was limited to the portion of the river and facilities that extend from Lake Mead to the Northerly International Boundary upstream of Morelos Dam.

Certain assumptions were developed and used to model the potential users that could potentially incur inadvertent overruns in the future, the quantities of overruns and the payback requirements. The assumed annual overrun and payback amounts were converted to annual flow volumes that were then reflected as increases or decreases to river flows and reservoir releases.

A general overview of the steps taken to model the potential effects that could result from the implementation of the proposed IOP follows:

1. Developed assumptions with respect to which Colorado River water users potentially would incur overruns and therefore be subject to the IOP payback requirements. This was achieved through a combination of the following activities:

   a. Identification of agencies with quantified water entitlements,

   b. An evaluation of historical delivery requests and actual depletion records to identify agencies with a history of incurred overruns, and

   c. An evaluation of current agency water management practices to determine if sufficient scheduling, measurement and reporting practices are in place to enable the agency to minimize, control, or eliminate future overruns.

2. A reasonable estimate of future overrun account balances was then developed for those agencies identified as having the potential to incur future overruns and that are subject to IOP payback requirements. This was achieved through the following steps:

   a. The historic depletions of each affected agency were quantified, verified and evaluated to ascertain the historic and more recent water use trends. In several instances, the analysis of the agency historic demands were focused on only the most recent 12 years of depletion data since

it became apparent that these values most accurately represent the current demand trends of these agencies and are reflective of current water management practices, service area water demands and cropping patterns, where applicable.

b. The historical demand data for each agency were used to project the future demand conditions. Where appropriate, the projected demands were adjusted to reflect the projected increases in demand provided by the individual agencies. The historical pattern of fluctuating annual demands was then replicated over the projected demands in order to achieve a more reasonable estimate of future depletion conditions for the 75-year study period. The integrity of this process was maintained by making sure that the average of the fluctuating demands was equal to the average of the projected normalized demands. In some instances, such as in the case of the Imperial Irrigation District, projected demands developed by them and used for similar studies were made available for use in this study.

c. Using the projected future depletion conditions discussed above, an estimate of future depletion conditions without the IOP (no overruns allowed) was then developed and used in the modeling of the No Action alternative. To reflect the "no overrun conditions", the depletions for each agency (or group of agencies) were limited by the provisions of their existing contracts.

d. The numeric model was then used to simulate the future depletion conditions with the IOP and future depletion conditions without the IOP (No Action alternative). A total of six different scenarios were run for each agency or combination of agencies (see Table 1). Each run considered a different combination of maximum allowed overrun account balance and payback period. The maximum allowed overrun account balance was based on a percentage of the agency entitlement. Two percentages were considered, ten percent and five percent. Also, three payback periods were considered – three years, one year and zero years. The zero year payback schedule represents the shortage water supply conditions. Under these conditions, there would be no overruns allowed and previously existing balances would need to be paid back in full in the current existing calendar year. The following Table provides a summary of the different simulated IOP scenarios.

Table 1
Modeled Scenarios

Scenario No.	Maximum Allowed Overrun Account Balance	Payback Period (years)
1	10%	3
2	10%	1
3	10%	0
4	5%	3
5	5%	1
6	5%	0

Scenario accounting was then performed to determine how each combination of maximum allowed overrun account balance and payback period conditions compared to the modeled No Action conditions (future conditions without the IOP). The differences are believed to represent a reasonable estimate of future overrun account balances under each of the respective modeled IOP scenarios.

3. For each modeled scenario, the range of estimated future overrun account balances over the 75-year period that was analyzed was then ranked and analyzed statistically. Key statistics identified for each modeled scenario included the mean and maximum values and cumulative distribution.

4. The mean and maximum values were then used to analyze the potential effects to Colorado River flow below Hoover Dam and effects on storage and releases from storage at lakes Mead, Mohave and Havasu resulting from each modeled IOP scenario. The hydrological effects identified in this technical memorandum were then used to further analyze potential effects on other resources. The analysis of these other resources was a separate analysis by others and the results of said analyses are addressed in the Draft EIS. The hydrological effects were generally determined as follows:

   a. **Evaluation of River Flow Impacts** – The proposed implementation of the IOP could affect Colorado River flows in two ways. First, when an overrun is incurred, the flows in the river are increased by an amount equivalent to the amount of inadvertent overrun incurred in that specific year. For analysis purposes, the average value of the range of estimated future overrun amounts under each modeled IOP scenario was assumed to represent the most likely scenario and the maximum value was assumed to represent the potential maximum effect on river flows under the first condition – river flow increase due to incurred overrun.

      Secondly, in a payback period, the flows in the river are decreased by an amount equivalent to the amount of payback required in each year of the payback period. The potential river flow reductions under this condition are greatly affected by the length of the payback period. For example, the potential river flow reduction resulting from a one-year payback period requirement could potentially be three times that which would be incurred under a three-year payback period. However, it was assumed that in any given year under IOP, some of the IOP participating agencies would be incurring overruns while others would be in a payback cycle. Based on this most likely scenario, the mean value of the range of estimated future overrun account balances under each modeled IOP scenario was assumed to represent the potential maximum effect on river flows under this condition – river flow reductions due to required IOP payback.

   b. **Evaluation of Lake Level Imp**acts – The proposed implementation of the IOP could affect Colorado River mainstream reservoirs by reducing the amount of water in storage. Again, this analysis was limited to the portion of the river and facilities that extend from Lake Powell to the Northerly International Boundary upstream of Morelos Dam. Therefore, only those mainstream reservoirs located within that portion of the river system were evaluated. This included lakes Powell, Mead, Mohave and Havasu. A reduction in the amount of water in storage and water levels in Lake Mead (and Lake Powell due to equalization) could potentially occur when an inadvertent overrun is incurred. The amount of reduction in these two reservoirs would be equivalent to the amount of inadvertent overrun incurred in that specific year. However, this is believed to be a temporary condition since the depletion resulting from the inadvertent overrun would be restored though the payback system or with flood waters. At the end of the payback period, the depletion resulting from the inadvertent overrun is assumed to be offset and therefore, the long-term effect is considered to be negligible. For analysis purposes, the maximum value of the range of estimated future overrun account balances under each modeled IOP scenario was assumed to represent the potential maximum effect on reservoir

storage content, albeit a temporary effect.

c. **Evaluation of Flood Control Releases and Excess Flows to Mexico Impacts** - The proposed implementation of the IOP could affect Lake Mead flood control releases and excess flows by reducing the amount of water in storage at Lake Mead. For the purposes of this analysis, excess flows to Mexico are assumed to occur entirely due to flood control releases originating at Hoover Dam. A reduction in the amount of water in storage would effectively increase the ability of Lake Mead to capture more water and thereby reduce flood releases. The reduction in the amount of water in storage would be equivalent to the amount of inadvertent overrun incurred in that specific year in addition to any unpaid account balances. Again, this is believed to be a temporary condition since depletion resulting from the inadvertent overrun would be restored through the payback system. For analysis purposes, the mean and maximum values of the range of estimated future overrun account balances under each modeled IOP scenario were used to evaluate the potential effect on Lake Mead flood control releases and excess flows to Mexico.

To accomplish this evaluation, it was necessary to integrate the results from the previously described numeric model with the RiverWare model. The mean and maximum values of the range of estimated future overrun account balances under each modeled IOP scenario were used as Lake Mead depletions in the Implementation Agreement and Cumulative Analysis modeled conditions. A detailed explanation of these and other operation scenarios considered and evaluated as part of the overall environmental impact study can be found in Technical Memorandum No. 1 - Analysis of River Operations And Water Supply (Appendix G of EIS). The overrun account balance was simulated by holding the respective overrun account balance as a depletion from Lake Mead. To ensure that the affect of an overrun account balance was reflected in every flood control year, an overrun account balance was assumed to exist in year one. Thereafter, the same amount was removed from the Lake Mead content every time there was a flood release from Lake Mead. This approach generally held the depleted content amount constant throughout the 75-year period of analysis. In actuality, this would not be the case because overrun account balances will vary from year to year and may not exist in some years. Nevertheless, this approach provided a means of identifying the worst-case potential impact that could occur in any given year under each of the modeled IOP scenarios. However, it should be noted that the probability that such an effect would occur is uncertain, although believed to be low, due to the low likelihood that flood release event will coincide with a period when all entities have maximum overrun account balances.

POTENTIAL INADVERTENT OVERRUN USERS

A discussion of which Lower Basin States and agencies were assumed would incur inadvertent overruns in the future follows. The assumed amounts of inadvertent overruns that could be incurred by each state and agency are also discussed below.

POTENTIAL ARIZONA INADVERTENT OVERRUN CONDITIONS

Arizona Colorado River water users were segregated into two groups to facilitate evaluation of historical and future Arizona water depletions. The two groups were - Central Arizona Project (CAP) users, and

other Arizona users. An assessment of the likelihood that each one of these groups could incur future inadvertent overruns was then made.

An evaluation of historical depletion records identified few instances where the depletions of Arizona agricultural users located below Parker Dam approached their respective entitlements. The likelihood that these users would incur future inadvertent overruns was thus considered to be very low. Therefore, for modeling purposes, the assumption was made that this group of Arizona users would not incur future inadvertent overruns.

The agricultural users located along the river have a higher priority than the CAP users. As such, the beneficial use requirements for the agricultural users would, in most instances, be fully satisfied. The CAP users would then be entitled to use the remaining water supplies that are within Arizona's 2.8 maf normal year Colorado River water apportionment. The CAP has several water management programs that can be used to minimize or eliminate Arizona's inadvertent overruns. First, the CAP intends to use Lake Pleasant and various central Arizona groundwater storage programs to manage future available Colorado River water supplies. CAP will use water supplies stored in these facilities to minimize or offset any inadvertent overruns that may be incurred by the higher priority Arizona agricultural users. Further, CAP has the ability to adjust its diversions on a near daily basis. Given these water management systems, it is highly probable that Arizona will be able to adhere to its depletion schedules and stay within its apportioned amounts.

The recorded Arizona depletions for the most recent 12 years were used to represent the current demand trends. This period was used because the depletions are probably most indicative of current water management practices, service area water demands and cropping patterns, where applicable. Table 2 presents the historical depletions of the Arizona Other Users for the most recent twelve years.

Table 2
Historical Depletions of Arizona Other Users

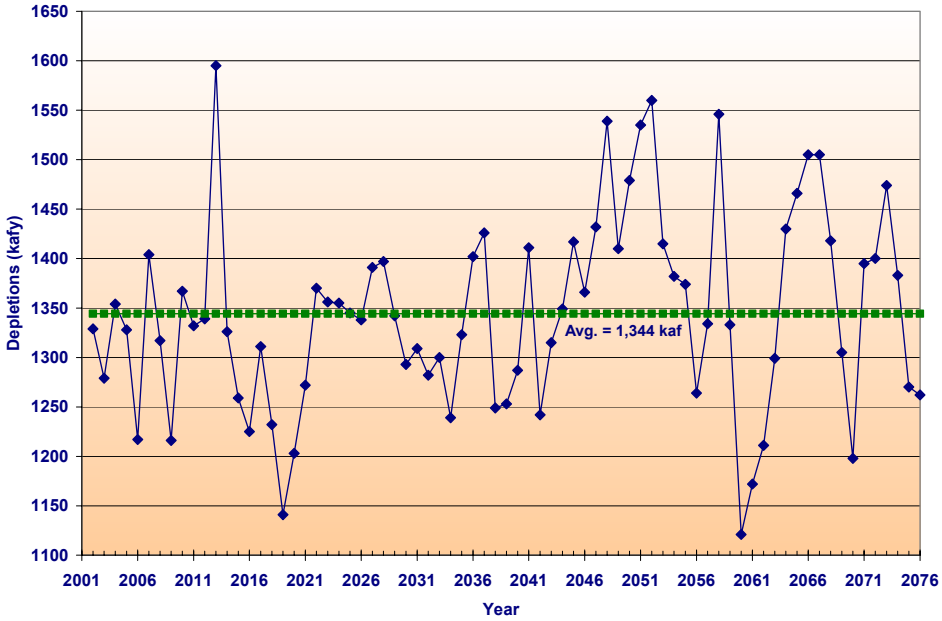
Year	Depletion (kaf)
1988	1,423
1989	1,471
1990	1,481
1991	1,411
1992	1,314
1993	1,222
1994	1,421
1995	1,436
1996	1,519
1997	1,440
1998	1,338
1999	1,340

The historic demand data was normalized and then extrapolated to provide a basis for future demand conditions. Recognizing that the historic demand data does not reflect recent water management practices, the historic demand data was normalized to remove any increasing or decreasing trend and it was also adjusted in a manner that the average of the historic demand data was made equal to the average of the demand data for the most recent 12-years. The focus of the analysis being on the fluctuation or

departure from the average demand data. The projected future demands were also adjusted to reflect ADWR's projected 70 kaf per year water demand increase, as published in Appendix H of Reclamations 2001 Surplus EIS. The historical pattern of fluctuating annual demands was then replicated over the projected demands in order to achieve a more reasonable estimate of future depletion conditions. The integrity of this process was maintained by making sure that the average of the fluctuating demands was equal to the average of the projected normalized demands. Figure 1 presents the projected future Arizona Other demands that were used to assess the likelihood and magnitude of future potential Arizona inadvertent overruns.

Figure 1 shows total projected demands for Arizona Others (AZOTH) average approximately 1.34 mafy and fluctuate an average of approximately 50 kaf from year to year, with the maximum annual fluctuation being approximately 260 kaf in year 2013. Since CAP has the capacity to divert up to 180 kaf per month, it is reasonable to assume that CAP will be able to monitor Arizona's total scheduled deliveries and monthly diversions, and make the necessary adjustments to remain essentially even, offsetting any inadvertent overruns that might be incurred by the Arizona Others users. These adjustments could occur in the later lower water use months, i.e., November and December. With this approach, CAP could potentially keep overruns to less than 5 kafy.

Figure 1
Projected Future Depletions for Arizona Others



However, there could still be instances of additional inadvertent overruns by the Arizona groundwater pumpers. These depletions are typically not totaled until the final Decree Accounting is completed. This accounting does not occur until after the close of the accounting year, usually March or April of the following year. However, an evaluation of recent historical Arizona groundwater pumpers' depletions suggests that inadvertent overruns incurred by these users are usually less than 5 kaf, with a maximum of 15 kaf.

Recognizing that the CAP can make day-to-day adjustments to their December diversions to match the remaining amounts available, the total future inadvertent overruns for Arizona are not expected to be significant. Because of the complexity involved in modeling such a small amount of potential inadvertent overrun, and recognizing that the real time operation would be refined with experience the decision was made to not include this amount in the analysis. However, it should be noted that this does not mean that these inadvertent overruns would not be subject to the requirements of the IOP, if and when such a policy is implemented.

POTENTIAL NEVADA INADVERTENT OVERRUN CONDITIONS

The portion of Nevada that depends on Colorado River water is limited to southern Nevada, primarily the Las Vegas Valley and the Laughlin area further south. The Colorado River Commission and the Southern Nevada Water Agency (SNWA) manage Nevada's Colorado River water supply. The SNWA coordinates the distribution and use of the water by its member agencies whose systems provide retail distribution. Nevada has five principal points of diversion for Colorado River water. The largest occurs in the Las Vegas Valley that pumps water from Lake Mead at Saddle Island (on the west shore of the lake's Boulder Basin) through facilities of SNWA. The water is pumped at two adjacent pumping plants. Three other diversion points are downstream of Davis Dam. They serve the community of Laughlin, Southern California Edison's coal fired Mohave Generating Station and uses on that portion of the Fort Mojave Indian Reservation lying in Nevada. The fifth diversion consists of water used by federal agencies in Nevada, primarily the National Park Service and its concessionaires at various points on lakes Mead and Mohave. Nevada's current Colorado River water demand now exceeds its Colorado River normal water apportionment of 300 kafy. SNWA depletions represent approximately 90 percent of this amount.

Nevada has no history of incurring inadvertent overruns. Further, since SNWA manages Nevada's Colorado River water supply and its own depletions account for over 90 percent of Nevada's total depletions, the responsibility of managing and controlling future inadvertent overruns will fall on SNWA. SNWA intends to use its groundwater supplies within the Las Vegas Valley to manage future available Colorado River water supplies. It was assumed that SNWA's ability to adjust its diversions on a near daily basis and its use of groundwater supplies would be effective in minimizing and offsetting any inadvertent overruns that may be incurred by other Nevada users. As such, it is highly probable that Nevada will be able to adhere to its future depletion schedules and stay within its apportioned amounts. Therefore, for modeling purposes, the inadvertent overruns that may be incurred by Nevada users other than SNWA are believed to be minimal and therefore were not modeled or analyzed.

POTENTIAL CALIFORNIA INADVERTENT OVERRUN CONDITIONS

California does not have a history of exceeding their entitlement. This is due to the fact that Article II(B)6 of the Decree allows some agencies to utilize unused Lower Basin apportionment and also Colorado River water contracts allow some agencies to receive surplus water supplies that are made available coincident with Lake Mead flood release conditions. The Seven Party Agreement provides up to 3.85 mafy to California water users, in three priorities during a normal year. The Palo Verde Irrigation District (PVID) and the Yuma Project Reservation Division (YPRD) hold the first two priorities. Within this priority, PVID's water use is restricted to 104,500 acres of valley land. Imperial Irrigation District (IID), Coachella Valley Water District (CVWD) and 16,000 acres of PVID Mesa lands hold third priority.

Within this priority are PVID's mesa lands. In addition, the 1934 Agreement of Compromise gave IID a higher priority, within this third priority, than CVWD. Metropolitan Water District of Southern California (MWD) holds fourth priority.

PVID and YPRD do not have quantified water rights. Their Colorado River water depletions are restricted by the number of acres that they are allowed to irrigate with Colorado River water. PVID's entitlement is tied to their right to irrigate 104,500 acres with Priority 1 water in the valley and an additional 16,000 acres associated with Priority 3B. YPRD's entitlement is tied to their right to irrigate 25,000 acres within the Project boundary.

Currently there is no specific quantification of the rights of each of the above named irrigation districts. In any given year, the depletions by each of these agencies will vary, with the only restriction being that the total use by the four districts cannot exceed the 3.85 mafy cap in a normal year. An exception to this occurs under surplus determinations by the Secretary. Also, 1989 Approval Agreement among IID, CVWD, PVID, and MWD amended the 3.85 maf cap by allowing MWD to access up to 110 kaf of water conserved under the 1988 MWD/IID agreement, provided that under certain specified conditions, CVWD would be given the right to use the first 50 kaf. As such, the current cap for the four districts (PVID, YPRD, IID and CVWD) is from 3.74 to 3.80 maf, during a normal year depending upon certain specified conditions. Consistent with utilizing an assumed 3.80 maf cap for modeling purposes, the IID projected depletions also assumed that the IID/MWD conservation agreement is also in place. In addition, the CVWD demands were assumed to be the demands that CVWD would seek to maintain consistent with their current entitlement.

Because of the similar water rights of PVID and YPRD, the historic and future depletions of these two agencies were analyzed together. For similar reasons, the historic and future depletions of CVWD and IID were also analyzed together. PVID/YPRD historic depletions were normalized and extrapolated to develop projected Colorado River water depletions for these agencies. The historic PVID data was first normalized which removed any increasing or decreasing trend in the historic demands data. (In the earlier years, PVID use was increasing as the amounts of land under irrigation was increasing). Normalizing the data allowed the analysis to focus on the potential for overruns assuming more recent farming and water management practices. However, since the historic depletions for YPRD include a significantly higher percentage of estimated unmeasured returns and is less accurate, the normalized data for PVID was increased such that the projected average depletions and the average depletions over the last 12 years for both districts combined equaled 420 kaf. The 420 kaf average is consistent with Decree Accounting records.

The inadvertent overrun analysis focuses on the potential for MWD overruns as they relate to PVID fluctuations. In the analysis, the maximum overrun that can occur due to a PVID fluctuation in use is calculated by adding 10% of the estimated 420 kaf that MWD is responsible for and 10% of MWD base entitlement of 550 kaf. It needs to be noted that prior to determining the amount of overage MWD is responsible for as it relates to uses of the first two priorities, the IID and Coachella incurred depletions are first considered. If any unused entitlement is available to MWD from IID/CVWD, that unused supply was assumed to be applied that year against any uses above the 420 kaf related to PVID/YPRD.

For the purpose of this analysis, it was also assumed that MWD would not exceed its annual entitlement amount and therefore would not incur any direct overruns. The bases for this modeling assumption include the knowledge that MWD has access to other supplies and that it has the ability to accurately

monitor and measure their diversions. Further, because of its responsibility to payback overruns incurred by PVID, it was assumed that MWD would attempt to minimize additional overruns beyond those that are assigned to MWD by way of PVID fluctuations. As such, no direct MWD overruns were modeled as part of this analysis. Figure 2 presents the projected future PVID depletions.

Figure 2
Projected Future Depletions for PVID

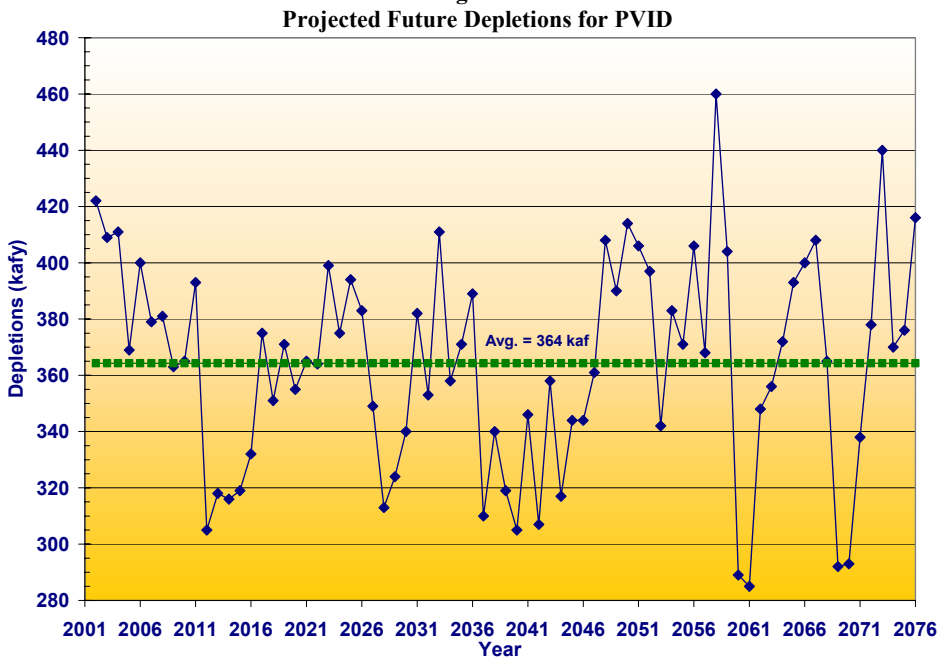
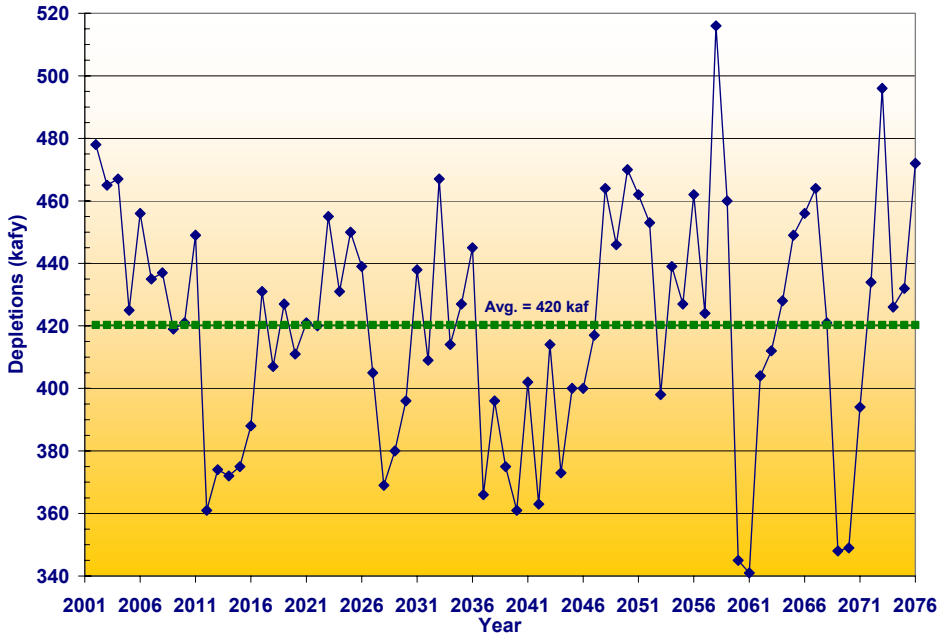


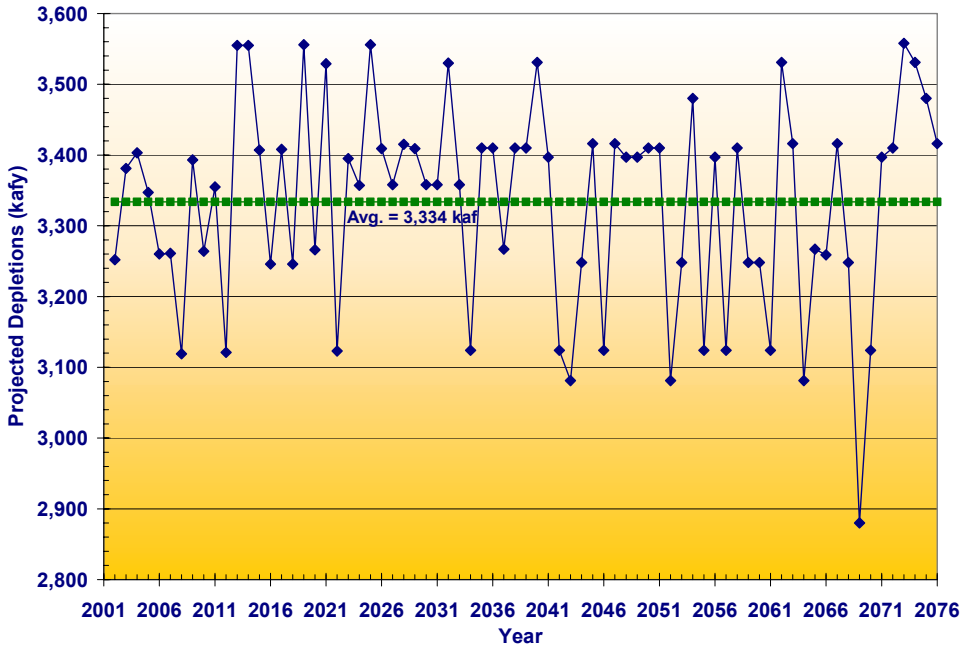
Figure 3
Projected Future Depletions for PVID/YPRD



The projected future YPRD depletions were then added to the projected future PVID depletions to represent the combined PVID/YPRD future depletions (California Priorities 1 and 2 demands). Figure 3 presents the projected future PVID/YPRD depletions.

The projected future IID/CVWD depletion schedule was developed similar to that developed for PVID but with some differences. While the historic data was normalized based on the 12-year depletion record, the normalization method applied to the projected depletions differed. IID previously developed an elaborate model based on the 12-year gate delivery records for the period between 1987 to 1998. IID used this model to evaluate the potential effects of the conservation transfers currently being considered. The model allows alternate conservation methods to be considered by different farming operations and yields change in drainflow, drainflow quality, and change in gate delivery data for each different modeled scenario. In order to extend the 12-year base historic data to 75 years, the historic fluctuations were mapped using net Eto. Further details on how this mapping occurred is explained in the IID/SDWA EIR/EIS. The projected future CVWD depletions were added to the projected future IID depletion schedule. Figure 4 presents the projected IID/CVWD depletions. It should be noted that the any differences between the projected future depletions for IID/CVWD used in this study and those being used by IID in their own studies related to assumptions with respect to the transfer programs that are considered to be put in place at different points in the future. Any minor differences are expected to be reconciled prior to the preparation of the Final EIS for this study.

Figure 4
Projected Future Depletions for IID/CVWD



Development of Projected California Depletion Schedules for the No Action Alternative

The Seven Party Agreement provides up to 3.85 mafy to California water users holding priorities one to three, during a normal year. However, because of existing water conservation agreements between the

California agricultural agencies and MWD , the total entitlement under priorities one thru three were modeled as being limited to 3.80 maf (explanation of assumed 3.8 maf cap previously provided in section entitled – "Potential Future California Inadvertent Overrun Conditions", page 12). PVID/YPRD holds the first two priorities. IID/CVWD/PVID hold third priority and MWD holds the fourth priority. PVID/YPRD do not have quantified water rights. PVID/YPRD depletions are restricted by the number of acres that they are allowed to irrigate with Colorado River water and their district/project boundaries.

Under nearly all water supply conditions, the water demands of the two highest priorities (PVID/YPRD) must be fully satisfied. This condition was maintained in the development of the No Action modeled condition. As such, the IID/CVWD No Action condition depletion schedule was calculated by subtracting the PVID/YPRD annual depletions from 3.80 maf. The depletion schedules provided by IID/CVWD were compared to the IID/CVWD No Action condition depletion schedule. In years where the IID/CVWD No Action condition depletion was greater than the amount shown on the depletion schedules provided by IID/CVWD, the difference was said to be water that could be made available for use by MWD (unused Priority 1, 2 & 3 supply) in accordance with the provisions of the Seven Party Agreement. As such, the MWD No Action condition depletion schedule (the amount remaining of the 4.4 maf) was calculated by subtracting from 4.4 maf the lesser of either the depletion schedules provided by IID/CVWD or IID/CVWD No Action condition depletion schedule, the PVID/YPRD annual depletion schedule, and the Present Perfected Rights (50 kaf). Tables A2, A3 and A4 in Appendix A provide the detailed calculations for each modeled year.

Accounting Effects of Quantification Settlement Agreement:

During the negotiations for the Quantification Settlement Agreement (QSA) it was recognized that constantly fluctuating uses by PVID/YPRD would make it very difficult for IID to plan for and assure a specific quantity of urban transfer. To accommodate this issue, MWD agreed to assume responsibility for any uses by PVID/YPRD that exceed their long-term annual average depletion of 420 kaf provided that other provisions of the key terms of the QSA that benefited MWD were realized. For the purposes of modeling the IOP, PVID/YPRD's use in excess of 420 kafy is treated as an inadvertent overrun. However, the obligation for payback of this overrun is assumed by MWD. Under this same agreement, MWD receives the right to use any unused portion of the 420 kafy PVID/YPRD target supply without claims by IID or CVWD to use of this water.

This provision of the QSA provides a slight modification to the manner that water is allocated under the Seven-Party Agreement. It will have a tendency to stabilize the widely fluctuating depletions of the first three priorities as well as the Priority 4 supply (MWD). This provision of the QSA was modeled by holding IID/CVWD's annual depletion to 3.38 maf. The depletion schedules provided by IID/CVWD were compared to this capped depletion schedule. In years when the depletion was less than the amount shown on the capped depletion schedule, the difference was assumed to be water available for use by MWD (unused Priority 1, 2 & 3 supply). In years where PVID/YPRD's use was over the target of 420 kaf, the average was assumed to be MWD's payback obligation. In years where the IID/CVWD's use was less than 3.38 maf, MWD's payback obligation was reduced by the difference between the observed IID/CVWD use and the 3.38 maf The results of these calculations are shown in Table A-4 in Appendix A. The depletion schedule that was calculated and used to model MWD's annual depletions is also shown on Table A-4, in Appendix A.

For modeling purposes, it was assumed that the 420 kaf target depletion for PVID/YPRD was a fixed cap obligation for MWD. The responsibility for paying back the amount over the 420 kaf target depletion is assumed by MWD. Thus any amount of use over the 420 kaf would need to be paid back. Normal reduced PVID/YPRD uses the following year would not be considered a payback. To further facilitate the modeling process, the assumption was made that MWD's minimum annual depletion was 550 kaf per year.

The analysis assumed that MWD would utilize any unused portion of the 3.38 mafy to reduce or avoid an overrun incurred by PVID/YPRD. To account for the unused IID/CVWD entitlement that is made available to MWD, the IID/CVWD-provided depletion schedules were first capped at 3.38 maf. Any unused portion of the 3.38 maf - Capped Projected Use is assumed to equal the amount of water under IID/CVWD's entitlement that would be available to MWD to offset any uses by PVID/YPRD above 420 kaf. The amount available was then subtracted from the projected PVID/YPRD use to calculate MWD's obligation account. In years when MWD's obligation account exceeded 420 kaf, the overage was added to MWD's payback schedule. This schedule represents the assumed debt that is assumed for PVID/YPRD overages beyond the target 420 kafy.

Under the No Action modeled conditions, there may be future circumstances where IID/CVWD's annual depletions total less than 3.38 maf. Under such conditions, MWD would be able to use the unused remaining entitlement to avoid an overrun, or reduce its need for surplus Colorado River water.

OTHER MODELING AND DECREE ACCOUNTING CONSIDERATIONS

The following additional assumptions were used in the modeling of the operational scenarios being considered.

DECREE ACCOUNTING METHOD

A factor which may affect the ability for CAP and other low priority users to accurately utilize the amount of state apportionment remaining, is the methodology used in determining use. This analysis assumes current Decree Accounting which emphasizes measured diversions and measured return flow data, and estimates the unmeasured return flow values as a factor times the diversion. While there may be methods to make the current method of estimating use more accurate, the current method does provide immediate depletion information which results in a lag in Reclamation's recordation and accounting system. In order to improve the accuracy of the existing system, Reclamation is considering using an evapotranspiration method that would enable it to develop more accurate estimates that could be then used to forecast total end-of-year use. An evapotranspiration approach could include the use of multiple variables and thereby potentially yield more accurate estimates. However the timeliness of such an approach could be affected by the need to collect a large amount of data. At this time, the decision to pursue this type of approach has not been made, as such, this analysis does not evaluate the potential impacts to the current Decree Accounting or to the proposed inadvertent overruns and paybacks that could result from the use of a different methodology.

A comparison of consumptive use values produced by the current Decree Accounting methodology and a future methodology utilizing an evapotranspiration approach is available in the Reclamation report entitled, "Lower Colorado River Accounting System Demonstration of Technology Calendar Year 2000" available from Reclamation's Boulder Canyon Operations Office in Boulder City.

MODELING OVERRUN VS. MODELING OF TRANSFERS

Overruns can be a characteristic of unforcasted year-to-year changes in agricultural use. In the lower Colorado River corridor there is a significant relationship between lack of rainfall and agricultural demand in the Lower Colorado River corridor. This can be demonstrated by comparing the measured inflows minus measured outflows per acre of PVID to local rainfall. As PVID cannot predict next year's rainfall, there is reasonable certainty that the order developed in August of the previous year will not be the actual amount diverted. Similarly the other agricultural irrigation districts that depend upon the leftover amounts know that the amounts predicted to be available would likely not prove out. Thus, the potential for unexpected overruns is ever present yet cannot be accurately predicted.

Transfers, however, are not related to year-to-year variations in rainfall or to agricultural irrigation needs. Transfer water conserved from a quantified baseline, due to canal lining, conservation of tailwater, or system improvements, are reductions in use that would consistently reduce the consumptive use below what it would have been, regardless of the variability in year to year uses. Modeling of the effects due to the water transfers generally assumed baselines where IID was fully utilizing their entitlement. The water conservation and transfer programs modeled further considered the reductions in use from a quantified baseline. Therefore, a gradual reduction in use that is associated with the planned development and implementation of conservation programs was utilized in the modeling of the Implementation Agreement to evaluate river impacts associated with the water transfers.

Another assumption with respect to the overruns and water transfers is that the magnitude of inadvertent overruns would remain constant over the period of analysis. Although, the use of Colorado River water for agricultural irrigation use is expected to fluctuate above and below a declining average as the water conservation and transfer programs are implemented, the level of the modeled inadvertent overruns is assumed to remain unchanged. This assumption reflects the probability that the final IOP or the water transfer agreements will include provisions for an agency to retain or transfer the overrun right associated with the transferred water.

QUANTIFIED OR CAP SYSTEMS

Under the Quantification Agreement, IID and CVWD would be accepting a quantified entitlement "subject to the provisions of the IOP" policy, and MWD would be assuming responsibility for the uses of the first two priorities when they exceed 420 kaf, but would receive the benefits when uses are less than 420 kaf. This analysis assumes the QSA sets the upper limit rights for IID and CVWD. As an upper limit right, (and not a right to an average use), exceeding the right cannot be paid back by a simple under-use the following year. Some form of extraordinary conservation such as fallowing, or importing water from another source such as recovering stored groundwater would need to be implemented to "payback" the over-use.

VERIFICATION OF PAYBACK

This analysis assumes that the verification of extraordinary conservation prescribed in the draft IOP will include verification that the payback reduces the consumptive use from the Colorado River system. Extraordinary conservation, such as land fallowing, recovery of off-stream stored Colorado River water or importing water from another source, must reduce the use from what it could have been at the specific location, and the reduction in use or increase in supply can be verified. However, whether the extraordinary measure actually results in a reduced diversion or consumptive use from the Colorado River is dependent upon all the other uses within a district. Changes in cropping patterns, leaching, tailwater practices, weather conditions, recharge operations, reductions in other importations, as well as changes in district system operations, and on-farm conservation practices may consume the "saved or recovered water". This analysis assumes that; 1) the consumptive use from the river will be the final measure of payback, 2) that in a payback year a district must do extraordinary conservation, and 3) that the measured depletion must show a reduction in river consumptive use equal to or greater than their base entitlement minus the payback amount. In a payback year, an entity in a payback cycle has an "entitlement target." The entitlement target is assumed to consist of:

[Base Entitlement] +/- [Conservation Transfers] – [Extraordinary Conservation]

Note: The conservation transfers is added for entities receiving water and subtracted for entities transferring water.

When intent to payback has been confirmed through verification of extraordinary conservation measures, Reclamation will not undertake a strict enforcement process. Rather, Reclamation will compare the final diversion records to the entitlement target. More detail is provided in the section entitled "IOP Features Considered," bullets g thru j.

FORGIVENESS VS. NO FORGIVENESS

Two of the top priorities established for the operation of Hoover Dam and Lake Mead are flood control and the maximization of water supplies. Today, developments along the river have restricted the flood plain downstream of Hoover Dam such that releases greater than 45,000 cfs can cause extensive property damage to homes and property located within the flood plain. In the past, flood control releases on the Colorado River have typically occurred in clusters. An example of this is the flood control releases that occurred in 1998, 1999, and 2000. This series of flood release events showed that once the Colorado River system storage fills, it does not require a very high runoff the following year to cause the system to spill again.

Insisting on payback following a flood control event would increase the likelihood of a flood control spill and would also increase the risk of flood damaging flows. Further, the spilling of water diminishes the water supply that can be made available for consumptive use by Colorado River water users. As such, Reclamation believes that overrun accounts balances should be forgiven upon a flood release or space building release. Reclamation further believes that the principal of "forgiveness" is consistent with the previously stated priorities in the operation of Hoover Dam and Lake Mead.

The opportunities for flood control forgiveness are not expected to occur all that frequently. Again, the only instances where forgiveness would occur is in the event of a flood control release or space building release. Probability studies conducted by Reclamation indicate that, in the future, the Colorado River

system may be operated under flood control conditions about 20 percent of the time. Given this level of probability and the fact that the flood release events occur in clusters, the actual probability of forgiveness is uncertain but believed to be very low. Further, preliminary modeling of the "No Forgiveness" alternative showed that paybacks after a flood control event would not significantly impact long-term reservoir storage or the magnitude of excess flows to Mexico. This is because most of the payback required after a flood event would most likely be released as surplus water in the years that follow, rather than staying in the reservoir and augmenting a later flood flow. Because this preliminary modeling showed that the "No Forgiveness" alternative varied so little from the "Forgiveness" alternative, it was determined that additional detailed modeling of the "No Forgiveness" alternative was not needed.

MODELING RESULTS

GENERAL MODELING RESULTS AND ANALYSES

To evaluate the potential impacts that the proposed implementation of the IOP could have on river flows, storage, and excess flows to Mexico, the following additional assumptions were made:

- The payback period was held constant for each model run. Three different payback periods were considered (3-year, 1-year and 0-year). Some model runs assumed that the Lower Basin was in a 3-year payback condition all the time (Lake Mead always stayed above elevation 1125 feet). Although this represents an unrealistic condition, it facilitated and simplified the analysis. The model was also run with the assumption that the Lower Basin was always in 1-year payback conditions (Lake Mead always stayed below elevation 1125 feet).
- The sum of the mean and the sum of the maximum observed IID/CVWD and PVID/YPRD overrun amounts were used as the basis for evaluating the most likely and maximum possible increase in river flows for the reach of the Colorado River located between Parker Dam and Imperial Dam, respectively.
- The mean and maximum observed IID/CVWD payback amounts were used as the basis for evaluating the most likely and maximum possible reduction in river flows for the reach of the Colorado River located between Parker Dam and Imperial Dam, respectively.
- The sum of the mean and the sum of the maximum observed IID/CVWD and PVID/YPRD overrun amounts were used as the basis for evaluating the most likely and the maximum possible increase in river flows for the reach of the Colorado River located between Hoover Dam and Parker Dam, respectively.
- The sum of the mean and sum of the maximum observed IID/CVWD and MWD (as incurred by PVID/YPRD) payback amounts were used as the basis for evaluating the most likely and the maximum possible reduction in river flows for the reach of the Colorado River located between Hoover Dam and Parker Dam, respectively.
- The sum of the mean and the sum of the maximum observed IID/CVWD and PVID/YPRD overrun account balances were used as the basis for evaluating the most likely and the maximum possible effect on storage and excess flows to Mexico, respectively.

A summary of the values used in each respective analysis, the respective modeled conditions and the source of the data is presented in Table 3.

Table 3
Summary of Data Used in the Analysis

Analysis Application	Modeled Value (kaf)	Value Source Reference	Modeled Conditions
Effect on River Flows - Between Hoover Dam and Parker Dam			
Maximum Overrun	313	Column 7, Table A-9	IID/CVWD + MWD - 10% Overrun with 1-Year Payback
Average Overrun	90	Column 7, Table A-9	IID/CVWD + MWD - 10% Overrun with 1-Year Payback
Maximum Payback	206	Column 7, Table A-9	IID/CVWD + MWD - 10% Overrun with 1-Year Payback
Average Payback	72	Column 7, Table A-9	IID/CVWD + MWD - 10% Overrun with 1-Year Payback
Effect on River Flows - Between Parker Dam and Imperial Dam			
Maximum Overrun	313	Column 7, Table A-9	IID/CVWD + MWD - 10% Overrun with 1-Year Payback
Average Overrun	90	Column 7, Table A-9	IID/CVWD + MWD - 10% Overrun with 1-Year Payback
Maximum Payback	176	Coumn 8, Table A-6	IID/CVWD - 10% Overrun with 1-Year Payback
Average Payback	63	Coumn 8, Table A-6	IID/CVWD - 10% Overrun with 1-Year Payback
Effect on Storage			
Maximum Overrun Account Balance	331	Column 7, Table A-11	IID/CVWD + MWD - 10% Overrun with 3-Year Payback
Average Overrun Account Balance	66	Column 7, Table A-11	IID/CVWD + MWD - 10% Overrun with 3-Year Payback
Effect on Excess Flows to Mexico			
Maximum Overrun Account Balance	331	Column 7, Table A-11	IID/CVWD + MWD - 10% Overrun with 3-Year Payback
Average Overrun Account Balance	66	Column 7, Table A-11	IID/CVWD + MWD - 10% Overrun with 3-Year Payback

EVALUATION OF POTENTIAL RIVER FLOW IMPACTS

A modeling assumption made with respect to IOP effects on river flows is that the proposed Quantification Settlement Agreement and IOP will not affect future Colorado River water deliveries to PVID and YPRD. PVID's and YPRD's Priority 1 and 2 water rights are preserved. This means that these two agencies are not directly subject to the entitlement quantification requirements under the QSA and to the payback requirements of the IOP. However, it should be noted that delivery of Colorado River water to these agencies will affect the remaining water supplies that are available to the other California Colorado River water users. As such, the delivery of Colorado River water to PVID and YPRD may have an indirect effect on river flows.

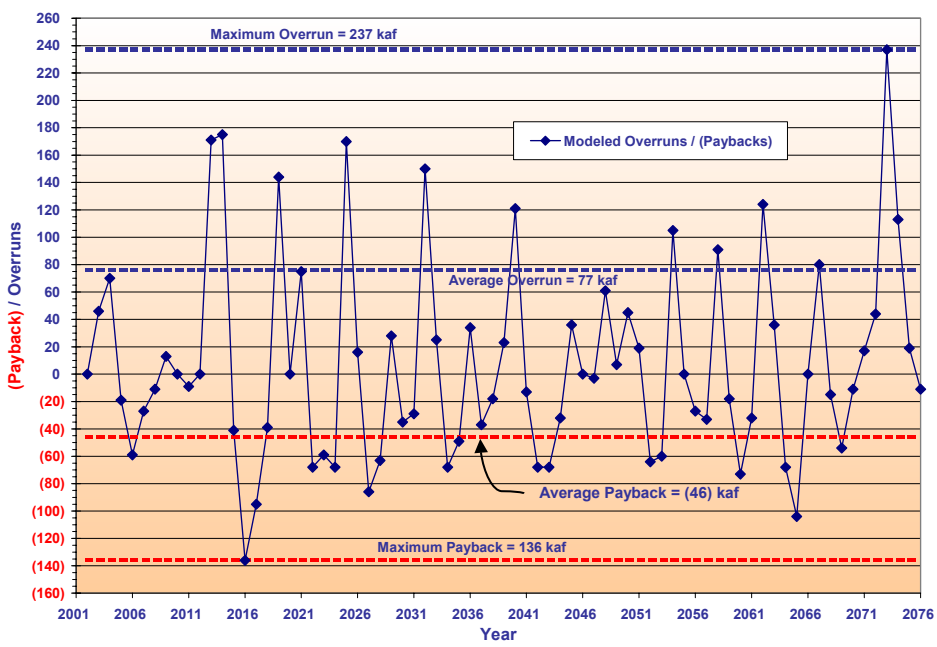
As noted above, under existing contracts, water deliveries to PVID/YPRD directly affect the amount of water that is available for use by IID/CVWD. Additionally, the total amount of water that is used by PVID, YPRD, IID and CVWD directly affects the amount of water that is available for use by MWD. The amount of water delivered to each of these agencies also has a direct effect on the water available in the Colorado River as does the amount of water delivered to the other basin states and to Mexico. As the delivery of water to each agency increases or decreases, so does the flow in the reach of the river that serves the respective agency(s). The exception to this is the overruns and payback requirements that are incurred by PVID/YPRD. Any amount of water that is used by PVID/YPRD over 420 kafy is treated as an incurred overrun that MWD is obligated to payback. When MWD is required to pay back a

PVID/YPRD incurred overrun, only that part of the river that is located between Hoover Dam and Parker Dam is affected. However, a PVID/YPRD incurred overrun is considered to affect both reaches of the river, Parker Dam to Imperial Dam and Hoover Dam to Parker Dam. A description of the hydrological effects observed in each of the two above noted river reaches follows:

River Flow Between Hoover Dam And Parker Dam

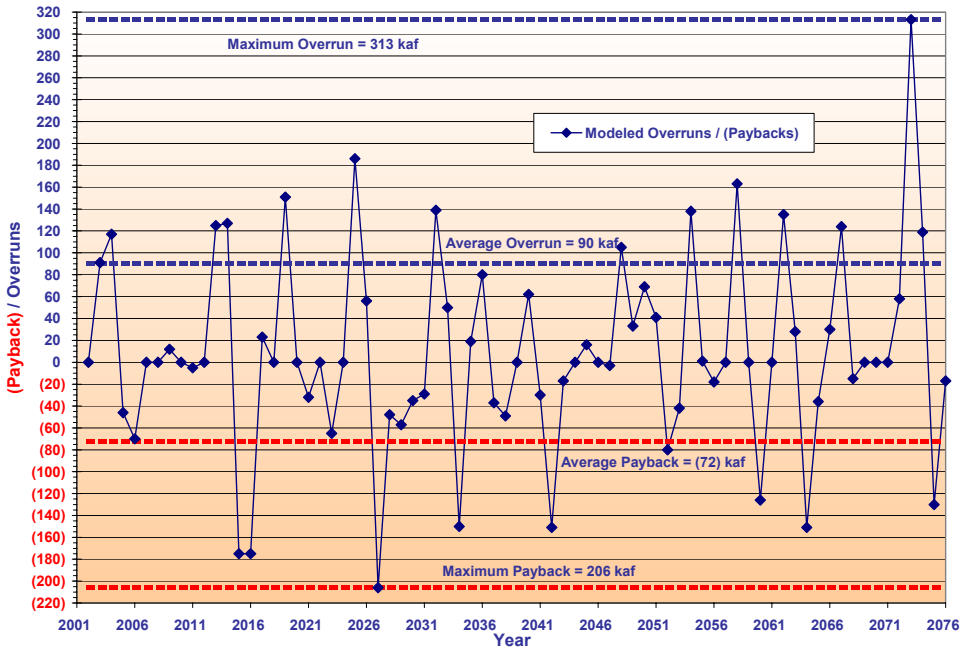
Figures 5 and 6 present the modeling results for the 3-year and 1-year overrun and payback conditions and their effect on the river reach between Hoover Dam and Parker Dam. The data used to produce these figures was generated using the numeric model (simulation accounting) and can be found in Table A-9 in Appendix A. The two modeled conditions show the modeled overruns and paybacks values relating to MWD (for overruns incurred by PVID/YPRD) and IID/CVWD. That is - the payback amounts for these modeled conditions consist of the sum of the paybacks required by MWD (for overruns incurred by PVID/YPRD) and IID/CVWD. The overrun amounts consist of the sum of the overrun incurred by MWD (for overruns incurred by PVID/YPRD) and IID/CVWD. Both conditions assume that the maximum allowed overrun is equal to 10 percent of the Colorado River water entitlement of each respective agency. In the case of MWD, the payback requirements reflect the amount of water that PVID/YPRD used beyond 420 kafy. The detailed Tables that present the accounting results for the various modeled conditions are presented in Appendix B. Additional modeled conditions that considered a lower maximum allowed overrun amount (5 percent) are also included in Appendix B. However, only the condition that considers a maximum allowed overrun equal to 10 percent of entitlement is shown here since these conditions reflect the worst-case scenario.

Figure 5
MWD + IID/CVWD Modeled Overruns and Paybacks and
Resulting River Flow Effects Between Hoover Dam and Parker Dam
Based on 3-Year Payback Schedule w/ Maximum Overrun Equal to 10% of Entitlement



As shown in Figure 5, the average and maximum reduction in river flow resulting from the 3-year payback modeled scenario is 46 and 136 kafy, respectively. The average and maximum increase in river flow resulting from the PVID/YPRD and IID/CVWD incurred overruns under these conditions are 77 and 237 kafy, respectively. Figure 6 shows that the average and maximum reduction in river flow resulting from the 1-year payback modeled conditions is 72 and 206 kafy, respectively. The average and maximum increase in river flow resulting from the PVID/YPRD and IID/CVWD incurred overruns under these conditions are 90 and 313 kafy, respectively.

Figure 6
MWD + IID/CVWD Modeled Overruns and Paybacks and
Resulting River Flow Effects Between Hoover Dam and Parker Dam
Based on 1-Year Payback Schedule w/ Maximum Overrun Equal to 10% of Entitlement



River Flow Between Parker Dam and Imperial Dam

Figures 7 and 8 present the modeling results for the 3-year and 1-year payback conditions and their effect on the river reach between Parker Dam and Imperial Dam. The data used to produce these figures was also generated using the numeric model (simulation accounting). The results of this simulation can be found in Table A-6 in Appendix A. Figures 7 and 8 show only the payback requirement relating to IID/CVWD. The overruns and their effect on this reach of the river are assumed to be equal to those presented above for the portion of the river between Hoover Dam and Parker Dam and were therefore not shown in these figures. The payback amounts for these modeled conditions consist of the paybacks required by IID/CVWD only since the obligation for payback of the PVID/YPRD is assumed by MWD. Paybacks made by MWD for PVID/YPRD incurred overruns affect only that reach of the river between Hoover Dam and Parker Dam. The effect of an MWD payback is a reduction in flow equal to the amount of payback.

The modeled conditions described herein assume that the maximum allowed overrun is equal to 10 percent of the Colorado River water entitlement of each respective agency. The detailed Tables that present the accounting results for these modeled conditions are presented in Appendix B. Additional modeled conditions that considered a lower maximum allowed overrun amount (5 percent) are also included in Appendix B. However, only the condition that considers a maximum allowed overrun equal to 10 percent of entitlement is shown here since these conditions reflect the worst-case scenario.

As shown in Figure 7, the average and maximum reduction in river flow resulting from the 3-year payback modeled conditions is 47 and 136 kafy, respectively. Figure 8 shows that the average and maximum reduction in river flow resulting from the 1-year payback modeled conditions is 63 and 176 kafy, respectively. Again, the overrun results and their resulting potential increase in river flows for this portion of the river are assumed to be similar to those previously described for the portion of the river extending from Hoover Dam to Parker Dam.

Figure 7
IID/CVWD Modeled Paybacks and
Resulting River Flow Effects Between Parker Dam and Imperial Dam
Based on 3-Year Payback Schedule w/ Maximum Overrun Equal to 10% of Entitlement

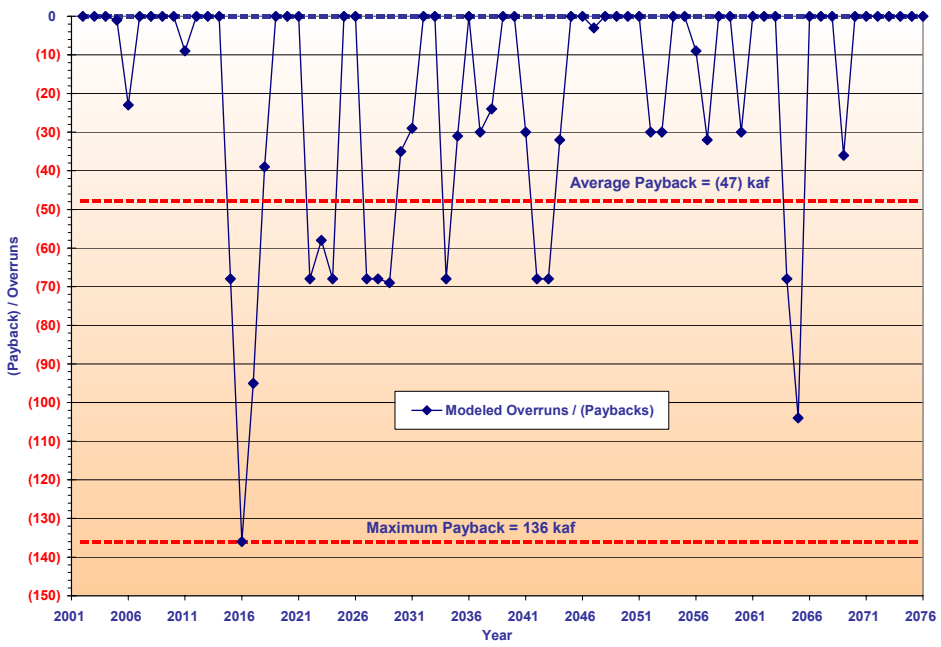
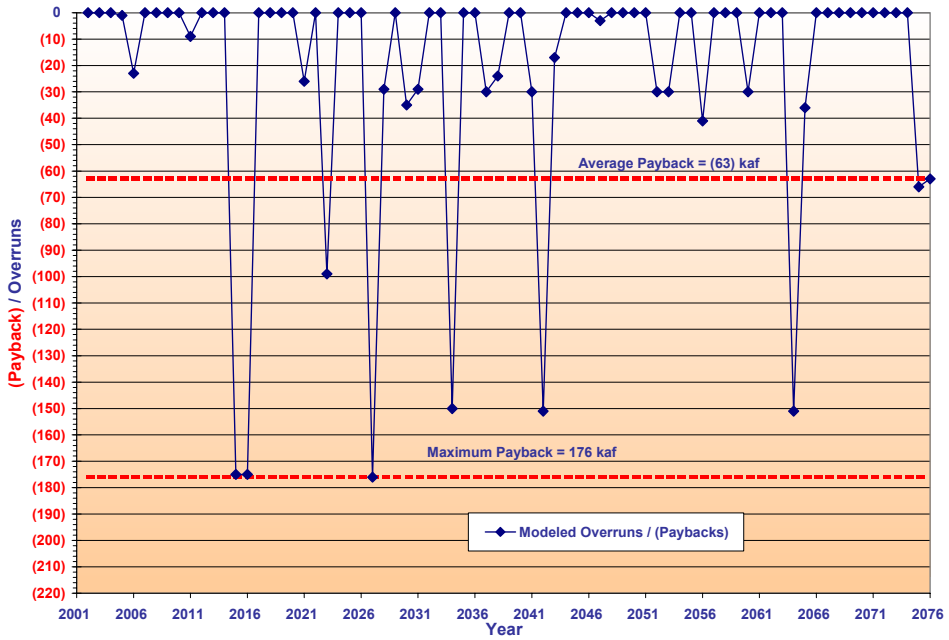


Figure 8
IID/CVWD Modeled Paybacks and
Resulting River Flow Effects Between Parker Dam and Imperial Dam
Based on 1-Year Payback Schedule w/ Maximum Overrun Equal to 10% of Entitlement



EVALUATION OF POTENTIAL STORAGE IMPACTS

Implementation of the IOP could affect Colorado River mainstream reservoirs by reducing the amount of water in storage. Every time that an overrun occurs, the amount of water in storage is reduced. The facilities that could be directly impacted include lakes Mead, Mohave and Havasu. Lake Powell could also be impacted, although indirectly. The indirect effect could be due to the equalization requirements between lakes Powell and Mead. Lakes Mohave and Havasu are regulating reservoirs and are operated under rule curves. Therefore, there would be no affect on the water levels and water in storage.

The facility that could potentially be impacted the most is Lake Mead. A reduction in the amount of water in storage and water levels in this reservoir could potentially occur when an inadvertent overrun is incurred. The amount of reduction would be equivalent to the amount of inadvertent overrun incurred in that specific year. However, this is believed to be a temporary condition since the depletion resulting from the inadvertent overrun would be restored through the payback system, flood waters or a combination of both. At the end of the payback period, the depletion resulting from the inadvertent overrun is assumed to be offset and therefore, the long-term effect is considered to be negligible.

For analysis purposes, the average value of the range of estimated future overrun account balances under each modeled IOP scenario was assumed to represent the most likely scenario and representative of the most likely impacts that could be anticipated. Similarly, the maximum value of the range of estimated future overrun account balances under each modeled IOP scenario was assumed to represent the potential

maximum effect on reservoir storage content. However, this is considered to be a condition that has an extremely low probability of occurrence. The likelihood that all agencies would incur an overrun equivalent to the maximum analyzed overrun amount at the same time is an unlikely scenario. Because of the accounting and overrun restrictions, it is most likely that the agencies that will participate in the program will be in different stages of the overrun/payback cycle in any given year. This means that in any given year, some agencies will be incurring an overrun, others will be paying back the overrun they incurred in a previous year, and still others will have a zero balance on their overrun account. The net effect of this is a balancing or stabilization of the overruns and paybacks and their effect on water in storage and lake levels.

To evaluate the potential impacts that the proposed implementation of the IOP could have on storage and lake levels, the following additional assumptions were made:

- Storage impacts were evaluated under IOP conditions that allow a maximum overrun equal to 10 percent of entitlement and 5 percent of entitlement. Each of these conditions was also evaluated under two different payback schedules, 3-year and 1-year payback. The average overrun balance account under each of these modeled conditions was used to evaluate the resulting reduction in storage.
- The payback period was held constant for each model run. Two different payback periods were considered (3-year and 1-year). This means that some model runs assumed that the Lower Basin was in a 3-year payback condition all the time (Lake Mead always stayed above elevation 1125 feet). Although this represents an unrealistic condition, it facilitated and simplified the analysis. The model was also run with the assumption that the Lower Basin was always in 1-year payback conditions (Lake Mead always stayed below elevation 1125 feet).
- The sum of the maximum observed IID/CVWD and PVID/YPRD end-of-year overrun account balances were used as the basis for evaluating the maximum possible reductions in Lake Mead water surface levels, albeit a temporary and highly infrequent condition.
- The sum of the average of the IID/CVWD and PVID/YPRD end-of-year overrun account balances were used as the basis for evaluating the most likely scenario with respect to possible reductions in Lake Mead water surface levels.

Figures 9 and 10 present the modeling results for the 3-year payback modeled scenario and assuming that the maximum allowed overrun is equal to 10 percent of the Colorado River water entitlement of each agency. Both conditions reflect the end-of-year overrun account balances and the potential volume of reduced Lake Mead storage under the respective modeled conditions. The end-of-year overrun account balances for these modeled conditions consist of the sum of the end-of-year overrun account balances for PVID/YPRD and IID/CVWD. However, as noted before, PVID/YPRD modeled overruns are treated differently than those incurred by IID/CVWD and MWD is responsible for the payback of PVID/YPRD overruns. The detailed Tables that present the accounting results for these modeled conditions are presented in Appendix B. Additional modeled conditions that considered a lower maximum allowed overrun amount (5 percent) are also included in Appendix B.

As shown in Figure 9, the average and maximum reduction in Lake Mead storage resulting from the 3-year payback modeled conditions is 66 and 331 kafy, respectively. Figure 10 shows that the average and maximum reduction in Lake Mead storage resulting from the 1-year payback modeled conditions is 42

and 254 kafy, respectively.

Figure 9
End-of-Year Overrun Account Balances and Resulting Reductions in Lake Mead Storage
(PVID/YPRD/IID/CVWD End-of-Year Overrun Account Balances – Based on 10% O.R. & 3-Year Payback Schedule)

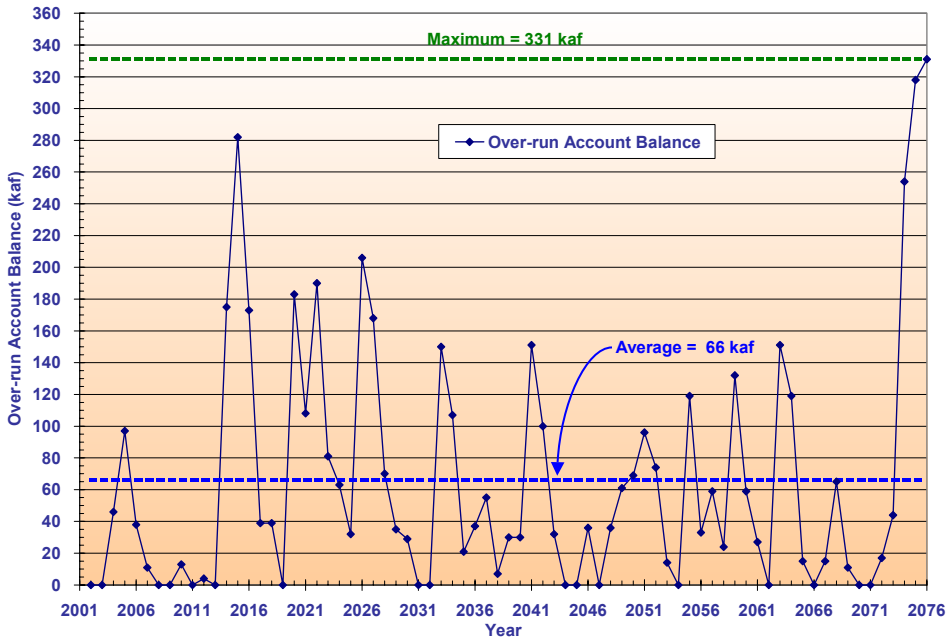
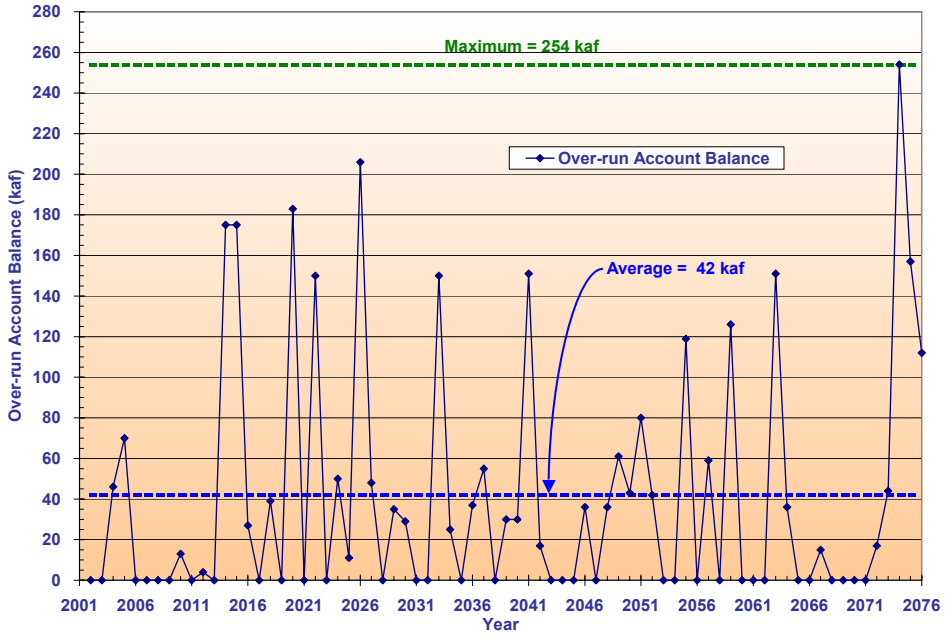


Figure 10
End-of-Year Overrun Account Balances and Resulting Reductions in Lake Mead Storage
(PVID/YPRD/IID/CVWD End-of-Year Overrun Account Balances – Based on 10% O.R. & 1-Year Payback Schedule



EVALUATION OF POTENTIAL IMPACTS TO FLOOD RELEASES AND EXCESS FLOWS TO MEXICO

The proposed implementation of the IOP could impact Lake Mead flood control releases and excess flows by reducing the amount of water in storage at Lake Mead. For the purposes of this analysis, excess flows consist of any water in excess of 1.7 maf that is delivered to Mexico at the Northerly International Boundary (NIB) located upstream of Morelos Dam. These excess flows are assumed to occur entirely due to flood control releases originating at Hoover Dam. A reduction in the amount of water in storage would effectively increase the ability of Lake Mead to capture more water and thereby reduce the frequency of flood releases. The annual reduction in the amount of water in storage would be equivalent to the amount of inadvertent overrun incurred in that specific year. Again, this is believed to be a temporary condition since any depletion resulting from the inadvertent overrun would be restored through the payback system. For analysis purposes, the mean and maximum values of the range of estimated future overrun account balances under each modeled IOP scenario were used to evaluate the potential effect on Lake Mead flood control releases and excess flows to Mexico.

Analysis of Water Transfers and IOP

This section compares the results of the evaluation of the effect of the IOP on the frequency of flood control releases from Hoover Dam and impacts to the delivery of excess flows to Mexico under the Implementation Agreement modeled conditions to the No Action modeled conditions. More properly, this analysis evaluates the effect of the combined water transfers and IOP. The results of a separate analysis

that compares the observed flood control frequencies and impacts to the delivery of excess flows to Mexico under the Cumulative Analysis modeled conditions to the Baseline for Cumulative Analysis modeled conditions is provided in the subsequent section.

Figures 11 and 12 show the effect of the IOP on the frequency of flood control releases from Hoover Dam. Both of the figures compare the observed flood control frequencies under the No Action modeled conditions to the modeled Implementation Agreement modeled conditions that included the IOP criteria. For this analysis, the IOP criteria was added to the RiverWare model run that was used to model the Implementation Agreement conditions and only considered the overrun account balances that were calculated using the maximum allowed 10 percent overrun criteria with a 3-year payback schedule. The flood flow frequency for each year was calculated by counting the number of traces that showed flood flows and dividing that number by 85, the number of total traces simulated in the model (RiverWare).

Figure 11 compares the differences in flood release frequencies when the average observed overrun account balance of 66 kaf was used to model the depleted storage on Lake Mead. As shown in this figure, the frequency differed in only 15 of the 75 years modeled. In approximately one-third of these years the modeled IOP criteria actually yielded a slightly higher frequency of flood release than those observed under the No Action conditions, albeit a maximum of 1.2 percent better. In 10 of the 75 years modeled, the modeled IOP criteria resulted in a reduced frequency of flood releases. The maximum observed reduction in flood control frequency was 1.2 percent.

Figure 12 compares the differences in flood release frequencies when the maximum overrun account balance of 331 kaf was used to model the depleted storage in Lake Mead. The frequency differed with the modeled IOP criteria yielding a generally slightly lower frequency of flood release than those observed under the No Action conditions. A decrease in frequency occurred in approximately 40 of the 75 years modeled and the decreases generally ranged between 1 percent to a maximum of 3.5 percent. The average decrease in frequency was approximately 1.8 percent. However, an increase in frequency did occur in five of the 75 years modeled. The average frequency increase in these years was approximately 1.18 percent.

Figure 11
Comparison of Lake Mead Flood Release Frequency
No Action to IA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

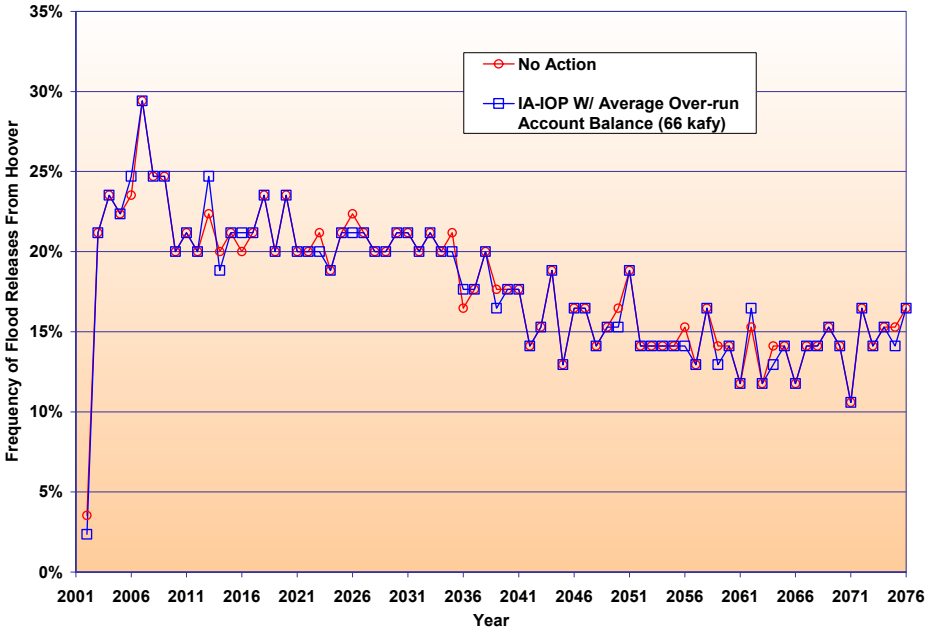
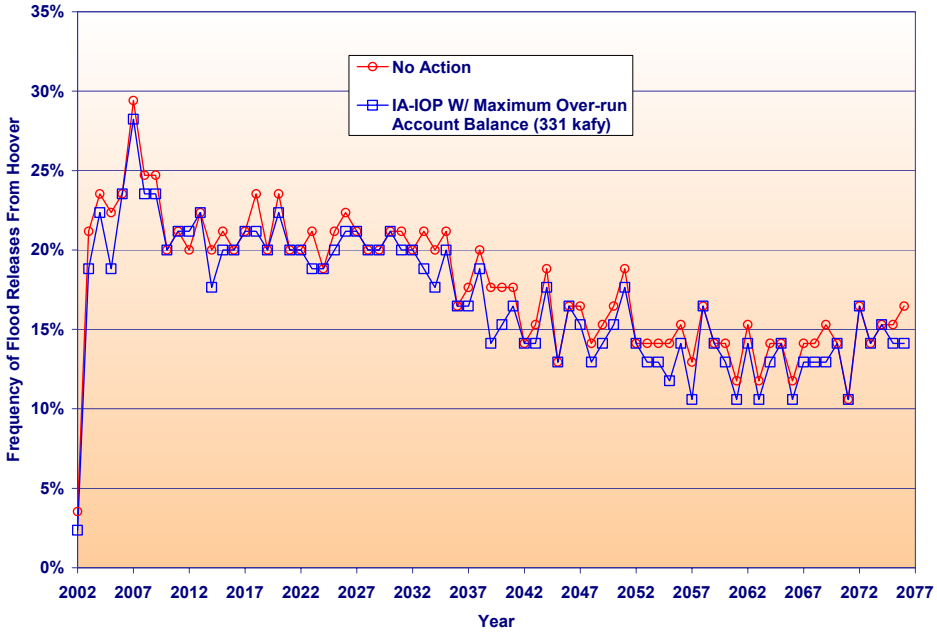


Figure 12
Comparison of Lake Mead Flood Release Frequency
No Action to IA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule



dditional analyses were performed to evaluate the potential impacts that the IOP combined with the Implementation Agreement modeled conditions would have on excess flows that occur below the Mexico diversion at Morelos Dam. Specifically, these additional analyses compared the probability of occurrence of excess flows greater than 250 kaf and 1.0 maf below the Mexico diversion at Morelos Dam between the different modeled conditions. The results of these analyses are provided in Attachment C to this technical memorandum. A summary of the results is presented in Table 4.

Table 4
Probability Of Occurrence Of Excess Flows Greater Than 250 Kaf And 1.0 Maf Below The Mexico Diversion At Morelos Dam
Comparison Between No Action and Combined Implementation Agreement and IOP Modeled Conditions

Differences in Probability	Differences in Probability of Excess Flows Greater than 250 kaf		Differences in Probability of Excess Flows Greater than 1.0 maf	
	NA to IA-IOP w/ Overrun Account Balance of 66 kaf	NA to IA-IOP w/ Account Balance of 331 kaf	NA to IA-IOP w/ Overrun Account Balance of 66 kaf	NA to IA-IOP w/ Overrun Account Balance of 331 kaf
No. of Years w/ Observed Differences	10	45	22	33
No. of Years w/ Observed Increases	5	8	4	4
No. of Years w/ Observed Decreases	5	37	18	29
Average Difference	0.0%	-0.7%	-0.2%	-0.5%
Maximum Increase	1.2%	2.4%	1.2%	1.2%
Maximum Decrease	-1.2%	-3.5%	-2.4%	-3.5%

Figures 11 and 12 provided an assessment of the effect of the combined Implementation Agreement and IOP modeled criteria on the frequency of flood releases. The figures that follow (Figures 13 through 20) provide an assessment on the potential impact to the magnitude of excess flows below Morelos Dam. Again, these excess flows represent the volume over the 1.7 mafy entitlement that is delivered to Mexico under the Treaty.

Figures 13 through 16 compare the magnitude of excess flows under the No Action to the combined Implementation Agreement and IOP criteria. The IOP criteria used in these model runs considers the average Lower Division states' overrun account balance of 66 kafy, a 10 percent maximum allowed overrun and a 3-year payback schedule. Figure 13 shows the range of observed magnitudes of excess flows for year 2006, Figure 14 shows the range of observed magnitudes of excess flows for year 2016, Figure 15 shows the range of observed magnitudes of excess flows for year 2026, and Figure 16 shows the range of observed magnitudes of excess flows for year 2050. In all these years, the results of the analysis indicate that the magnitude of observed excess flows is essentially the same under the two model conditions.

Figure 13
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2006
No Action to IA-IOP w/ Average Lower Basin Over-run Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

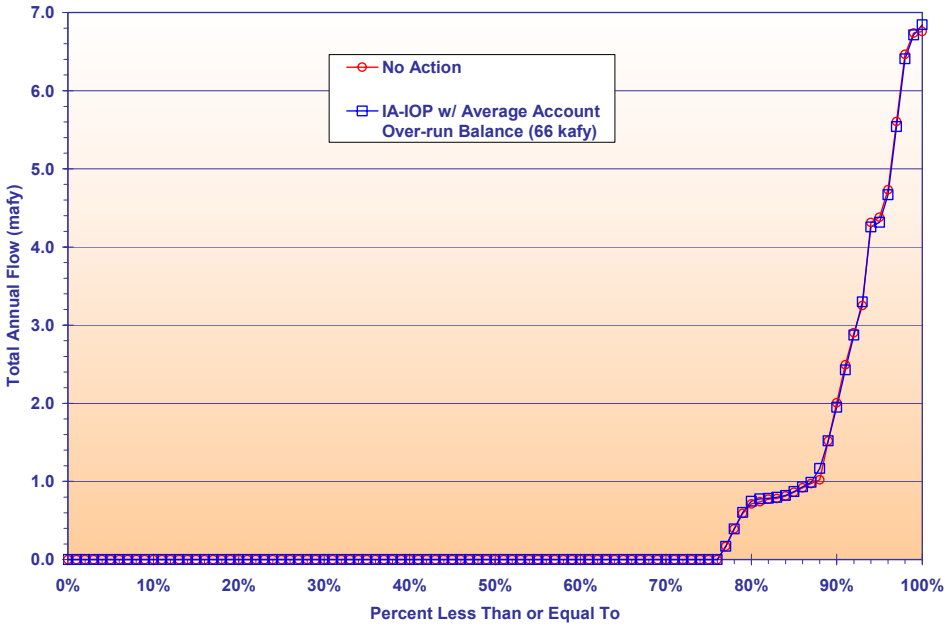


Figure 14
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2016
No Action to IA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

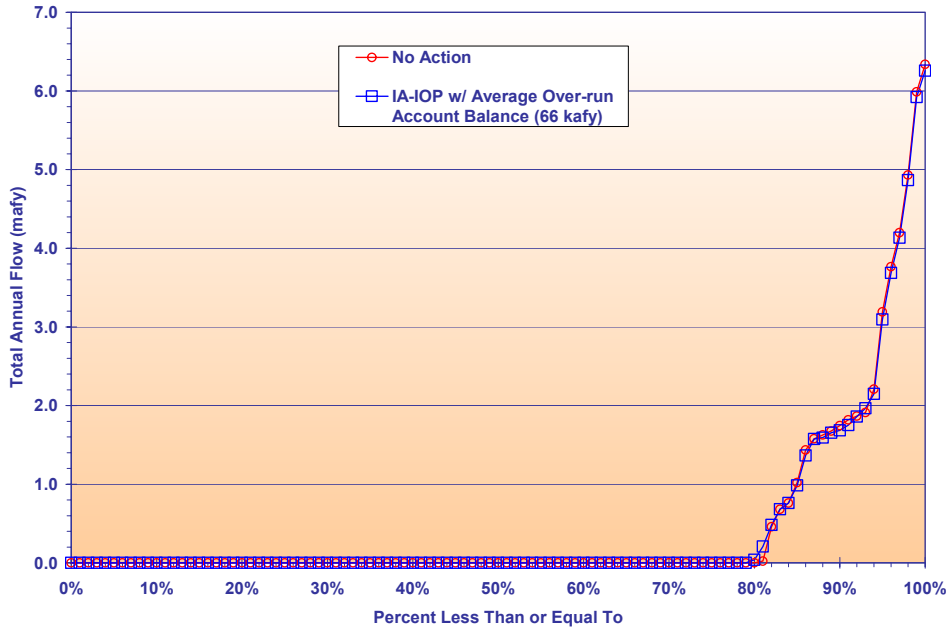


Figure 15
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2026
No Action to IA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

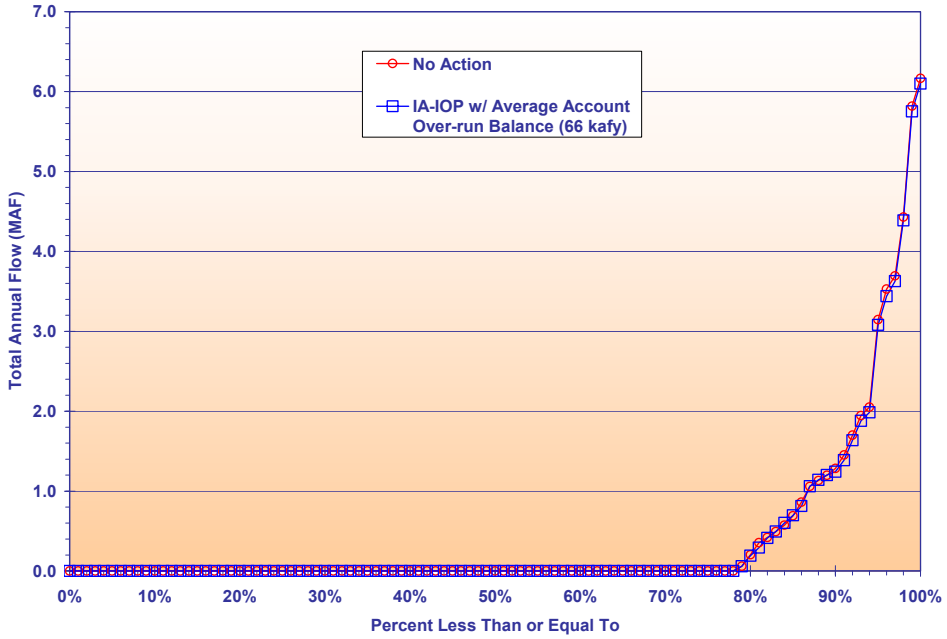
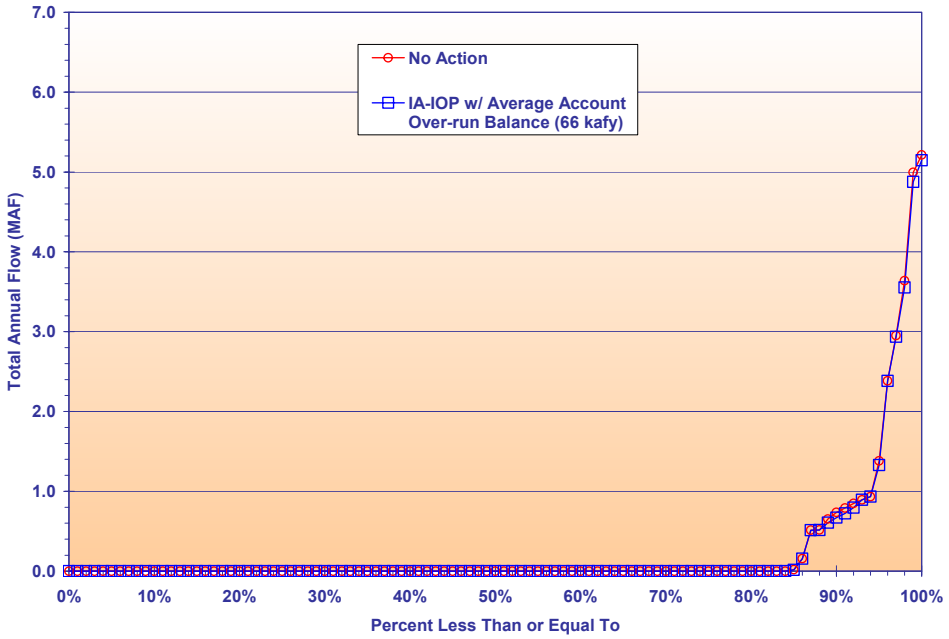


Figure 16
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2050
No Action to IA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule



Figures 17 through 20 present a similar comparison of the magnitude of excess flows under the No Action to the combined Implementation Agreement and IOP criteria. However, under these modeled conditions, the IOP criteria used in this model run considered the maximum observed Lower Basin overrun account balance of 331 kafy. The maximum allowed overrun and payback schedule remained the same (maximum 10 percent overrun allowed with 3-year payback).

Figure 17 shows the range of observed magnitudes of excess flows for year 2006, Figure 18 shows the range of observed magnitudes of excess flows for year 2016, Figure 19 shows the range of observed magnitudes of excess flows for year 2026, and Figure 20 shows the range of observed magnitudes of excess flows for year 2050. In year 2006, the magnitude of the observed excess flows are essentially the same, albeit with a slight change in the frequency. The positive effect seen in the lower excess flow range (excess flows less than 1.0 mafy) is perhaps more related to the effect of the water transfers modeled as part of the Implementation Agreement conditions. The negative effect seen on the higher range of the excess flows (excess flows greater than 1.0 mafy) can be mostly attributed to the IOP modeled criteria. The same generally applies to years 2016, 2026 and 2050. The observed increases in magnitude ranged from approximately 2,000 af to approximately 148,000 af with the average being around 88,000 af. The observed decreases in magnitude ranged from approximately 1,300 af to approximately 742,000 af with the average being around 230,000 af.

Figure 17
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2006
No Action to IA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

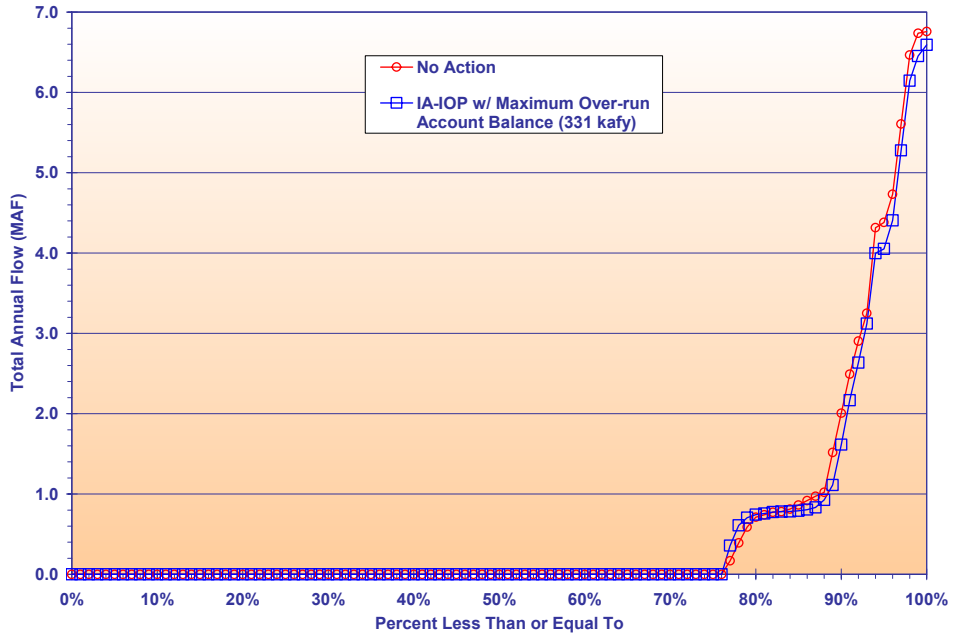


Figure 18
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2016
No Action to IA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

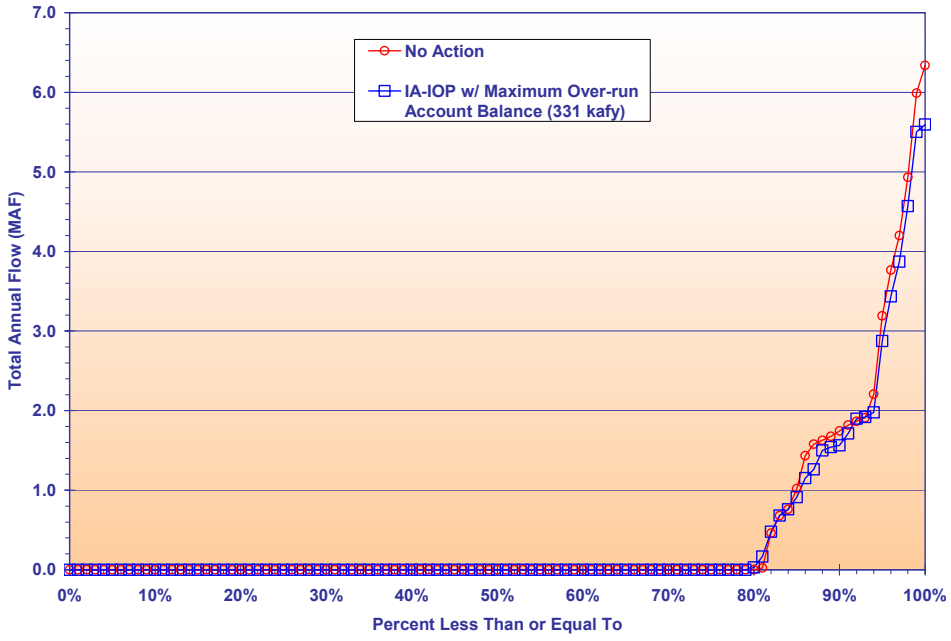


Figure 19
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2026
No Action to IA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

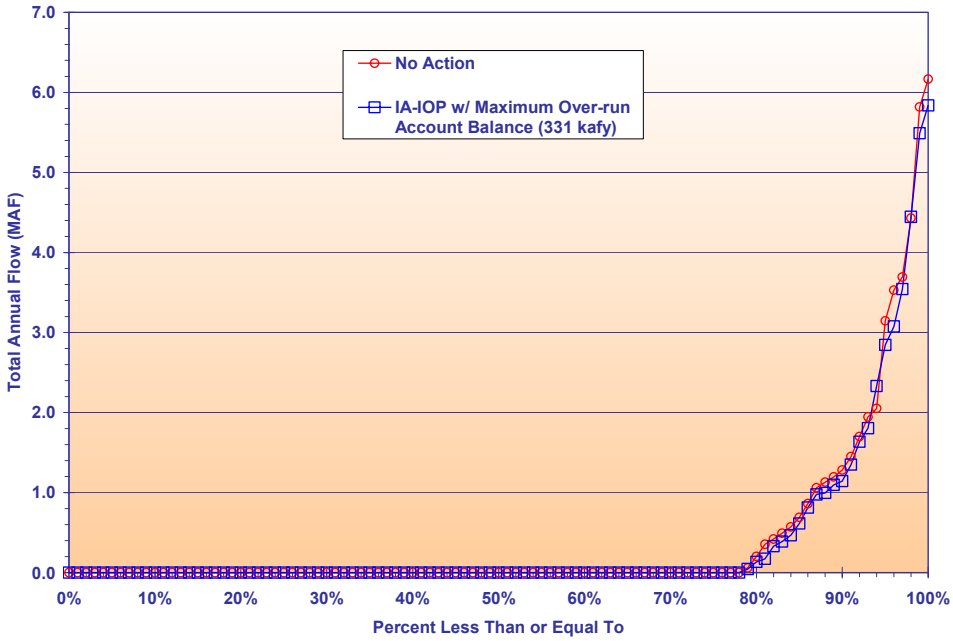
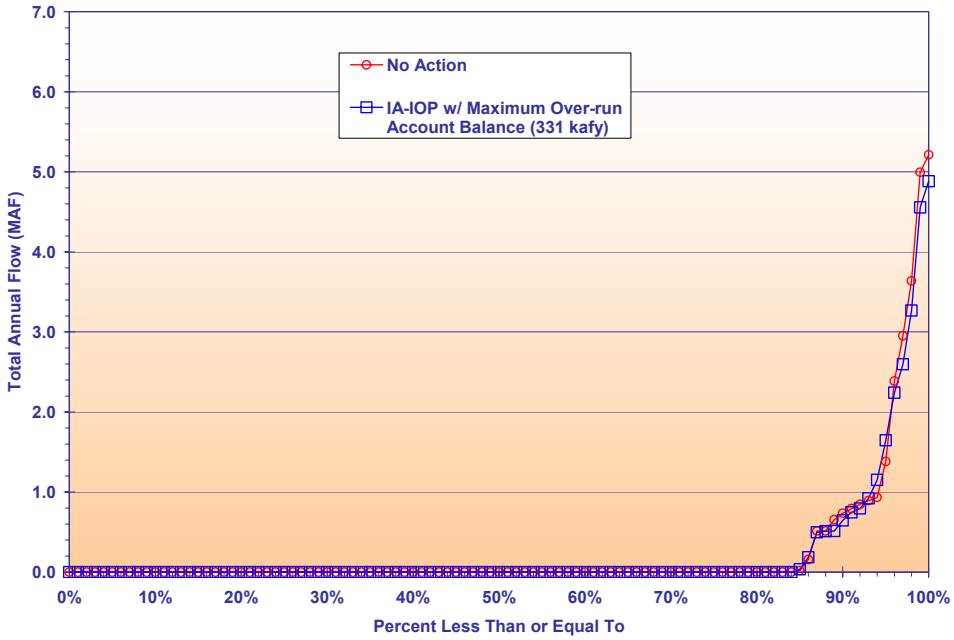


Figure 20
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2050
No Action to IA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule



Tables 5 through 8 present a tabular summary of the data depicted in Figures 13 through 20. These Tables compare and provide a summary of the differences between the No Action and the Implementation Agreement that considered an average Lower Basin Overrun Account Balance of 66 kafy and the differences between the No Action and the Implementation Agreement that considered a Lower Basin Overrun Account Balance of 331 kafy. Table 5 provides the comparison of the modeled results for year 2006, and Tables 6, 7 and 8 provide the comparisons of years 2016, 2026 and 2050, respectively. Again, all of these modeled conditions further considered a 10 Percent Maximum Allowed Overrun and a 3-Year Payback Schedule.

Table 5A
Comparison of Observed Excess Flows Below Morelos Dam for Year 2006
Under No Action, IA-IOP 66 kafy, and IA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	No Action	IA-IOP 66 kafy	IA-IOP 331 kafy
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	20	20	20
Range of Observed Excess Flows (afy)	247,434 to 6,757,064	247,434 to 6,843,182	525,724 to 6,590,573
Mean of Observed Excess Flows (afy)	2,542,361	2,539,481	2,395,568

Table 5B Differences in Observed Excess Flows Below Morelos Dam for Year 2006 Comparison of the No Action to IA-IOP 66 kafy and No Action to IA-IOP 331 kafy Modeled Conditions 10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule		
Comparison Factor	**Differences Between No Action and IA-IOP 66 kafy**	**Differences Between No Action to IA-IOP 331 kafy**
Number of Occurrences of No Difference in Excess Flows	5	4
Number of Occurrences of Observed Decreased Flows	10	15
Range of Differences in Decreased Flows (af)	35,841 to 67,267	17,429 to 505,924
Average of Differences in Decreased Flows (af)	60,783	231,370
Number of Occurrences of Observed Increased Flows	5	1
Range of Differences in Increased Flows (af)	4,357 to 214,934	534,704 to 534,704
Average of Differences in Increased Flows (af)	110,049	534,704
Average Difference of Observed Excess Flows (af)	-2,879	-146,792

As noted in Table 5, for year 2006, the average of the differences in observed excess flows below Morelos Dam between the No Action and the Implementation Agreement that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, is a decrease of 2,879 af. This volume represents an approximately 0.11 percent reduction from the average excess flow (2,542,361 af) observed under the No Action modeled conditions. The average of the differences in observed excess flows between the No Action and the Implementation Agreement that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 146,792 af, which represents an approximately 5.8 percent reduction from the average excess flow (2,542,361 af) observed under the No Action modeled conditions, for year 2006.

Table 6A Comparison of Observed Excess Flows Below Morelos Dam for Year 2016 Under No Action, IA-IOP 66 kafy, and IA-IOP 331 kafy Modeled Conditions 10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule			
Comparison Factor	**No Action**	**IA-IOP 66 kafy**	**IA-IOP 331 kafy**
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	16	17	17
Range of Observed Excess Flows (afy)	522,340 to 6,337,995	194,557 to 6,259,313	150,599 to 5,595,282
Mean of Observed Excess Flows (afy)	2,510,881	2,336,563	2,172,049

Table 6B Differences in Observed Excess Flows Below Morelos Dam for Year 2016 Comparison of the No Action to IA-IOP 66 kafy and No Action to IA-IOP 331 kafy Modeled Conditions 10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule		
Comparison Factor	**Differences Between No Action and IA-IOP 66 kafy**	**Differences Between No Action to IA-IOP 331 kafy**
Number of Occurrences of No Difference in Excess Flows	5	4
Number of Occurrences of Observed Decreased Flows	10	10
Range of Differences in Decreased Flows (af)	35,728 to 194,398	142,270 to 852,726
Average of Differences in Decreased Flows (af)	80,399	387,853
Number of Occurrences of Observed Increased Flows	2	3
Range of Differences in Increased Flows (af)	156,919 to 194,437	150,479 to 280,119
Average of Differences in Increased Flows (af)	175,678	209,714
Average Difference of Observed Excess Flows (af)	-26,626	-191,140

Table 6 presented a summary and compared the observed excess flows for the modeled year 2016. For this modeled year, the average of the differences in observed excess flows below Morelos Dam between the No Action and the Implementation Agreement that considered an average Lower Basin Overrun

Account Balance of 66 kafy modeled conditions, is a decrease of 26,626 af, which represents an approximately 1.1 percent reduction from the average observed excess flow (2,510,881 af) observed under the No Action modeled conditions. The average of the differences in observed excess flows below Morelos Dan between the No Action and the Implementation Agreement that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 191,140 af, which represents an approximately 7.6 percent reduction from the average excess flow (2,510,881 af) observed under the No Action modeled conditions, for year 2016.

Table 7A
Comparison of Observed Excess Flows Below Morelos Dam for Year 2026
Under No Action, IA-IOP 66 kafy, and IA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	No Action	IA-IOP 66 kafy	IA-IOP 331 kafy
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	18	18	18
Range of Observed Excess Flows (afy)	166,276 to 6,166,892	166,275 to 6,101,057	125,648 to 5,836,797
Mean of Observed Excess Flows (afy)	1,997,028	1,960,524	1,867,481

Table 7B
Differences in Observed Excess Flows Below Morelos Dam for Year 2026
Comparison of the No Action to IA-IOP 66 kafy and No Action to IA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	Differences Between No Action and IA-IOP 66 kafy	Differences Between No Action to IA-IOP 331 kafy
Number of Occurrences of No Difference in Excess Flows	4	1
Number of Occurrences of Observed Decreased Flows	12	14
Range of Differences in Decreased Flows (af)	1 to 102,811	1 to 455,996
Average of Differences in Decreased Flows (af)	60,048	271,088
Number of Occurrences of Observed Increased Flows	2	3
Range of Differences in Increased Flows (af)	10,924 to 52,575	178,103 to 747,608
Average of Differences in Increased Flows (af)	31,750	487,793
Average Difference of Observed Excess Flows (af)	-36,504	-129,547

Table 7 presented a summary and compared the observed excess flows for the modeled year 2026. For this modeled year, the average of the differences in observed excess flows below Morelos Dam between the No Action and the Implementation Agreement that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, is a decrease of 36,504 af, which represents an approximately 1.8 percent reduction from the average observed excess flow (1,997,028 af) observed under the No Action modeled conditions. The average of the differences in observed excess flows below Morelos Dan between the No Action and the Implementation Agreement that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 129,547 af, which represents an approximately 6.5 percent reduction from the average excess flow (1,997,028 af) observed under the No Action modeled conditions, for year 2026.

Table 8A
Comparison of Observed Excess Flows Below Morelos Dam for Year 2050
Under No Action, IA-IOP 66 kafy, and IA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	No Action	IA-IOP 66 kafy	IA-IOP 331 kafy
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	13	13	13
Range of Observed Excess Flows (afy)	45,156 to 5,212,767	44,859 to 5,147,031	88,274 to 4,883,090
Mean of Observed Excess Flows (afy)	1,750,421	1,712,683	1,654,026

Table 8B
Differences in Observed Excess Flows Below Morelos Dam for Year 2050
Comparison of the No Action to IA-IOP 66 kafy and No Action to IA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	Differences Between No Action and IA-IOP 66 kafy	Differences Between No Action to IA-IOP 331 kafy
Number of Occurrences of No Difference in Excess Flows	5	4
Number of Occurrences of Observed Decreased Flows	7	7
Range of Differences in Decreased Flows (af)	297 to 137,449	201,193 to 460,039
Average of Differences in Decreased Flows (af)	74,758	337,922
Number of Occurrences of Observed Increased Flows	1	2
Range of Differences in Increased Flows (af)	32,715 to 32,715	43,118 to 1,069,202
Average of Differences in Increased Flows (af)	32,715	556,160
Average Difference of Observed Excess Flows (af)	-37,738	-96,395

Table 8 presented a summary and compared the observed excess flows for the modeled year 2050. For this modeled year, the average of the differences in observed excess flows below Morelos Dam between the No Action and the Implementation Agreement that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, is a decrease of 37,738 af, which represents an approximately 2.2 percent reduction from the average observed excess flow (1,750,421 af) observed under the No Action modeled conditions. The average of the differences in observed excess flows below Morelos Dan between the No Action and the Implementation Agreement that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 96,395 af, which represents an approximately 5.5 percent reduction from the average excess flow (1,750,421 af) observed under the No Action modeled conditions, for year 2050.

It should be emphasized that not all of the differences in observed excess flows were negative (reductions). In both comparisons, there were modeled years where the differences were positive, which represented increases in the magnitude of observed excess flows. For example, in the evaluation of the comparison of the differences in the observed excess flows below Morelos Dam between the No Action and the Implementation Agreement that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, approximately 16.3 percent of instances where differences were observed, the differences were positive which represented increase in the magnitude of excess flows. However, for the 75-year period of analysis, the average of the differences was a reduction of 35,811 af.

In the evaluation of the comparison of the differences in the observed excess flows below Morelos Dam between the No Action and the Implementation Agreement that considered a Lower Basin Overrun Account Balance of 331kafy modeled conditions, approximately 11.7 percent of instances where differences were observed, the differences were positive which represented increase in the magnitude of excess flows. However, for the 75-year period of analysis, the average of the differences was a reduction of 219,539 af.

Analysis of Cumulative Impact

The previous section provided a comparison of the results of the evaluation of the effect of the IOP on the frequency of flood control releases from Hoover Dam and impacts to the delivery of excess flows to Mexico under the Implementation Agreement modeled conditions to the No Action modeled conditions. This section compares the results of the evaluation of the effect of the IOP on the frequency of flood control releases from Hoover Dam and impacts to the delivery of excess flows to Mexico under the Cumulative Analysis modeled conditions to the Baseline for Cumulative Analysis (Baseline) modeled conditions.

Figures 21 and 22 show the effect of the IOP on the frequency of flood control releases from Hoover Dam. Both of the figures compare the observed flood control frequencies under the Baseline for Cumulative Analysis modeled conditions to the modeled conditions that included the IOP criteria. For this analysis, the IOP criteria was added to the RiverWare model run that was used to model the Cumulative Analysis conditions and only considered the overrun account balances that were calculated using the maximum allowed 10 percent overrun criteria with a 3-year payback schedule. The flood flow frequency for each year was calculated by counting the number of traces that showed flood flows and dividing that number by 85, the number of total traces simulated in the model (RiverWare).

Figure 21 compares the differences in flood release frequencies when the average observed overrun account balance of 66 kaf was used to model the depleted storage on Lake Mead. As shown in this figure, the frequency differed in 32 of the 75 years modeled. A decrease in frequency occurred in approximately 31 of the 75 years modeled and the decreases generally ranged between 1 percent to a maximum of 3.5 percent. The average decrease in frequency was approximately 1.9 percent. However, an increase in frequency did occur in one of the 75 years modeled. The frequency increase in this year was approximately 1.18 percent.

Figure 22 compares the differences in flood release frequencies when the maximum overrun account balance of 331 kaf was used to model the depleted storage in Lake Mead. The frequency differed with the modeled IOP criteria yielding a generally slightly lower frequency of flood release than those observed under the Baseline for Cumulative Analysis conditions. A decrease in frequency occurred in approximately 54 of the 75 years modeled and the decreases generally ranged between 1 percent to a maximum of 4.7 percent. The average decrease in frequency was approximately 2.1 percent. An increase in frequency did not occur in any of the 75 years modeled.

Additional analyses were performed to evaluate the potential impacts that the IOP combined with the Cumulative Analysis modeled conditions would have on excess flows that occur below the Mexico diversion at Morelos Dam. Specifically, these additional analyses compared the probability of occurrence of excess flows greater than 250 kaf and 1.0 maf below the Mexico diversion at Morelos Dam between the different modeled conditions. The results of these analyses are provided in Attachment C to this technical memorandum. A summary of the results is presented in Table 9.

Table 9
Probability Of Occurrence Of Excess Flows Greater Than 250 Kaf And 1.0 Maf
Below The Mexico Diversion At Morelos Dam
Comparison Between Baseline and Combined Cumulative Analysis and IOP Modeled Conditions

	Probability of Excess Flows Greater than 250 kaf		Probability of Excess Flows Greater than 1.0 maf	
Differences in Probability	Baseline to CA-IOP w/ Overrun Account Balance of 66 kaf	Baseline to CA-IOP w/ Overrun Account Balance of 331 kaf	Baseline to CA--IOP w/ Overrun Account Balance of 66 kaf	Baseline to CA--IOP w/ Overrun Account Balance of 331 kaf
No. of Years w/ Observed Differences	34	48	37	43
No. of Years w/ Observed Increases	4	3	7	2
No. of Years w/ Observed Decreases	30	45	30	41
Average Difference	-0.8%	-1.4%	-0.6%	-1.1%
Maximum Increase	1.2%	1.2%	2.4%	1.2%
Maximum Decrease	-4.7%	-5.9%	-3.5%	-3.5%

Figures 21 and 22 provide an assessment of the effect of the combined Cumulative Analysis and IOP modeled criteria on the frequency of flood releases. The figures that follow (Figures 23 through 30) provide an assessment on the potential impact to the magnitude of excess flows below Morelos Dam. Again, these excess flows represent the volume over the 1.7 mafy entitlement that is delivered to Mexico under the Treaty.

Figure 21
Comparison of Lake Mead Flood Release Frequency
Baseline to CA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

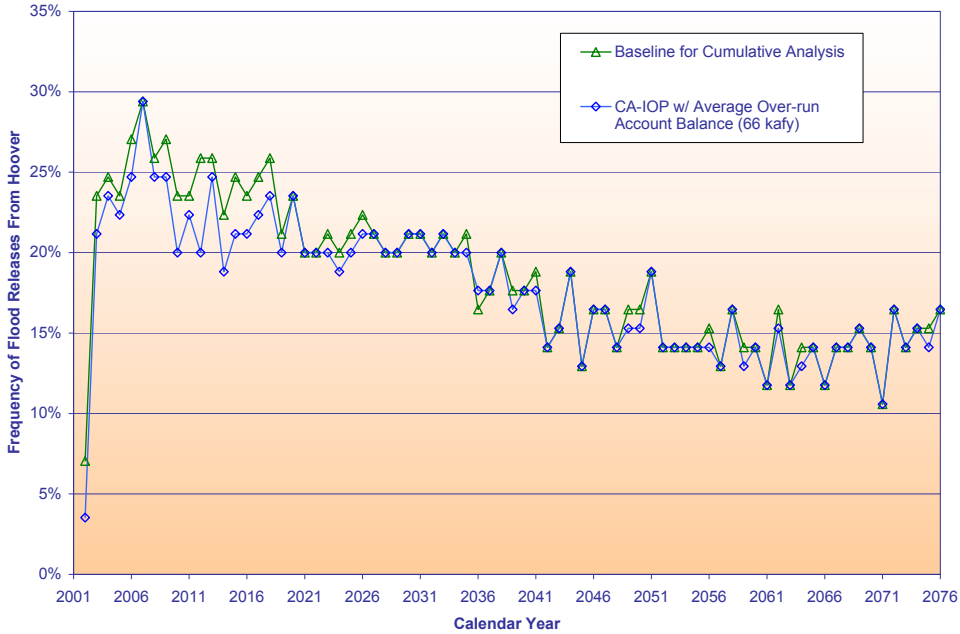
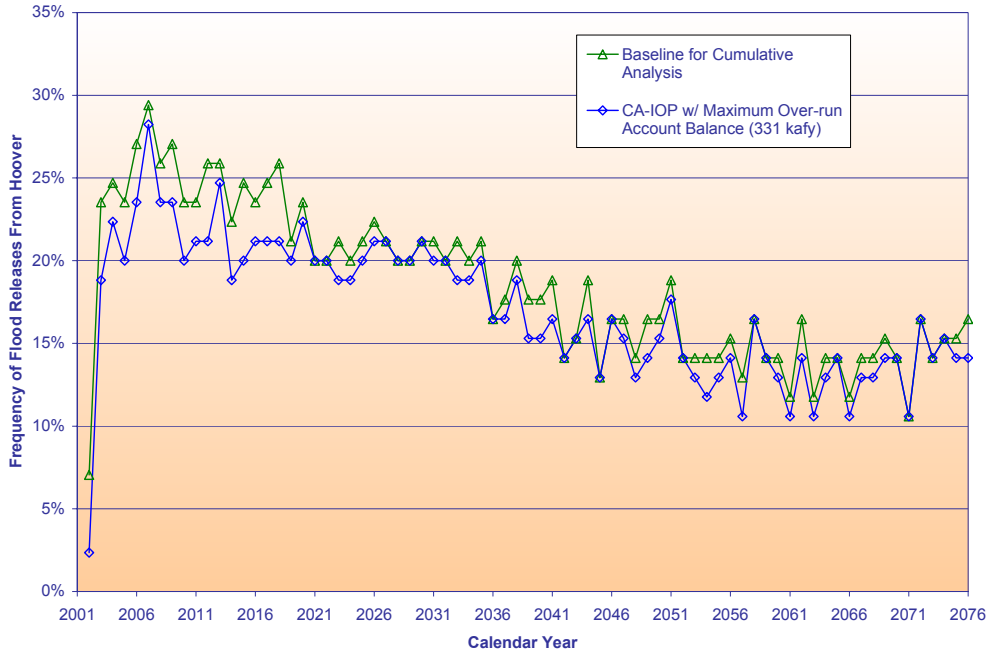


Figure 22
Comparison of Lake Mead Flood Release Frequency
Baseline to CA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule



Figures 23 through 26 compare the magnitude of excess flows under the Baseline for Cumulative Analysis to the combined Cumulative Analysis and IOP criteria. The IOP criteria used in these model runs considers the average Lower Division states' overrun account balance of 66 kafy, a 10 percent maximum allowed overrun and a 3-year payback schedule. Figure 23 shows the range of observed magnitudes of excess flows for year 2006, Figure 24 shows the range of observed magnitudes of excess flows for year 2016, Figure 25 shows the range of observed magnitudes of excess flows for year 2026, and Figure 26 shows the range of observed magnitudes of excess flows for year 2050. In all these years, the results of the analysis indicate that the magnitude of observed excess flows is essentially the same under the two model conditions.

Figure 23
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2026
Baseline to CA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

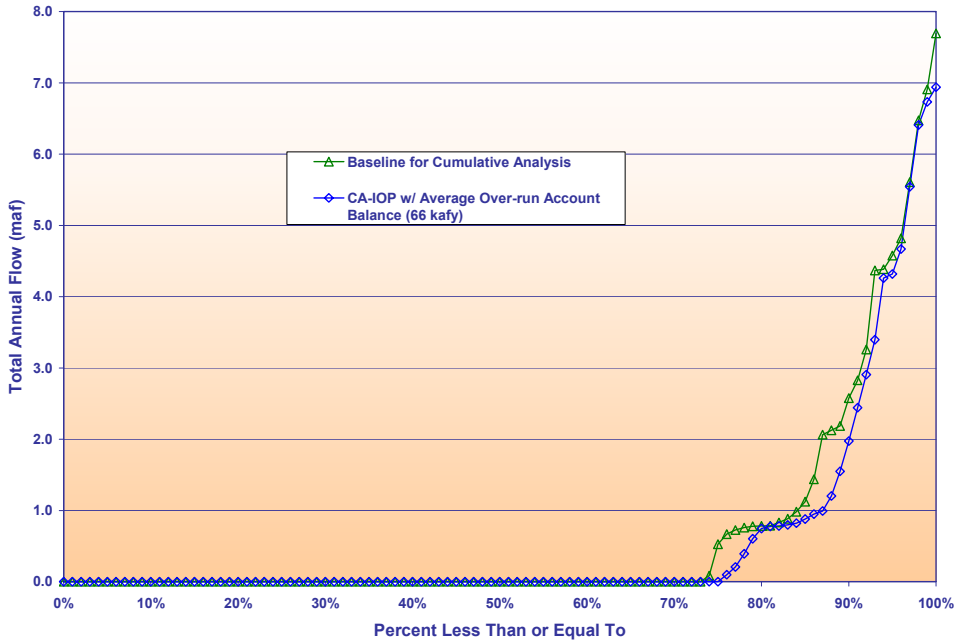


Figure 24
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2016
Baseline to CA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

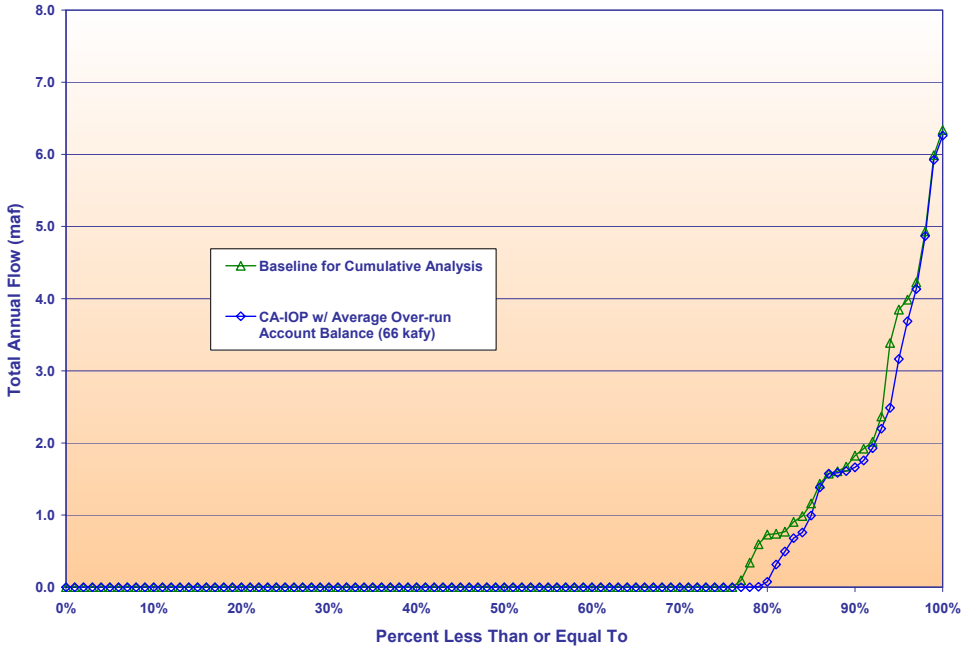


Figure 25
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2026
Baseline to CA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

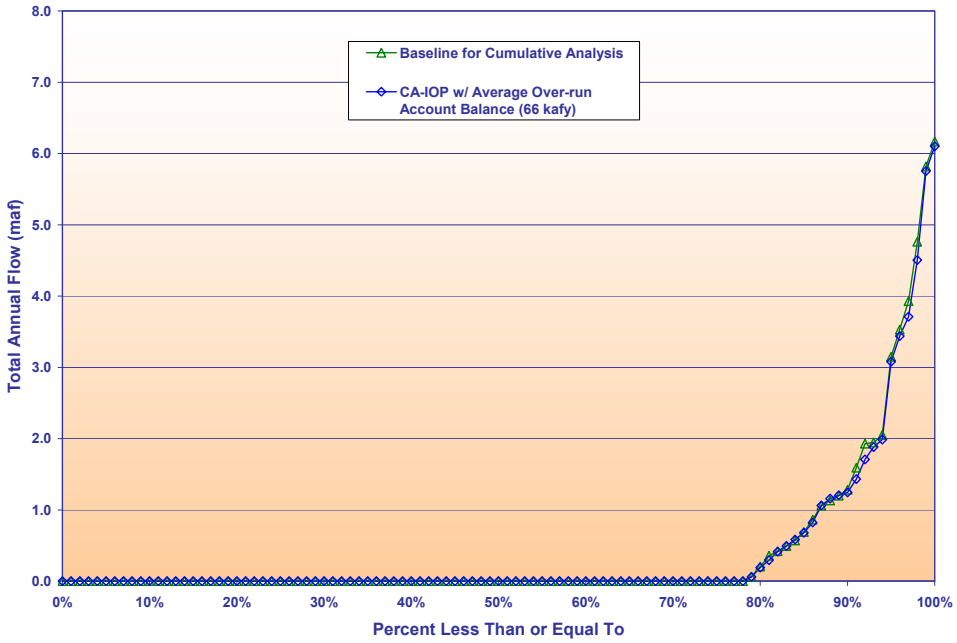
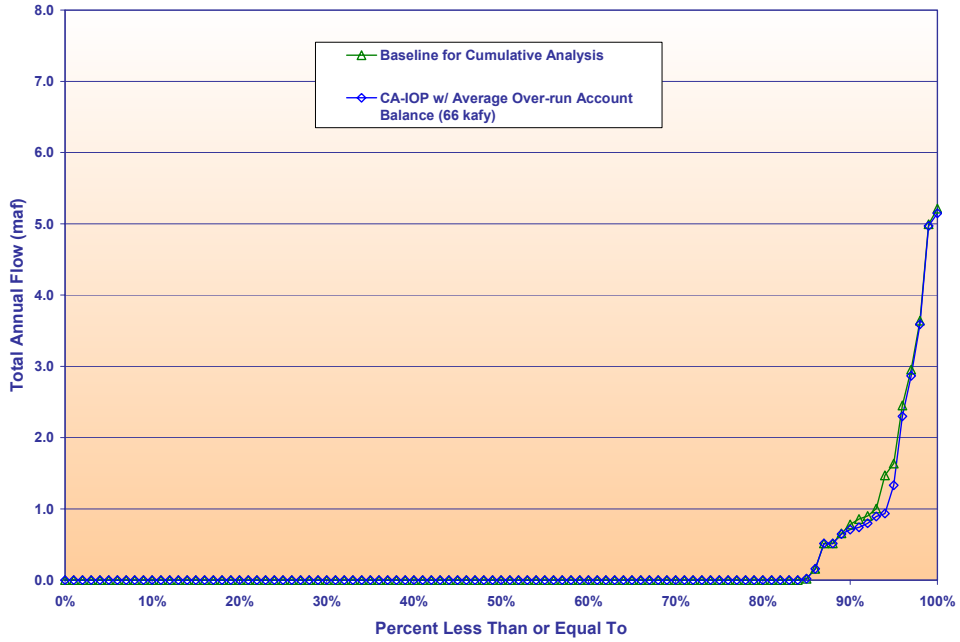


Figure 26
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2050
Baseline to CA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule



Figures 27 through 30 present a similar comparison of the magnitude of excess flows under the Baseline for Cumulative Analysis to the combined Cumulative Analysis and IOP criteria. However, under these modeled conditions, the IOP criteria used in this model run considered the maximum observed Lower Basin overrun account balance of 331 kafy. The maximum allowed overrun and payback schedule remained the same (maximum 10 percent overrun allowed with 3-year payback).

Figure 27 shows the range of observed magnitudes of excess flows for year 2006, Figure 28 shows the range of observed magnitudes of excess flows for year 2016, Figure 29 shows the range of observed magnitudes of excess flows for year 2026, and Figure 30 shows the range of observed magnitudes of excess flows for year 2050. In year 2006, the magnitude of the observed excess flows are essentially the same, albeit with a slight change in the frequency. The positive effect seen in the lower excess flow range (excess flows less than 1.0 mafy) is perhaps more related to the effect of the water transfers modeled as part of the Cumulative Analysis conditions. The negative effect seen on the higher range of the excess flows (excess flows greater than 1.0 mafy) can be mostly attributed to the IOP modeled criteria. The same generally applies to years 2016, 2026 and 2050. The observed increases in magnitude ranged from approximately 2,000 af to approximately 148,000 af with the average being around 88,000 af. The observed decreases in magnitude ranged from approximately 1,300 af to approximately 742,000 af with the average being around 230,000 af.

Figure 27
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2006
Baseline to CA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

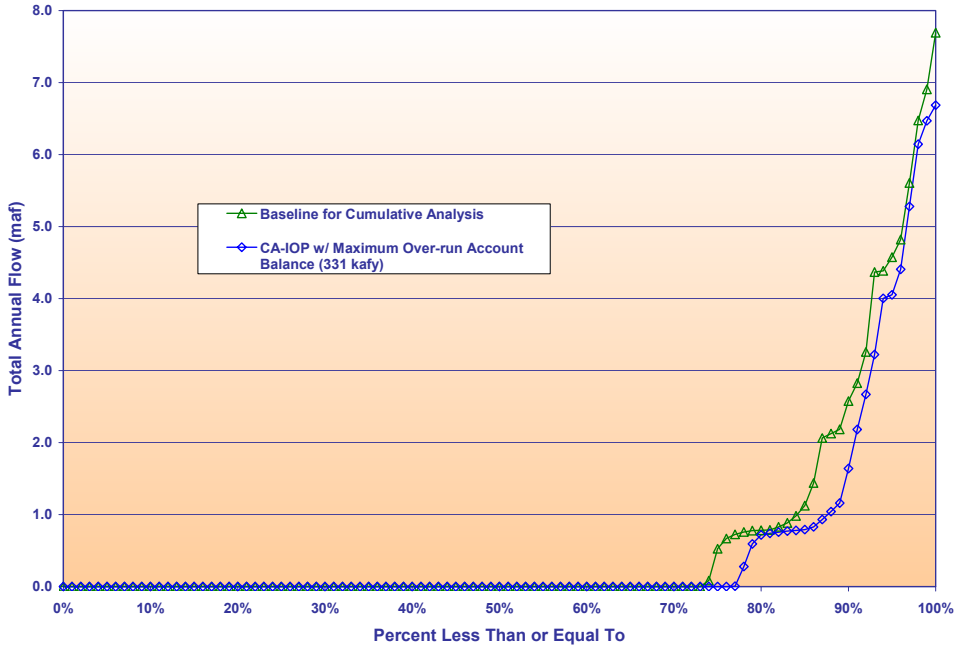


Figure 28
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2016
Baseline to CA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

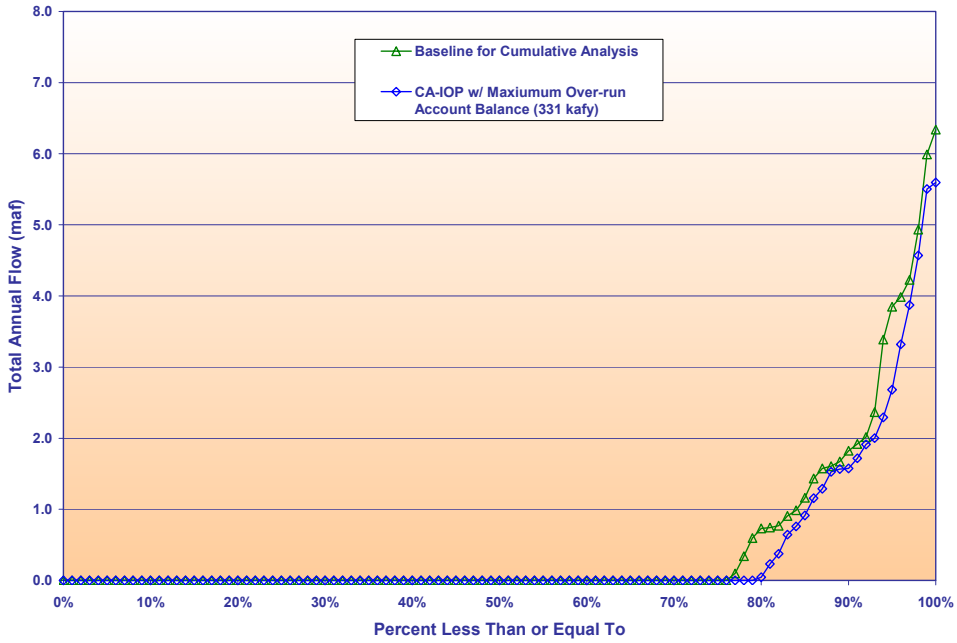


Figure 29
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2026
Baseline to CA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

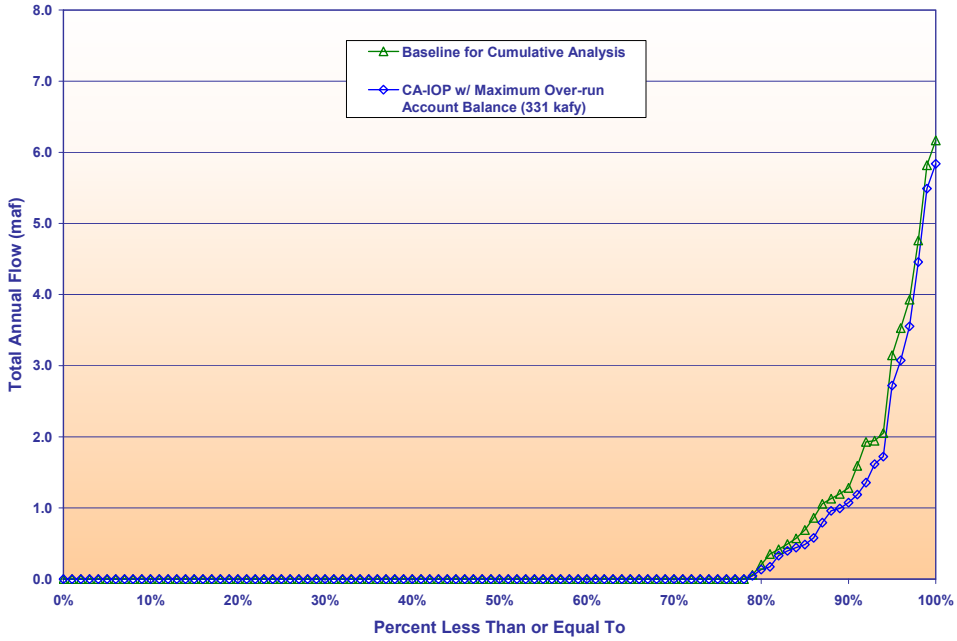
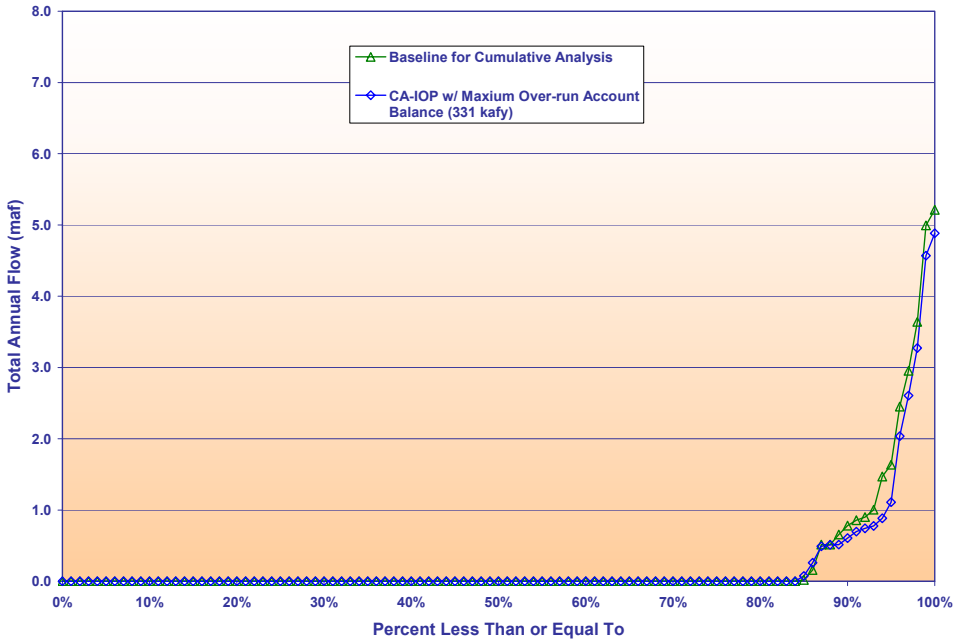


Figure 30
Comparison of Magnitude of Excess Flows Below Morelos Dam in Year 2050
Baseline to CA-IOP w/ Maximum Observed Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule



Tables 10 through 13 present a tabular summary of the data depicted in Figures 23 through 30. These Tables compare and provide a summary of the differences between the Baseline and the Cumulative Analysis that considered an average Lower Basin Overrun Account Balance of 66 kafy and the differences between the Baseline and the Cumulative Analysis that considered a Lower Basin Overrun Account Balance of 331 kafy. Table 10 provides the comparison of the modeled results for year 2006, and Table 11, 12 and 13 provide the comparison of the results of years 2016, 2026 and 2050, respectively. Again, all of these modeled conditions further considered a 10 Percent Maximum Allowed Overrun and a 3-Year Payback Schedule.

Table 10A
Comparison of Observed Excess Flows Below Morelos Dam for Year 2006
Under Baseline, CA-IOP 66 kafy, and CA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	Baseline	CA-IOP 66 kafy	CA-IOP 331 kafy
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	22	21	20
Range of Observed Excess Flows (afy)	525,724 to 7,692,917	118,574 to 6,938,588	8,313 to 6,686,053
Mean of Observed Excess Flows (afy)	2,702,982	2,439,502	2,381,791

Table 10B Differences in Observed Excess Flows Below Morelos Dam for Year 2006 Comparison of the Baseline to CA-IOP 66 kafy and Baseline to CA-IOP 331 kafy Modeled Conditions 10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule		
Comparison Factor	**Differences Between Baseline and CA-IOP 66 kafy**	**Differences Between Baseline to CA-IOP 331 kafy**
Number of Occurrences of No Difference in Excess Flows	3	2
Number of Occurrences of Observed Decreased Flows	16	17
Range of Differences in Decreased Flows (af)	35,841 to 1,854,919	35,841 to 1,905,349
Average of Differences in Decreased Flows (af)	538,527	696,749
Number of Occurrences of Observed Increased Flows	2	1
Range of Differences in Increased Flows (af)	133,650 to 246,861	15,203 to 15,203
Average of Differences in Increased Flows (af)	190,256	15,203
Average Difference of Observed Excess Flows (af)	-374,360	-537,706

As noted in Table 10, for year 2006, the average of the differences in observed excess flows below Morelos Dam between the Baseline and the Cumulative Analysis that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, is a decrease of 374,360 af. This volume represents an approximately 13.8 percent reduction from the average excess flow (2,702,982 af) observed under the Baseline modeled conditions. The average of the differences in observed excess flows between the Baseline and the Cumulative Analysis that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 537,706 af, which represents an approximately 19.9 percent reduction from the average excess flow (2,702,982 af) observed under the Baseline modeled conditions, for year 2006.

Table 11A Comparison of Observed Excess Flows Below Morelos Dam for Year 2016 Under Baseline, CA-IOP 66 kafy, and CA-IOP 331 kafy Modeled Conditions 10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule			
Comparison Factor	**Baseline**	**CA-IOP 66 kafy**	**CA-IOP 331 kafy**
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	20	18	17
Range of Observed Excess Flows (afy)	143,242 to 6,337,995	18,952 to 6,259,752	223,667 to 5,595,282
Mean of Observed Excess Flows (afy)	2,266,241	2,243,940	2,176,529

Table 11B Differences in Observed Excess Flows Below Morelos Dam for Year 2016 Comparison of the Baseline to CA-IOP 66 kafy and Baseline to CA-IOP 331 kafy Modeled Conditions 10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule		
Comparison Factor	**Differences Between Baseline and CA-IOP 66 kafy**	**Differences Between Baseline to CA-IOP 331 kafy**
Number of Occurrences of No Difference in Excess Flows	3	0
Number of Occurrences of Observed Decreased Flows	14	14
Range of Differences in Decreased Flows (af)	65,055 to 1,610,062	127,193 to 1,699,417
Average of Differences in Decreased Flows (af)	397,320	624,037
Number of Occurrences of Observed Increased Flows	1	3
Range of Differences in Increased Flows (af)	628,825 to 628,825	24,642 to 307,996
Average of Differences in Increased Flows (af)	628,825	137,688
Average Difference of Observed Excess Flows (af)	-246,683	-416,173

Table 11 presented a summary and compared the observed excess flows for the modeled year 2016. For this modeled year, the average of the differences in observed excess flows below Morelos Dam between the Baseline and the Cumulative Analysis that considered an average Lower Basin Overrun Account

Balance of 66 kafy modeled conditions, is a decrease of 246,683 af, which represents an approximately 10.9 percent reduction from the average observed excess flow (2,266,241 af) observed under the Baseline modeled conditions. The average of the differences in observed excess flows below Morelos Dan between the Baseline and the Cumulative Analysis that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 416,173 af, which represents an approximately 18.4 percent reduction from the average excess flow (2,266,241 af) observed under the Baseline modeled conditions, for year 2016.

Table 12A
Comparison of Observed Excess Flows Below Morelos Dam for Year 2026
Under Baseline, CA-IOP 66 kafy, and CA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	Baseline	CA-IOP 66 kafy	CA-IOP 331 kafy
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	18	18	18
Range of Observed Excess Flows (afy)	166,276 to 6,166,892	166,275 to 6,101,057	125,648 to 5,836,797
Mean of Observed Excess Flows (afy)	2,041,729	1,975,135	1,770,989

Table 12B
Differences in Observed Excess Flows Below Morelos Dam for Year 2026
Comparison of the Baseline to CA-IOP 66 kafy and Baseline to CA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	Differences Between Baseline and CA-IOP 66 kafy	Differences Between Baseline to CA-IOP 331 kafy
Number of Occurrences of No Difference in Excess Flows	4	1
Number of Occurrences of Observed Decreased Flows	12	17
Range of Differences in Decreased Flows (af)	1 to 346,386	1 to 665,675
Average of Differences in Decreased Flows (af)	103,637	286,666
Number of Occurrences of Observed Increased Flows	2	0
Range of Differences in Increased Flows (af)	17,452 to 27,492	NA
Average of Differences in Increased Flows (af)	22,472	NA
Average Difference of Observed Excess Flows (af)	-66,594	-270,740

Table 12 presented a summary and compared the observed excess flows for the modeled year 2026. For this modeled year, the average of the differences in observed excess flows below Morelos Dam between the Baseline and the Cumulative Analysis that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, is a decrease of 66,594 af, which represents an approximately 3.3 percent reduction from the average observed excess flow (2,041,729 af) observed under the Baseline modeled conditions. The average of the differences in observed excess flows below Morelos Dan between the Baseline and the Cumulative Analysis that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 270,740 af, which represents an approximately 13.3 percent reduction from the average excess flow (2,041,729 af) observed under the Baseline modeled conditions, for year 2026.

Table 13A
Comparison of Observed Excess Flows Below Morelos Dam for Year 2050
Under Baseline, CA-IOP 66 kafy, and CA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	Baseline	CA-IOP 66 kafy	CA-IOP 331 kafy
Number of Traces	85	85	85
Number of Occurrences of Observed Excess Flows	13	13	13
Range of Observed Excess Flows (afy)	45,156 to 5,212,767	44,864 to 5,147,031	186,149 to 4,883,090
Mean of Observed Excess Flows (afy)	1,820,599	1,716,903	1,578,693

Table 13B
Differences in Observed Excess Flows Below Morelos Dam for Year 2050
Comparison of the Baseline to CA-IOP 66 kafy and Baseline to CA-IOP 331 kafy Modeled Conditions
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

Comparison Factor	Differences Between Baseline and CA-IOP 66 kafy	Differences Between Baseline to CA-IOP 331 kafy
Number of Occurrences of No Difference in Excess Flows	4	3
Number of Occurrences of Observed Decreased Flows	8	8
Range of Differences in Decreased Flows (af)	292 to 949,205	201,193 to 1,007,188
Average of Differences in Decreased Flows (af)	176,210	418,425
Number of Occurrences of Observed Increased Flows	1	2
Range of Differences in Increased Flows (af)	61,630 to 61,630	61,630 to 140,993
Average of Differences in Increased Flows (af)	61,630	101,312
Average Difference of Observed Excess Flows (af)	-103,696	-241,906

Table 13 presented a summary and compared the observed excess flows for the modeled year 2050. For this modeled year, the average of the differences in observed excess flows below Morelos Dam between the Baseline and the Cumulative Analysis that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, is a decrease of 103,696 af, which represents an approximately 5.7 percent reduction from the average observed excess flow (1,820,599 af) observed under the Baseline modeled conditions. The average of the differences in observed excess flows below Morelos Dan between the Baseline and the Cumulative Analysis that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, is a decrease of 241,906 af, which represents an approximately 13.3 percent reduction from the average excess flow (1,820,599 af) observed under the Baseline modeled conditions, for year 2050.

It should be emphasized that not all of the differences in observed excess flows were negative (reductions). In both comparisons, there were modeled years where the differences were positive, which represented increases in the magnitude of observed excess flows. For example, in the evaluation of the comparison of the differences in the observed excess flows below Morelos Dam between the Baseline and the Cumulative Analysis that considered an average Lower Basin Overrun Account Balance of 66 kafy modeled conditions, approximately 12.1 percent of instances where differences were observed, the differences were positive which represented increase in the magnitude of excess flows. However, for the 75-year period of analysis, the average of the differences was a reduction of 153,090 af.

In the evaluation of the comparison of the differences in the observed excess flows below Morelos Dam between the Baseline and the Cumulative Analysis that considered a Lower Basin Overrun Account Balance of 331 kafy modeled conditions, approximately 8.0 percent of instances where differences were

observed, the differences were positive which represented increase in the magnitude of excess flows. However, for the 75-year period of analysis, the average of the differences was a reduction of 323,112 af.

ATTACHMENT A

INADVERTENT OVERRUN ACCOUNTING

Table A-1
Comparison of Historical Arizona Projected and Actual Depletions

Column 1	**2**	**3**	**4**	**5**	**6**	**7**
CY	AZPUMP FORCAST	AZPUMP ACTUAL	AZPUMP DIFF	AZOTH FORCAST	AZOTH ACTUAL	AZOTH DIFF
1990	71,000	36,360	34,640	1,465,000	1,481,218	(16,218)
1991	36,000	45,176	(9,176)	1,392,199	1,410,529	(18,330)
1992	0	0	0	0	0	0
1993	50,000	35,013	14,987	1,455,461	1,221,895	233,566
1994	50,000	35,863	14,137	1,271,010	1,420,812	(149,802)
1995	40,000	36,457	3,543	1,442,095	1,436,084	6,011
1996	36,000	37,369	(1,369)	1,509,251	1,515,695	(6,444)
1997	37,000	35,444	1,556	1,471,816	1,439,761	32,055
1998	37,000	32,616	4,384	1,382,072	1,355,975	20,097
1999	37,000	35,010	1,990	1,309,310	1,339,798	(30,488)

Table A-2
Priority 1, 2 and 3 Depletion Projections

Column 1	2	3	4	5	6	7	8
CY	IID Base (af)	CVWD (af)	SUM (kaf)	Priority 1&2 (kaf)	Priority 1-3 (kaf)	CAPPED (kaf) (1)	Priority 3 (2) Base (kaf)
2002	2,915,621	334,046	3,252	478	3,730	3,730	3,252
2003	3,044,916	334,503	3,381	465	3,846	3,800	3,335
2004	3,064,253	336,665	3,403	467	3,870	3,800	3,333
2005	3,006,884	337,862	3,347	425	3,772	3,772	3,347
2006	2,915,621	342,708	3,260	456	3,716	3,716	3,260
2007	2,915,621	342,995	3,261	435	3,696	3,696	3,261
2008	2,772,663	344,174	3,119	437	3,556	3,556	3,119
2009	3,044,916	346,233	3,393	419	3,812	3,800	3,381
2010	2,915,621	346,414	3,264	421	3,685	3,685	3,264
2011	3,006,884	346,588	3,355	449	3,804	3,800	3,351
2012	2,772,663	346,760	3,121	361	3,482	3,482	3,121
2013	3,205,935	346,943	3,555	374	3,929	3,800	3,426
2014	3,205,935	347,116	3,555	372	3,927	3,800	3,428
2015	3,058,162	347,295	3,407	375	3,782	3,782	3,407
2016	2,896,071	347,470	3,246	388	3,634	3,634	3,246
2017	3,058,162	347,617	3,408	431	3,839	3,800	3,369
2018	2,896,071	347,732	3,246	407	3,653	3,653	3,246
2019	3,205,935	347,833	3,556	427	3,983	3,800	3,373
2020	2,915,621	347,934	3,266	411	3,677	3,677	3,266
2021	3,178,829	348,046	3,529	421	3,950	3,800	3,379
2022	2,772,663	348,156	3,123	420	3,543	3,543	3,123
2023	3,044,916	348,268	3,395	455	3,850	3,800	3,345
2024	3,006,884	348,380	3,357	431	3,788	3,788	3,357
2025	3,205,935	348,495	3,556	450	4,006	3,800	3,350
2026	3,058,162	348,607	3,409	439	3,848	3,800	3,361
2027	3,006,884	348,718	3,358	405	3,763	3,763	3,358
2028	3,064,253	348,829	3,415	369	3,784	3,784	3,415
2029	3,058,162	348,944	3,409	380	3,789	3,789	3,409
2030	3,006,884	349,071	3,358	396	3,754	3,754	3,358
2031	3,006,884	349,218	3,358	438	3,796	3,796	3,358
2032	3,178,829	349,364	3,530	409	3,939	3,800	3,391
2033	3,006,884	349,514	3,358	467	3,825	3,800	3,333
2034	2,772,663	349,671	3,124	414	3,538	3,538	3,124
2035	3,058,162	349,671	3,410	427	3,837	3,800	3,373
2036	3,058,162	349,671	3,410	445	3,855	3,800	3,355
2037	2,915,621	349,671	3,267	366	3,633	3,633	3,267
2038	3,058,162	349,671	3,410	396	3,806	3,800	3,404
2039	3,058,162	349,671	3,410	375	3,785	3,785	3,410
2040	3,178,829	349,671	3,531	361	3,892	3,800	3,439
2041	3,044,916	349,671	3,397	402	3,799	3,799	3,397
2042	2,772,663	349,671	3,124	363	3,487	3,487	3,124
2043	2,729,694	349,671	3,081	414	3,495	3,495	3,081
2044	2,896,071	349,671	3,248	373	3,621	3,621	3,248
2045	3,064,253	349,671	3,416	400	3,816	3,800	3,400
2046	2,772,663	349,671	3,124	400	3,524	3,524	3,124
2047	3,064,253	349,671	3,416	417	3,833	3,800	3,383
2048	3,044,916	349,671	3,397	464	3,861	3,800	3,336
2049	3,044,916	349,671	3,397	446	3,843	3,800	3,354
2050	3,058,162	349,671	3,410	470	3,880	3,800	3,330
2051	3,058,162	349,671	3,410	462	3,872	3,800	3,338
2052	2,729,694	349,671	3,081	453	3,534	3,534	3,081
2053	2,896,071	349,671	3,248	398	3,646	3,646	3,248
2054	3,127,806	349,671	3,480	439	3,919	3,800	3,361
2055	2,772,663	349,671	3,124	427	3,551	3,551	3,124
2056	3,044,916	349,671	3,397	462	3,859	3,800	3,338
2057	2,772,663	349,671	3,124	424	3,548	3,548	3,124
2058	3,058,162	349,671	3,410	516	3,926	3,800	3,284
2059	2,896,071	349,671	3,248	460	3,708	3,708	3,248
2060	2,896,071	349,671	3,248	345	3,593	3,593	3,248
2061	2,772,663	349,671	3,124	341	3,465	3,465	3,124
2062	3,178,829	349,671	3,531	404	3,935	3,800	3,396
2063	3,064,253	349,671	3,416	412	3,828	3,800	3,388
2064	2,729,694	349,671	3,081	428	3,509	3,509	3,081
2065	2,915,621	349,671	3,267	449	3,716	3,716	3,267
2066	3,006,884	349,671	3,259	456	3,815	3,800	3,344
2067	3,064,253	349,671	3,416	464	3,880	3,800	3,336
2068	2,896,071	349,671	3,248	421	3,669	3,669	3,248
2069	2,528,424	349,671	2,880	348	3,228	3,228	2,880
2070	2,772,663	349,671	3,124	349	3,473	3,473	3,124
2071	3,044,916	349,671	3,397	394	3,791	3,791	3,397
2072	3,058,162	349,671	3,410	434	3,844	3,800	3,366
2073	3,205,935	349,671	3,558	496	4,054	3,800	3,304
2074	3,178,829	349,671	3,531	426	3,957	3,800	3,374
2075	3,127,806	349,671	3,480	432	3,912	3,800	3,368
2076	3,064,253	349,671	3,416	472	3,888	3,800	3,328
Average	2,984,899	348,112	3,335	420			

(1.) Capped is equal to the lesser of the Projected Priority 1-3 depletion or 3,800 kaf (capped depletion for Priority 1-3).
(2.) Priority 3 Base is equal to Capped less Priority 1 & 2 amounts.

Table A-3
Priority 1, 2 and 3 Capped Depletions

Column 1	2	3	4	5	6	6	7
CY	IIDbase (af)	CVWD (af)	SUM (kaf)	CAPPED 3.38 (kaf) (1)	Difference from 3800 (kaf) (2)	Priority 1&2 (kaf)	Available To MWD (kaf) (3)
2002	2,915,621	334,046	3,252	3,252	548	478	128
2003	3,044,916	334,503	3,381	3,380	420	465	0
2004	3,064,253	336,665	3,403	3,380	420	467	0
2005	3,006,884	337,862	3,347	3,347	453	425	33
2006	2,915,621	342,708	3,260	3,260	540	456	120
2007	2,915,621	342,995	3,261	3,261	539	435	119
2008	2,772,663	344,174	3,119	3,119	681	437	261
2009	3,044,916	346,233	3,393	3,380	420	419	0
2010	2,915,621	346,414	3,264	3,264	536	421	116
2011	3,006,884	346,588	3,355	3,355	445	449	25
2012	2,772,663	346,760	3,121	3,121	679	361	259
2013	3,205,935	346,943	3,555	3,380	420	374	0
2014	3,205,935	347,116	3,555	3,380	420	372	0
2015	3,058,162	347,295	3,407	3,380	420	375	0
2016	2,896,071	347,470	3,246	3,246	554	388	134
2017	3,058,162	347,617	3,408	3,380	420	431	0
2018	2,896,071	347,732	3,246	3,246	554	407	134
2019	3,205,935	347,833	3,556	3,380	420	427	0
2020	2,915,621	347,934	3,266	3,266	534	411	114
2021	3,178,829	348,046	3,529	3,380	420	421	0
2022	2,772,663	348,156	3,123	3,123	677	420	257
2023	3,044,916	348,268	3,395	3,380	420	455	0
2024	3,006,884	348,380	3,357	3,357	443	431	23
2025	3,205,935	348,495	3,556	3,380	420	450	0
2026	3,058,162	348,607	3,409	3,380	420	439	0
2027	3,006,884	348,718	3,358	3,358	442	405	22
2028	3,064,253	348,829	3,415	3,380	420	369	0
2029	3,058,162	348,944	3,409	3,380	420	380	0
2030	3,006,884	349,071	3,358	3,358	442	396	22
2031	3,006,884	349,218	3,358	3,358	442	438	22
2032	3,178,829	349,364	3,530	3,380	420	409	0
2033	3,006,884	349,514	3,358	3,358	442	467	22
2034	2,772,663	349,671	3,124	3,124	676	414	256
2035	3,058,162	349,671	3,410	3,380	420	427	0
2036	3,058,162	349,671	3,410	3,380	420	445	0
2037	2,915,621	349,671	3,267	3,267	533	366	113
2038	3,058,162	349,671	3,410	3,380	420	396	0
2039	3,058,162	349,671	3,410	3,380	420	375	0
2040	3,178,829	349,671	3,531	3,380	420	361	0
2041	3,044,916	349,671	3,397	3,380	420	402	0
2042	2,772,663	349,671	3,124	3,124	676	363	256
2043	2,729,694	349,671	3,081	3,081	719	414	299
2044	2,896,071	349,671	3,248	3,248	552	373	132
2045	3,064,253	349,671	3,416	3,380	420	400	0
2046	2,772,663	349,671	3,124	3,124	676	400	256
2047	3,064,253	349,671	3,416	3,380	420	417	0
2048	3,044,916	349,671	3,397	3,380	420	464	0
2049	3,044,916	349,671	3,397	3,380	420	446	0
2050	3,058,162	349,671	3,410	3,380	420	470	0
2051	3,058,162	349,671	3,410	3,380	420	462	0
2052	2,729,694	349,671	3,081	3,081	719	453	299
2053	2,896,071	349,671	3,248	3,248	552	398	132
2054	3,127,806	349,671	3,480	3,380	420	439	0
2055	2,772,663	349,671	3,124	3,124	676	427	256
2056	3,044,916	349,671	3,397	3,380	420	462	0
2057	2,772,663	349,671	3,124	3,124	676	424	256
2058	3,058,162	349,671	3,410	3,380	420	516	0
2059	2,896,071	349,671	3,248	3,248	552	460	132
2060	2,896,071	349,671	3,248	3,248	552	345	132
2061	2,772,663	349,671	3,124	3,124	676	341	256
2062	3,178,829	349,671	3,531	3,380	420	404	0
2063	3,064,253	349,671	3,416	3,380	420	412	0
2064	2,729,694	349,671	3,081	3,081	719	428	299
2065	2,915,621	349,671	3,267	3,267	533	449	113
2066	3,006,884	349,671	3,359	3,359	441	456	21
2067	3,064,253	349,671	3,416	3,380	420	464	0
2068	2,896,071	349,671	3,248	3,248	552	421	132
2069	2,528,424	349,671	2,880	2,880	920	348	500
2070	2,772,663	349,671	3,124	3,124	676	349	256
2071	3,044,916	349,671	3,397	3,380	420	394	0
2072	3,058,162	349,671	3,410	3,380	420	434	0
2073	3,205,935	349,671	3,558	3,380	420	496	0
2074	3,178,829	349,671	3,531	3,380	420	426	0
2075	3,127,806	349,671	3,480	3,380	420	432	0
2076	3,064,253	349,671	3,416	3,380	420	472	0
AVG	**2,984,899**	**348,112**	**3,335**	**3,301**	**499**	**420**	**79**

(1.) Capped 3.38 is equal to the lesser of the Sum (IID base + CVWD) or 3,380 kaf (assumed capped depletion for Priority 3).
(2.) Difference from 3,800 is equal to 3,800 kaf less the amount calculated under the Capped 3,380 kaf column.
(3.) Available to MWD is equal to amount under "Difference from 3800" column and Priority 1&2 column.

Table A-4
MWD Projected Depletions and Inadvertent Overrun (PVID/YPRD) Accounting

Column 1	2	3
CY	MWD OBLIGATION (kaf) (1)	MWD BASE (kaf)
2002	350	620
2003	465	550
2004	467	550
2005	392	578
2006	336	634
2007	316	654
2008	176	794
2009	419	550
2010	305	665
2011	424	550
2012	102	868
2013	374	550
2014	372	550
2015	375	568
2016	254	716
2017	431	550
2018	273	697
2019	427	550
2020	297	673
2021	421	550
2022	163	807
2023	455	550
2024	408	562
2025	450	550
2026	439	550
2027	383	587
2028	369	566
2029	380	561
2030	374	596
2031	416	554
2032	409	550
2033	445	550
2034	158	812
2035	427	550
2036	445	550
2037	253	717
2038	396	550
2039	375	565
2040	361	550
2041	402	551
2042	107	863
2043	115	855
2044	241	729
2045	400	550
2046	144	826
2047	417	550
2048	464	550
2049	446	550
2050	470	550
2051	462	550
2052	154	816
2053	266	704
2054	439	550
2055	171	799
2056	462	550
2057	168	802
2058	516	550
2059	328	642
2060	213	757
2061	85	885
2062	404	550
2063	412	550
2064	129	841
2065	336	634
2066	435	550
2067	464	550
2068	289	681
2069	(152)	1,122
2070	93	877
2071	394	559
2072	434	550
2073	496	550
2074	426	550
2075	432	550
2076	472	550

(1.) MWD obligation is equal to Priority 1&2 (Table A-3) less amount "Available to MWD" (Table A-3).

Table A-5
CALIFORNIA AGRICULTURAL AGENCY OVER/UNDER RUN DIFFERENT FROM BASE CASE

Column 1	MWD (PVID+YPRD)				IID+CVWD			
	2	3	4	5	6	7	8	9
CY	3YR-PAY 10% MAX	1YR-PAY 10% MAX	3YR-PAY 5% MAX	1YR-PAY 5% MAX	3YR-PAY 10% MAX	1YR-PAY 10% MAX	3YR-PAY 5% MAX	1YR-PAY 5% MAX
2002	0	0	0	0	0	0	0	0
2003	0	45	0	45	46	46	46	46
2004	0	47	0	47	70	70	70	70
2005	(18)	(45)	(15)	(45)	(1)	(1)	(1)	(1)
2006	(36)	(47)	(30)	(47)	(23)	(23)	(23)	(23)
2007	(27)	0	(30)	0	0	0	0	0
2008	(11)	0	(15)	0	0	0	0	0
2009	1	0	(1)	0	12	12	12	12
2010	0	0	0	0	0	0	0	0
2011	0	4	0	4	(9)	(9)	(9)	(9)
2012	0	0	0	0	0	0	0	0
2013	42	(4)	42	(4)	129	129	129	129
2014	48	0	48	0	127	127	127	127
2015	27	0	27	0	(68)	(175)	(62)	(175)
2016	0	0	0	0	(136)	(175)	(118)	(175)
2017	0	11	0	11	(95)	12	(100)	12
2018	0	O	0	0	(39)	0	(58)	0
2019	(11)	(4)	(11)	(4)	155	155	155	155
2020	0	0	0	0	0	0	0	0
2021	(7)	(6)	(7)	(6)	82	(26)	87	(26)
2022	0	0	0	0	(68)	0	(56)	0
2023	(1)	34	(1)	34	(58)	(99)	(80)	(99)
2024	0	0	0	0	(68)	0	(37)	0
2025	(18)	(5)	(12)	(5)	188	191	152	191
2026	(17)	8	(12)	8	33	48	48	48
2027	(18)	(30)	(21)	(30)	(68)	(176)	(63)	(176)
2028	5	(19)	15	(19)	(68)	(29)	(85)	(29)
2029	28	0	lOO	(69)	0	(57)	0	
2030	0	0	0	0	(35)	(35)	(34)	(35)
2031	0	0	0	0	(29)	(29)	(30)	(29)
2032	11	0	11	0	139	139	139	139
2033	0	25	0	25	25	25	25	25
2034	0	0	0	0	(68)	(150)	(50)	(150)
2035	(18)	(18)	(10)	(18)	(31)	37	(13)	37
2036	(7)	25	(10)	25	41	55	5	55
2037	(7)	(7)	(12)	(7)	(30)	(30)	(30)	(30)
2038	6	(25)	14	(25)	(24)	(24)	(24)	(24)
2039	23	0	20	0	0	0	0	0
2040	59	0	54	0	62	62	62	62
2041	17	0	17	0	(30)	(30)	(30)	(30)
2042	0	0	0	0	(68)	(151)	(50)	(151)
2043	0	0	0	0	(68)	(17)	(67)	(17)
2044	0	0	0	0	(32)	0	(51)	0
2045	20	0	20	0	16	16	16	16
2046	0	0	0	0	0	0	0	0
2047	0	0	3	0	(3)	(3)	(3)	(3)
2048	0	44	0	44	61	61	61	61
2049	0	26	0	26	7	7	7	7
2050	(18)	6	(15)	6	63	63	63	63
2051	(36)	(14)	(25)	(14)	55	55	55	55
2052	(34)	(50)	(41)	(50)	(30)	(30)	(30)	(30)
2053	(30)	(12)	(33)	(12)	(30)	(30)	(30)	(30)
2054	(14)	19	(18)	19	119	119	119	119
2055	0	0	0	0	0	1	0	1
2056	(18)	23	(10)	23	(9)	(41)	25	(41)
2057	(1)	0	(9)	0	(32)	0	(34)	0
2058	(18)	54	(14)	54	109	109	77	109
2059	(18)	0	(14)	0	0	0	0	0
2060	(43)	(96)	(78)	(96)	(30)	(30)	(30)	(30)
2061	(32)	0	(16)	0	0	0	0	0
2062	(11)	0	0	0	135	135	135	135
2063	8	0	8	0	28	28	28	28
2064	0	0	0	0	(68)	(151)	(50)	(151)
2065	0	0	0	0	(104)	(36)	(84)	(36)
2066	0	15	0	15	0	15	(38)	15
2067	0	44	0	44	80	80	80	80
2068	(15)	(15)	(10)	(15)	0	0	0	0
2069	(18)	0	(20)	0	(36)	0	(36)	0
2070	(11)	0	(15)	0	0	0	0	0
2071	17	0	3	0	0	0	0	0
2072	0	14	0	14	44	44	44	44
2073	0	76	0	76	237	237	237	237
2074	(14)	(8)	(10)	(8)	127	127	127	127
2075	(25)	(64)	(48)	(64)	44	(66)	47	(66)
2076	(31)	46	(22)	46	20	(63)	(97)	(63)
AVG	**(4)**	**1**	**(4)**	**1**	**10**	**8**	**8**	**8**

Note: Negative numbers (in parenthesis "(#)") represent observed payback amounts and whole numbers represent overruns.
Individual IID/CVWD and MWD values reflect the values from the columns entitled - "Diff. From Base Case (kaf)" under the respective modeled condition (from the Tables B-1 to B-12 in Appendix B).

Table A-6
ID+CVWD OVER/UNDER RUN DIFFERENT FROM BASE CASE

Column 1	2	3	4	5		6	7	8	9	10
CY	3YR-PAY 10% MAX	1YR-PAY 10% MAX	3YR-PAY 5% MAX	1YR-PAY 5% MAX		PERCENT LESS THAN OR EQUAL TO	RANKED 3YR-PAY 10% MAX	RANKED 1YR-PAY 10% MAX	RANKED 3YR-PAY 5% MAX	RANKED 1YR-PAY 5% MAX
2002	0	0	0	0		1	(136)	(176)	(118)	(176)
2003	46	46	46	46		3	(104)	(175)	(100)	(175)
2004	70	70	70	70		4	(95)	(175)	(97)	(175)
2005	(1)	(1)	(1)	(1)		5	(69)	(151)	(85)	(151)
2006	(23)	(23)	(23)	(23)		7	(68)	(151)	(84)	(151)
2007	0	0	0	0		8	(68)	(150)	(80)	(150)
2008	0	0	0	0		9	(68)	(99)	(67)	(99)
2009	12	12	12	12		11	(68)	(66)	(63)	(66)
2010	0	0	0	0		12	(68)	(63)	(62)	(63)
2011	(9)	(9)	(9)	(9)		13	(68)	(41)	(58)	(41)
2012	0	0	0	0		15	(68)	(36)	(57)	(36)
2013	129	129	129	129		16	(68)	(35)	(56)	(35)
2014	127	127	127	127		17	(68)	(30)	(51)	(30)
2015	(68)	(175)	(62)	(175)		19	(58)	(30)	(50)	(30)
2016	(136)	(175)	(118)	(175)		20	(39)	(30)	(50)	(30)
2017	(95)	12	(100)	12		21	(36)	(30)	(50)	(30)
2018	(39)	0	(58)	0		23	(35)	(30)	(38)	(30)
2019	155	155	155	155		24	(32)	(29)	(37)	(29)
2020	0	0	0	0		25	(32)	(29)	(36)	(29)
2021	82	(26)	87	(26)		27	(31)	(26)	(34)	(26)
2022	(68)	0	(56)	0		28	(30)	(24)	(34)	(24)
2023	(58)	(99)	(80)	(99)		29	(30)	(23)	(30)	(23)
2024	(68)	0	(37)	0		31	(30)	(17)	(30)	(17)
2025	188	191	152	191		32	(30)	(9)	(30)	(9)
2026	33	48	48	48		33	(30)	(3)	(30)	(3)
2027	(68)	(176)	(63)	(176)		35	(29)	(1)	(30)	(1)
2028	(68)	(29)	(85)	(29)		36	(24)	0	(30)	0
2029	(69)	0	(57)	0		37	(23)	0	(24)	0
2030	(35)	(35)	(34)	(35)		39	(9)	0	(23)	0
2031	(29)	(29)	(30)	(29)		40	(9)	0	(13)	0
2032	139	139	139	139		41	(3)	0	(9)	0
2033	25	25	25	25		43	(1)	0	(3)	0
2034	(68)	(150)	(50)	(150)		44	0	0	(1)	0
2035	(31)	37	(13)	37		45	0	0	0	0
2036	41	55	5	55		47	0	0	0	0
2037	(30)	(30)	(30)	(30)		48	0	0	0	0
2038	(24)	(24)	(24)	(24)		49	0	0	0	0
2039	0	0	0	0		51	0	0	0	0
2040	62	62	62	62		52	0	0	0	0
2041	(30)	(30)	(30)	(30)		53	0	0	0	0
2042	(68)	(151)	(50)	(151)		55	0	0	0	0
2043	(68)	(17)	(67)	(17)		56	0	0	0	0
2044	(32)	0	(51)	0		57	0	0	0	0
2045	16	16	16	16		59	0	0	0	0
2046	0	0	0	0		60	0	0	0	0
2047	(3)	(3)	(3)	(3)		61	0	0	0	0
2048	61	61	61	61		63	0	1	0	1
2049	7	7	7	7		64	7	7	5	7
2050	63	63	63	63		65	12	12	7	12
2051	55	55	55	55		67	16	12	12	12
2052	(30)	(30)	(30)	(30)		68	20	15	16	15
2053	(30)	(30)	(30)	(30)		69	25	16	25	16
2054	119	119	119	119		71	28	25	25	25
2055	0	1	0	1		72	33	28	28	28
2056	(9)	(41)	25	(41)		73	41	37	44	37
2057	(32)	0	(34)	0		75	44	44	46	44
2058	109	109	77	109		76	44	46	47	46
2059	0	0	0	0		77	46	48	48	48
2060	(30)	(30)	(30)	(30)		79	55	55	55	55
2061	0	0	0	0		80	61	55	61	55
2062	135	135	135	135		81	62	61	62	61
2063	28	28	28	28		83	63	62	63	62
2064	(68)	(151)	(50)	(151)		84	70	63	70	63
2065	(104)	(36)	(84)	(36)		85	80	70	77	70
2066	0	15	(38)	15		87	82	8	80	80
2067	80	80	80	80		88	109	109	87	109
2068	0	0	0	0		89	119	119	119	119
2069	(36)	0	(36)	0		91	127	127	127	127
2070	0	0	0	0		92	127	127	127	127
2071	0	0	0	0		93	129	129	129	129
2072	44	44	44	44		95	135	135	135	135
2073	237	237	237	237		96	139	139	139	139
2074	127	127	127	127		97	155	155	152	155
2075	44	(66)	47	(66)		99	188	191	155	191
2076	20	(63)	(97)	(63)		100	237	237	237	237
						NegP	**0.2267**	**0.1867**	**0.2400**	**0.1867**
						AVG PAYBACK	**(48)**	**(63)**	**(47)**	**(63)**

Note: Negative numbers (in parenthesis "(#)") represent observed payback amounts and whole numbers represent overruns.
Individual IID/CVWD values reflect the values from the columns entitled - "Diff. From Base Case (kaf)" under the respective modeled condition (from the Tables B-1 to B-6 in Appendix B).

Table A7
IID+CVWD PROBABILITY OF AVERAGE DIFFERENCE FROM BASE CASE RIVER FLOWS

Column 1	2	3	4	5	6	7	8	9
CY	Probability	3YR-PAY 10% MAX	Probability	1YR-PAY 10% MAX	Probability	3YR-PAY 5% MAX	Probability	1YR-PAY 5% MAX
2002	0.3614	(48)	0.0000	(63)	0.3727	(47)	0.0000	(63)
2003	0.3062	(48)	0.0000	(63)	0.3158	(47)	0.0000	(63)
2004	0.2912	(48)	0.0000	(63)	0.3002	(47)	0.0000	(63)
2005	0.3163	(48)	0.0000	(63)	0.3261	(47)	0.0000	(63)
2006	0.3012	(48)	0.0041	(63)	0.3106	(47)	0.0041	(63)
2007	0.2861	(48)	0.0122	(63)	0.2951	(47)	0.0122	(63)
2008	0.2711	(48)	0.0286	(63)	0.2795	(47)	0.0286	(63)
2009	0.2510	(48)	0.0408	(63)	0.2588	(47)	0.0408	(63)
2010	0.2410	(48)	0.0489	(63)	0.2485	(47)	0.0489	(63)
2011	0.2460	(48)	0.0286	(63)	0.2536	(47)	0.0286	(63)
2012	0.2309	(48)	0.0367	(63)	0.2381	(47)	0.0367	(63)
2013	0.2008	(48)	0.0408	(63)	0.2071	(47)	0.0408	(63)
2014	0.2159	(48)	0.0286	(63)	0.2226	(47)	0.0286	(63)
2015	0.1506	(48)	0.0653	(63)	0.1553	(47)	0.0653	(63)
2016	0.1506	(48)	0.0612	(63)	0.1553	(47)	0.0612	(63)
2017	0.1456	(48)	0.0326	(63)	0.1501	(47)	0.0326	(63)
2018	0.1456	(48)	0.0082	(63)	0.1501	(47)	0.0082	(63)
2019	0.1456	(48)	0.0082	(63)	0.1501	(47)	0.0082	(63)
2020	0.1305	(48)	0.0041	(63)	0.1346	(47)	0.0041	(63)
2021	0.1355	(48)	0.0041	(63)	0.1398	(47)	0.0041	(63)
2022	0.1104	(48)	0.0122	(63)	0.1139	(47)	0.0122	(63)
2023	0.1255	(48)	0.0204	(63)	0.1294	(47)	0.0204	(63)
2024	0.1205	(48)	0.0122	(63)	0.1242	(47)	0.0122	(63)
2025	0.1104	(48)	0.0000	(63)	0.1139	(47)	0.0000	(63)
2026	0.1054	(48)	0.0000	(63)	0.1087	(47)	0.0000	(63)
2027	0.1104	(48)	0.0000	(63)	0.1139	(47)	0.0000	(63)
2028	0.1155	(48)	0.0000	(63)	0.1191	(47)	0.0000	(63)
2029	0.1205	(48)	0.0000	(63)	0.1242	(47)	0.0000	(63)
2030	0.0954	(48)	0.0000	(63)	0.0984	(47)	0.0000	(63)
2031	0.1104	(48)	0.0000	(63)	0.1139	(47)	0.0000	(63)
2032	0.1104	(48)	0.0000	(63)	0.1139	(47)	0.0000	(63)
2033	0.1155	(48)	0.0000	(63)	0.1191	(47)	0.0000	(63)
2034	0.1155	(48)	0.0000	(63)	0.1191	(47)	0.0000	(63)
2035	0.1104	(48)	0.0000	(63)	0.1139	(47)	0.0000	(63)
2036	0.1155	(48)	0.0000	(63)	0.1191	(47)	0.0000	(63)
2037	0.1255	(48)	0.0000	(63)	0.1294	(47)	0.0000	(63)
2038	0.1255	(48)	0.0000	(63)	0.1294	(47)	0.0000	(63)
2039	0.1054	(48)	0.0000	(63)	0.1087	(47)	0.0000	(63)
2040	0.1255	(48)	0.0000	(63)	0.1294	(47)	0.0000	(63)
2041	0.1054	(48)	0.0000	(63)	0.1087	(47)	0.0000	(63)
2042	0.1205	(48)	0.0000	(63)	0.1242	(47)	0.0000	(63)
2043	0.1104	(48)	0.0000	(63)	0.1139	(47)	0.0000	(63)
2044	0.1104	(48)	0.0000	(63)	0.1139	(47)	0.0000	(63)
2045	0.1205	(48)	0.0000	(63)	0.1242	(47)	0.0000	(63)
2046	0.1155	(48)	0.0000	(63)	0.1191	(47)	0.0000	(63)
2047	0.1205	(48)	0.0000	(63)	0.1242	(47)	0.0000	(63)
2048	0.1205	(48)	0.0000	(63)	0.1242	(47)	0.0000	(63)
2049	0.1255	(48)	0.0000	(63)	0.1294	(47)	0.0000	(63)
2050	0.1205	(48)	0.0000	(63)	0.1242	(47)	0.0000	(63)

Table A-8
MWD (PVID/YPRD) OVER/UNDER RUN DIFF FROM BASE CASE

Column 1	2	3	4	5		6	7	8	9	10
CY	3YR-PAY 10% MAX	1YR-PAY 10% MAX	3YR-PAY 5% MAX	1YR-PAY 5% MAX		PERCENT LESS THAN OR EQUAL TO	RANKED 3YR-PAY 10% MAX	RANKED 1YR-PAY 10% MAX	RANKED 3YR-PAY 5% MAX	RANKED 1YR-PAY 5% MAX
2002	0	0	0	0		1.33	(43)	(96)	(78)	(96)
2003	0	45	O	45		2.67	(36)	(64)	(48)	(64)
2004	0	47	0	47		4.00	(36)	(50)	(41)	(50)
2005	(18)	(45)	(15)	(45)		5.33	(34)	(47)	(33)	(47)
2006	(36)	(47)	(30)	(47)		6.67	(32)	(45)	(30)	(45)
2007	(27)	0	(30)	0		8.00	(31)	(30)	(30)	(30)
2008	(11)	0	(15)	0		9.33	(30)	(25)	(25)	(25)
2009	1	0	(1)	0		10.67	(27)	(19)	(22)	(19)
2010	0	0	0	0		12.00	(25)	(18)	(21)	(18)
2011	0	4	0	4		13.33	(18)	(15)	(20)	(15)
2012	0	0	0	0		14.67	(18)	(14)	(18)	(14)
2013	42	(4)	42	(4)		16.00	(18)	(12)	(16)	(12)
2014	48	0	48	0		17.33	(18)	(8)	(15)	(8)
2015	27	0	27	0		18.67	(18)	(7)	(15)	(7)
2016	0	0	0	0		20.00	(18)	(6)	(15)	(6)
2017	0	11	0	11		21.33	(18)	(5)	(15)	(5)
2018	0	0	0	0		22.67	(18)	(4)	(14)	(4)
2019	(11)	(4)	(11)	(4)		24.00	(18)	(4)	(14)	(4)
2020	0	0	0	0		25.33	(17)	0	(12)	0
2021	(7)	(6)	(7)	(6)		26.67	(15)	0	(12)	0
2022	0	0	0	0		28.00	(14)	0	(12)	0
2023	(1)	34	(1)	34		29.33	(14)	0	(11)	0
2024	0	0	0	0		30.67	(11)	0	(10)	0
2025	(18)	(5)	(12)	(5)		32.00	(11)	0	(10)	0
2026	(17)	8	(12)	8		33.33	(11)	0	(10)	0
2027	(18)	(30)	(21)	(30)		34.67	(11)	0	(10)	0
2028	5	(19)	15	(19)		36.00	(7)	0	(10)	0
2029	28	0	10	0		37.33	(7)	0	(9)	0
2030	0	0	0	0		38.67	(7)	0	(7)	0
2031	0	0	0	0		40.00	(1)	0	(1)	0
2032	11	0	11	0		41.33	(1)	0	(1)	0
2033	0	25	0	25		42.67	0	0	0	0
2034	0	0	0	0		44.00	0	0	0	0
2035	(18)	(18)	(10)	(18)		45.33	0	0	0	0
2036	(7)	25	(10)	25		46.67	0	0	0	0
2037	(7)	(7)	(12)	(7)		48.00	0	0	0	0
2038	6	(25)	14	(25)		49.33	0	0	0	0
2039	23	0	20	0		50.67	0	0	0	0
2040	59	0	54	0		52.00	0	0	0	0
2041	17	0	17	0		53.33	0	0	0	0
2042	0	0	0	0		54.67	0	0	0	0
2043	0	0	0	0		56.00	0	0	0	0
2044	0	0	0	0		57.33	0	0	0	0
2045	20	0	20	0		58.67	0	0	0	0
2046	0	0	0	0		60.00	0	0	0	0
2047	0	0	3	0		61.33	0	0	0	0
2048	0	44	0	44		62.67	0	0	0	0
2049	0	26	0	26		64.00	0	0	0	0
2050	(18)	6	(15)	6		65.33	0	0	0	0
2051	(36)	(14)	(25)	(14)		66.67	0	0	0	0
2052	(34)	(50)	(41)	(50)		68.00	0	0	0	0
2053	(30)	(12)	(33)	(12)		69.33	0	0	0	0
2054	(14)	19	(18)	19		70.67	0	0	0	0
2055	0	0	0	0		72.00	0	0	0	0
2056	(18)	23	(10)	23		73.33	0	0	0	0
2057	(1)	0	(9)	0		74.67	0	0	0	0
2058	(18)	54	(14)	54		76.00	0	4	0	4
2059	(18)	0	(14)	0		77.33	0	6	0	6
2060	(43)	(96)	(78)	(96)		78.67	0	8	0	8
2061	(32)	0	(16)	0		80.00	0	11	0	11
2062	(11)	0	0	0		81.33	0	14	0	14
2063	8	0	8	0		82.67	1	15	3	15
2064	0	0	0	0		84.00	5	19	3	19
2065	0	0	0	0		85.33	6	23	8	23
2066	0	15	0	15		86.67	8	25	10	25
2067	0	44	0	44		88.00	11	25	11	25
2068	(15)	(15)	(10)	(15)		89.33	17	26	14	26
2069	(18)	0	(20)	0		90.67	17	34	15	34
2070	(11)	0	(15)	0		92.00	20	44	17	44
2071	17	0	3	0		93.33	23	44	20	44
2072	0	14	0	14		94.67	27	45	20	45
2073	0	76	0	76		96.00	28	46	27	46
2074	(14)	(8)	(10)	(8)		97.33	42	47	42	47
2075	(25)	(64)	(48)	(64)		98.67	48	54	48	54
2076	(31)	46	(22)	46		100.00	59	76	54	76
						NegP	**0.2267**	**0.1333**	**0.2267**	**0.1333**
						AVG PAYBACK	**(19)**	**(26)**	**(19)**	**(26)**

Note: Negative numbers (in parenthesis "(#)") represent observed payback amounts and whole numbers represent overruns.
Individual MWD (PVID/YPRD) values reflect the values from the columns entitled - "Diff. From Base Case (kaf)" under the respective modeled condition (from the Tables B-7 to B-12 in Appendix B).

Table A-9
MWD + IID/CVWD OVER/UNDER RUN DIFFERENT FROM BASE CASE

	SUM (MWD + IID/CVWD)				RANKED SUM (MWD + IID/CVWD)			
Column 1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
	3YR-PAY	**1YR-PAY**	**3YR-PAY**	**1YR-PAY**	**3YR-PAY**	**1YR-PAY**	**3YR-PAY**	**1YR-PAY**
CY	**10% MAX**	**10% MAX**	**5% MAX**	**5% MAX**	**10% MAX**	**10% MAX**	**5% MAX**	**5% MAX**
2002	0	0	0	0	(136)	(206)	(119)	(206)
2003	46	91	46	91	(104)	(175)	(118)	(175)
2004	70	117	70	117	(95)	(175)	(108)	(175)
2005	(19)	(46)	(16)	(46)	(86)	(151)	(100)	(151)
2006	(59)	(70)	(53)	(70)	(73)	(151)	(84)	(151)
2007	(27)	0	(30)	0	(68)	(150)	(84)	(150)
2008	(11)	0	(15)	0	(68)	(130)	(81)	(130)
2009	13	12	11	12	(68)	(126)	(71)	(126)
2010	0	0	0	0	(68)	(80)	(70)	(80)
2011	(9)	(5)	(9)	(5)	(68)	(70)	(67)	(70)
2012	0	0	0	0	(68)	(65)	(63)	(69)
2013	171	125	171	125	(64)	(57)	(58)	(65)
2014	175	127	175	127	(63)	(49)	(56)	(49)
2015	(41)	(175)	(35)	(175)	(60)	(48)	(56)	(48)
2016	(136)	(175)	(118)	(175)	(59)	(46)	(53)	(46)
2017	(95)	23	(100)	23	(59)	(42)	(51)	(42)
2018	(39)	0	(58)	0	(54)	(37)	(50)	(37)
2019	144	151	144	151	(49)	(36)	(50)	(36)
2020	0	0	0	0	(41)	(35)	(50)	(35)
2021	75	(32)	80	(32)	(39)	(32)	(43)	(32)
2022	(68)	0	(56)	0	(37)	(30)	(42)	(30)
2023	(59)	(65)	(81)	(65)	(35)	(29)	(38)	(29)
2024	(68)	0	(37)	0	(33)	(18)	(37)	(18)
2025	170	186	140	186	(32)	(17)	(35)	(17)
2026	16	56	36	56	(32)	(17)	(34)	(17)
2027	(86)	(206)	(84)	(206)	(29)	(15)	(30)	(15)
2028	(63)	(48)	(70)	(48)	(27)	(5)	(30)	(5)
2029	28	(57)	100	(69)	(27)	(3)	(23)	(3)
2030	(35)	(35)	(34)	(35)	(19)	0	(16)	0
2031	(29)	(29)	(30)	(29)	(18)	0	(16)	0
2032	150	139	150	139	(18)	0	(15)	0
2033	25	50	25	50	(15)	0	(15)	0
2034	(68)	(150)	(50)	(150)	(13)	0	(14)	0
2035	(49)	19	(23)	19	(11)	0	(13)	0
2036	34	80	(5)	80	(11)	0	(10)	0
2037	(37)	(37)	(42)	(37)	(11)	0	(10)	0
2038	(18)	(49)	(10)	(49)	(9)	0	(9)	0
2039	23	0	20	0	(3)	0	(5)	0
2040	121	62	116	62	0	0	(1)	0
2041	(13)	(30)	(13)	(30)	0	0	0	0
2042	(68)	(151)	(50)	(151)	0	0	0	0
2043	(68)	(17)	(67)	(17)	0	0	0	0
2044	(32)	0	(51)	0	0	0	0	0
2045	36	16	36	16	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	(3)	(3)	0	(3)	7	0	0	0
2048	61	105	61	105	13	1	3	1
2049	7	33	7	33	16	12	7	12
2050	45	69	48	69	17	16	11	16
2051	19	41	30	41	19	19	15	19
2052	(64)	(80)	(71)	(80)	19	23	20	23
2053	(60)	(42)	(63)	(42)	23	28	25	28
2054	105	138	101	138	25	30	30	30
2055	0	1	0	1	28	33	36	33
2056	(27)	(18)	15	(18)	34	41	36	41
2057	(33)	0	(43)	0	36	50	36	50
2058	91	163	63	163	36	56	44	56
2059	(18)	0	(14)	0	44	58	46	58
2060	(73)	(126)	(108)	(126)	45	62	48	62
2061	(32)	0	(16)	0	46	69	61	69
2062	124	135	135	135	61	80	63	80
2063	36	28	36	28	70	91	70	91
2064	(68)	(151)	(50)	(151)	75	105	80	105
2065	(104)	(36)	(84)	(36)	80	117	80	117
2066	0	30	(38)	30	91	119	100	119
2067	80	124	80	124	105	124	101	124
2068	(15)	(15)	(10)	(15)	113	125	116	125
2069	(54)	0	(56)	0	121	127	117	127
2070	(11)	0	(15)	0	124	135	135	135
2071	17	0	3	0	144	138	140	138
2072	44	58	44	58	150	139	144	139
2073	237	313	237	313	170	151	150	151
2074	113	119	117	119	171	163	171	163
2075	19	(130)	(1)	(130)	175	186	175	186
2076	(11)	(17)	(119)	(17)	237	313	237	313
AVG	6	9	4	9				
				Average Payback	**(47)**	**(71)**	**(47)**	**(72)**
				Average Overrun	**77**	**90**	**79**	**90**

Note: Negative numbers (in parenthesis "(#)") represent observed payback amounts and whole numbers represent overruns. Individual MWD (PVID/YPRD) values reflect the values from the columns entitled - "Diff. From Base Case (kaf)" under the respective modeled condition (from the Tables B-7 to B-12 in Appendix B).

Table A-10
SUMMARY OF INDIVIDUAL AND TOTAL END-OF-YEAR OVERRUN ACCOUNT BALANCES FOR IID/CVWD PLUS MWD

	10% Overrun with 3-Year Payback			10% Overrun with 1-Year Payback			5% Overrun with 3-Year Payback			5% Overrun with 1-Year Payback		
Column 1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
CY	**IID/CVWD**	**MWD**	**Sum (IID/CVWD+ MWD)**	**IID/CVWD**	**MWD**	**Sum (IID/CVWD+ MWD)**	**IID/CVWD**	**MWD**	**Sum (IID/CVWD+ MWD)**	**IID/CVWD**	**MWD**	**Sum (IID/CVWD+ MWD)**
2002	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0
2004	1	45	46	1	45	46	1	45	46	1	45	46
2005	23	74	97	23	47	70	23	77	100	23	47	70
2006	0	38	38	0	0	0	0	47	47	0	0	0
2007	0	11	11	0	0	0	0	17	17	0	0	0
2008	0	0	0	0	0	0	0	2	2	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010	13	0	13	13	0	13	13	0	13	13	0	13
2011	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	4	4	0	4	4	0	4	4	0	4	4
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	175	0	175	175	0	175	175	0	175	175	0	175
2015	282	0	282	175	0	175	288	0	288	175	0	175
2016	173	0	173	27	0	27	197	0	197	27	0	27
2017	39	0	39	0	0	0	58	0	58	0	0	0
2018	28	11	39	28	11	39	28	11	39	28	11	39
2019	0	0	0	0	0	0	0	0	0	0	0	0
2020	176	7	183	176	7	183	176	7	183	176	7	183
2021	108	0	108	0	0	0	113	0	113	0	0	0
2022	189	1	190	149	1	150	206	1	207	149	1	150
2023	81	0	81	0	0	0	76	0	76	0	0	0
2024	28	35	63	15	35	50	54	35	89	15	35	50
2025	15	17	32	0	11	11	0	23	23	0	11	11
2026	176	30	206	176	30	206	176	41	217	176	30	206
2027	137	31	168	29	19	48	142	39	181	29	19	48
2028	40	1	41	0	0	0	57	19	76	0	0	0
2029	35	0	35	35	0	35	35	0	35	35	0	35
2030	29	0	29	29	0	29	30	0	30	29	0	29
2031	0	0	0	0	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0	0	0	0	0
2033	150	0	150	150	0	150	150	0	150	150	0	150
2034	82	25	107	0	25	25	100	25	125	0	25	25
2035	14	7	21	0	0	0	50	15	65	0	0	0
2036	30	7	37	30	7	37	30	12	42	30	7	37
2037	30	25	55	30	25	55	30	25	55	30	25	55
2038	0	7	7	0	0	0	0	15	15	0	0	0
2039	30	0	30	30	0	30	30	5	35	30	0	30
2040	30	0	30	30	0	30	30	0	30	30	0	30
2041	151	0	151	151	0	151	151	0	151	151	0	151
2042	100	0	100	17	0	17	118	0	118	17	0	17
2043	15	0	15	0	0	0	51	0	51	0	0	0
2044	0	0	0	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0	0	0	0
2046	36	0	36	36	0	36	36	0	36	36	0	36
2047	0	0	0	0	0	0	0	0	0	0	0	0
2048	36	0	36	36	0	36	36	0	36	36	0	36
2049	17	44	61	17	44	61	17	44	61	17	44	61
2050	17	52	69	17	26	43	17	55	72	17	26	43
2051	30	66	96	30	50	80	30	80	110	30	50	80
2052	30	44	74	30	12	42	30	51	81	30	12	42
2053	0	14	14	0	0	0	0	18	18	0	0	0
2054	0	0	0	0	0	0	0	0	0	0	0	0
2055	100	19	119	100	19	119	100	19	119	100	19	119
2056	32	1	33	0	0	0	66	9	75	0	0	0
2057	17	42	59	17	42	59	49	42	91	17	42	59
2058	0	24	24	0	0	0	0	28	28	0	0	0
2059	30	102	132	30	96	126	30	110	140	30	96	126
2060	0	59	59	0	0	0	0	32	32	0	0	0
2061	0	27	27	0	0	0	0	16	16	0	0	0
2062	0	0	0	0	0	0	0	0	0	0	0	0
2063	151	0	151	151	0	151	151	0	151	151	0	151
2064	119	0	119	36	0	36	137	0	137	36	0	36
2065	15	0	15	0	0	0	53	0	53	0	0	0
2066	0	0	0	0	0	0	0	0	0	0	0	0
2067	0	15	15	0	15	15	0	15	15	0	15	15
2068	36	29	65	0	0	0	36	49	85	0	0	0
2069	0	11	11	0	0	0	0	29	29	0	0	0
2070	0	0	0	0	0	0	0	14	14	0	0	0
2071	0	0	0	0	0	0	0	0	0	0	0	0
2072	17	0	17	17	0	17	17	0	17	17	0	17
2073	30	14	44	30	14	44	30	14	44	30	14	44
2074	178	76	254	178	76	254	178	80	258	178	76	254
2075	261	57	318	151	6	157	264	38	302	151	6	157
2076	225	106	331	100	12	112	179	28	207	100	12	112

Note: Individual IID/CVWD and MWD values reflect the values from the columns entitled - "Diff. From Base Case (kaf)" for each respective modeled condition (from Tables B-1 to B-12 in Appendix B).

Table A-11
CALIFORNIA TOTAL END-OF-YEAR OVERRUN ACCOUNT BALANCES (KAF)

Column 1	2	3	4	5	6	7	8	9	10
CY	3YR-PAY 10% MAX	1YR-PAY 10% MAX	3YR-PAY 5% MAX	1YR-PAY 5% MAX	PERCENT LESS THAN OR EQUAL TO	RANKED 3YR-PAY 10% MAX	RANKED 1YR-PAY 10% MAX	RANKED 3YR-PAY 5% MAX	RANKED 1YR-PAY 5% MAX
2002	0	0	0	0	1.33	331	254	302	254
2003	0	0	0	0	2.67	318	206	288	206
2004	46	46	46	46	4.00	282	183	258	183
2005	97	70	100	70	5.33	254	175	217	175
2006	38	0	47	0	6.67	206	175	207	175
2007	11	0	17	0	8.00	190	157	207	157
2008	0	0	2	0	9.33	183	151	197	151
2009	0	0	0	0	10.67	175	151	183	151
2010	13	13	13	13	12.00	173	150	181	150
2011	0	0	0	0	13.33	168	150	175	150
2012	4	4	4	4	14.67	151	126	151	126
2013	0	0	0	0	16.00	151	119	151	119
2014	175	175	175	175	17.33	150	112	150	112
2015	282	175	288	175	18.67	132	80	140	80
2016	173	27	197	27	20.00	119	70	137	70
2017	39	0	58	0	21.33	119	61	125	61
2018	39	39	39	39	22.67	108	59	119	59
2019	0	0	0	0	24.00	107	55	118	55
2020	183	183	183	183	25.33	100	50	113	50
2021	108	0	113	0	26.67	97	48	110	48
2022	190	150	207	150	28.00	96	46	100	46
2023	81	0	76	0	29.33	81	44	91	44
2024	63	50	89	50	30.67	74	43	89	43
2025	32	11	23	11	32.00	70	42	85	42
2026	206	206	217	206	33.33	69	39	81	39
2027	168	48	181	48	34.67	65	37	76	37
2028	70	0	76	0	36.00	63	36	76	36
2029	35	35	35	35	37.33	61	36	75	36
2030	29	29	30	29	38.67	59	36	72	36
2031	0	0	0	0	40.00	59	35	65	35
2032	0	0	0	0	41.33	55	30	61	30
2033	150	150	150	150	42.67	46	30	58	30
2034	107	25	125	25	44.00	44	29	55	29
2035	21	0	65	0	45.33	39	27	53	27
2036	37	37	42	37	46.67	39	25	51	25
2037	55	55	55	55	48.00	38	17	47	17
2038	7	0	15	0	49.33	37	17	46	17
2039	30	30	35	30	50.67	36	15	44	15
2040	30	30	30	30	52.00	36	13	42	13
2041	151	151	151	151	53.33	35	11	39	11
2042	100	17	118	17	54.67	33	4	36	4
2043	32	0	51	0	56.00	32	0	36	0
2044	0	0	0	0	57.33	32	0	35	0
2045	0	0	0	0	58.67	30	0	35	0
2046	36	36	36	36	60.00	30	0	32	0
2047	0	0	0	0	61.33	29	0	30	0
2048	36	36	36	36	62.67	27	0	30	0
2049	61	61	61	61	64.00	24	0	29	0
2050	69	43	72	43	65.33	21	0	28	0
2051	96	80	110	80	66.67	17	0	23	0
2052	74	42	81	42	68.00	15	0	18	0
2053	14	0	18	0	69.33	15	0	17	0
2054	0	0	0	0	70.67	14	0	17	0
2055	119	119	119	119	72.00	13	0	16	0
2056	33	0	75	0	73.33	11	0	15	0
2057	59	59	91	59	74.67	11	0	15	0
2058	24	0	28	0	76.00	7	0	14	0
2059	132	126	140	126	77.33	4	0	13	0
2060	59	0	32	0	78.67	0	0	4	0
2061	27	0	16	0	80.00	0	0	2	0
2062	0	0	0	0	81.33	0	0	0	0
2063	151	151	151	151	82.67	0	0	0	0
2064	119	36	137	36	84.00	0	0	0	0
2065	15	0	53	0	85.33	0	0	0	0
2066	0	0	0	0	86.67	0	0	0	0
2067	15	15	15	15	88.00	0	0	0	0
2068	65	0	85	0	89.33	0	0	0	0
2069	11	0	29	0	90.00	1	0	0	0
2070	0	0	14	0	92.00	0	0	0	0
2071	0	0	0	0	93.33	0	0	0	0
2072	17	17	17	17	94.67	0	0	0	0
2073	44	44	44	44	96.00	0	0	0	0
2074	254	254	258	254	97.33	0	0	0	0
2075	318	157	302	157	98.67	0	0	0	0
2076	331	112	207	112	**100.00**	**0**	**0**	**0**	**0**
					AVERAGE	**66**	**42**	**70**	**42**

Note: Values in column nos. 2, 3, 4 and 5 above reflect values in column nos. 4, 7, 10 and 13 in Table A-10, respectively.

Table A-12
AVERAGE OVERRUN ACCOUNT FORGIVEN

Column 1	2	3	4	5	6
CY	PROB	3YR-PAY 10% MAX	1YR-PAY 10%MAX	3YR-PAY 5% MAX	1YR-PAY 5% MAX
2002	0.1295	66	42	70	42
2003	0.1857	66	42	70	42
2004	0.1927	66	42	70	42
2005	0.1831	66	42	70	42
2006	0.1910	66	42	70	42
2007	0.1815	66	42	70	42
2008	0.1644	66	42	70	42
2009	0.1315	66	42	70	42
2010	0.1129	66	42	70	42
2011	0.1221	66	42	70	42
2012	0.1146	66	42	70	42
2013	0.1052	66	42	70	42
2014	0.1012	66	42	70	42
2015	0.0747	66	42	70	42
2016	0.0664	66	42	70	42
2017	0.0763	66	42	70	42
2018	0.0803	66	42	70	42
2019	0.0642	66	42	70	42
2020	0.0720	66	42	70	42
2021	0.0635	66	42	70	42
2022	0.0579	66	42	70	42
2023	0.0623	66	42	70	42
2024	0.0565	66	42	70	42
2025	0.0518	66	42	70	42
2026	0.0436	66	42	70	42
2027	0.0548	66	42	70	42
2028	0.0541	66	42	70	42
2029	0.0531	66	42	70	42
2030	0.0473	66	42	70	42
2031	0.0518	66	42	70	42
2032	0.0518	66	42	70	42
2033	0.0509	66	42	70	42
2034	0.0573	66	42	70	42
2035	0.0548	66	42	70	42
2036	0.0509	66	42	70	42
2037	0.0484	66	42	70	42
2038	0.0450	66	42	70	42
2039	0.0494	66	42	70	42
2040	0.0484	66	42	70	42
2041	0.0436	66	42	70	42
2042	0.0399	66	42	70	42
2043	0.0426	66	42	70	42
2044	0.0426	66	42	70	42
2045	0.0399	66	42	70	42
2046	0.0414	66	42	70	42
2047	0.0432	66	42	70	42
2048	0.0365	66	42	70	42
2049	0.0415	66	42	70	42
2050	0.0432	66	42	70	42

ATTACHMENT B

MODELING SIMULATION RESULTS

MODELING SIMULATIONS

Table No.	User(s)	Maximum Allowed Overrun Account Balance	Payback Period (years)	
B-1	IID/CVWD	10%	3	Priority 3 Entitlement = 3.38 kafy
B-2	IID/CVWD	10%	1	Priority 3 Entitlement = 3.38 kafy
B-3	IID/CVWD	10%	0	Priority 3 Entitlement = 3.38 kafy
B-4	IID/CVWD	5%	3	Priority 3 Entitlement = 3.38 kafy
B-5	IID/CVWD	5%	1	Priority 3 Entitlement = 3.38 kafy
B-6	IID/CVWD	5%	0	Priority 3 Entitlement = 3.38 kafy
B-7	PVID/YPRD	10%	3	Priority 1&2 Target = 0.42 kafy
B-8	PVID/YPRD	10%	1	Priority 1&2 Target = 0.42 kafy
B-9	PVID/YPRD	10%	0	Priority 1&2 Target = 0.42 kafy
B-10	PVID/YPRD	5%	3	Priority 1&2 Target = 0.42 kafy
B-11	PVID/YPRD	5%	1	Priority 1&2 Target = 0.42 kafy
B-12	PVID/YPRD	5%	0	Priority 1&2 Target = 0.42 kafy

Explanation of contents of columns in Tables B-1 to B-12.

Column	Title	Content Description
1	Year	Modeled calendar year, starting with 02 or 2002.
2	Estimated Consumptive Use	Estimated consumptive use based on projections developed by Reclamation or as provided by the respective agency.
3	Measured Consumptive Use	Represents the ”Measured” Consumptive Use assuming that variable extraordinary Conservation is taking place. Measured Consumptive use is therefore equal to historic minus the Extraordinary Conservation.
4	Entitlement Minus the Payback Target	Entitlement less payback amount (Column 9)
5	Over/Under	Amount of Over-Run exceeding entitlement or entitlement minus payback amount.
6	Overrun Account Reported	Amount of Over-run that occurred last year, but was reported this year.
7	% of Entitlement	Maximum Overrun Account Amount
8	20% of Maximum	Minimum payback = greater of 20% of Maximum or 1/3 of Account
9	Extraordinary Conservation Required	Amount of Extra Ordinary Conservation district implementing (required payback).
10	End of Year Account	Amount in Over-run Account including paybacks and any additional overruns
11	Base Case	The base case data for each respective agency or priority right group as developed and presented in Table A-2, Appendix A.
12	Difference from Base Case	Estimated Consumptive Use (Column 3) less Base Case Amount (Column 11)

Modeling Conditions for
Table Nos. B-1, B-2 and B-3 (IID/CVWD)

Conditions:

1. Inadvertent Overruns are limited to a maximum of 10% of entities' entitlement.

Rules:

1. Minimum Payback = greater of 20% maximum allowed Inadvertent Overrun or 1/3 of Account Balance.
2. Accounts which exceed 10% of entitlement - Strict enforcement 1 yr payback
3. First Year of payback not strictly enforced, except that exceeding maximum account will not be allowed during a payback year.
4. Second Year of payback - strict enforcement and balancing of Account
5. Inadvertent Overrun Account balances are forgiven when flood releases occur.
6. Under 1 year payback (normal, or overage greater than 10%)
7. For 1 year delay in reporting, as long as entity has not exceeded its 10% overrun allowance and they are meeting their payback schedule, the second year overrun, which was not reported prior to implementation of the first year of payback, would be treated as a separate overrun, with the payback amount criteria applying to the second amount. The full payback would be the sum of the two paybacks occurring together.

Table B-1
IID and Coachella Baselines Added Together - 10% Overrun with 3-Year Payback
(Assume base entitlement of 3.38 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	10% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	3,252	3,252		0		338	68			3,252	0
2003	3,381	3,381		1	0	338	68		0	3,335	46
2004	3,403	3,403		23	1	338	68		1	3,333	70
2005	3,347	3,346	3,379	0	23	338	68	1	23	3,347	(1)
2006	3,260	3,237	3,357	0	0	338	68	23	0	3,260	(23)
2007	3,261	3,261		0	0	338	68		0	3,261	0
2008	3,119	3,119		0	0	338	68		0	3,119	0
2009	3,393	3,393		13	0	338	68		0	3,381	12
2010	3,264	3,264		0	13	338	68		13	3,264	0
2011	3,355	3,342	3,367	0	0	338	68	13	0	3,351	(9)
2012	3,121	3,121		0	0	338	68		0	3,121	0
2013	3,555	3,555		175	0	338	68		0	3,426	129
2014	3,555	3,555		175	175	338	68		175	3,428	127
2015	3,407	3,339	3,312	27	175	338	68	68	282	3,407	(68)
2016	3,246	3,110	3,244	0	27	338	68	136	173	3,246	(136)
2017	3,408	3,274	3,246	28	0	338	68	134	39	3,369	(95)
2018	3,246	3,207	3,341	0	28	338	68	39	28	3,246	(39)
2019	3,556	3,528	3,352	176	0	338	68	28	0	3,373	155
2020	3,266	3,266		0	176	338	68		176	3,266	0
2021	3,529	3,461	3,312	149	0	338	68	68	108	3,379	82
2022	3,123	3,055	3,312	0	149	338	68	68	189	3,123	(68)
2023	3,395	3,287	3,272	15	0	338	68	108	81	3,345	(58)
2024	3,357	3,289	3,312	0	15	338	68	68	28	3,357	(68)
2025	3,556	3,528	3,352	176	15	338	68	28	15	3,350	178
2026	3,409	3,394	3,365	29	176	338	68	15	176	3,361	33
2027	3,358	3,290	3,312	0	29	338	68	68	137	3,358	(68)
2028	3,415	3,318	3,283	35	0	338	68	97	40	3,415	(97)
2029	3,409	3,369	3,340	29	35	338	68	40	35	3,409	(40)
2030	3,358	3,323	3,345	0	29	338	68	35	29	3,358	(35)
2031	3,358	3,329	3,351	0	0	338	68	29	0	3,358	(29)
2032	3,530	3,530		150	0	338	68		0	3,391	139
2033	3,358	3,358		0	150	338	68		150	3,333	25
2034	3,124	3,056	3,312	0	0	338	68	68	82	3,124	(68)
2035	3,410	3,342	3,312	30	0	338	68	68	14	3,373	(31)
2036	3,410	3,396	3,366	30	30	338	68	14	30	3,355	41
2037	3,267	3,237	3,350	0	30	338	68	30	30	3,267	(30)
2038	3,410	3,380	3,350	30	0	338	68	30	0	3,404	(24)
2039	3,410	3,410	3,380	30	30	338	68		30	3,410	0
2040	3,531	3,501	3,350	151	30	338	68	30	30	3,439	62
2041	3,397	3,367	3,350	17	151	338	68	30	151	3,397	(30)
2042	3,124	3,056	3,312	0	17	338	68	68	100	3,124	(68)
2043	3,081	2,996	3,295	0	0	338	68	85	15	3,081	(85)
2044	3,248	3,233	3,365	0	0	338	68	15	0	3,248	(15)
2045	3,416	3,416		36	0	338	68		0	3,400	16
2046	3,124	3,124		0	36	338	68		36	3,124	0
2047	3,416	3,380	3,344	36	0	338	68	36	0	3,383	(3)
2048	3,397	3,397		17	36	338	68		36	3,336	61
2049	3,397	3,361	3,344	17	17	338	68	36	17	3,354	7
2050	3,410	3,393	3,363	30	17	338	68	17	17	3,330	63
2051	3,410	3,393	3,363	30	30	338	68	17	30	3,338	55
2052	3,081	3,051	3,350	0	30	338	68	30	30	3,081	(30)
2053	3,248	3,218	3,350	0	0	338	68	30	0	3,248	(30)
2054	3,480	3,480		100	0	338	68		0	3,361	119
2055	3,123	3,123		0	100	338	68		100	3,123	0
2056	3,397	3,329	3,312	17	0	338	68	68	32	3,338	(9)
2057	3,124	3,092	3,348	0	17	338	68	32	17	3,124	(32)
2058	3,410	3,393	3,363	30	0	338	68	17	0	3,284	109
2059	3,248	3,248		0	30	338	68		30	3,248	0
2060	3,248	3,218	3,350	0	0	338	68	30	0	3,248	(30)
2061	3,124	3,124		0	0	338	68		0	3,124	0
2062	3,531	3,531		151	0	338	68		0	3,396	135
2063	3,416	3,416	3,380	36	151	338	68		151	3,388	28
2064	3,081	3,013	3,312	0	36	338	68	68	119	3,081	(68)
2065	3,267	3,163	3,276	0	0	338	68	104	15	3,267	(104)
2066	3,359	3,344	3,365	0	0	338	68	15	0	3,344	0
2067	3,416	3,416		36	0	338	68		0	3,336	80
2068	3,248	3,248		0	36	338	68		36	3,248	0
2069	2,880	2,844	3,344	0	0	338	68	36	0	2,880	(36)
2070	3,124	3,124		0	0	338	68		0	3,124	0
2071	3,397	3,397	3,380	17	0	338	68		0	3,397	0
2072	3,410	3,410	3,380	30	17	338	68		17	3,366	44
2073	3,558	3,541	3,363	178	30	338	68	17	30	3,304	237
2074	3,531	3,501	3,350	151	178	338	68	30	178	3,374	127
2075	3,480	3,412	3,312	100	151	338	68	68	261	3,368	44
2076	3,416	3,280	3,244	36	100	338	68	136	225	3,328	(48)
							Maximum	**178**			
							Average	**47**			

Table B-2
IID and Coachella Baselines Added Together - 10% Overrun with 1-Year Payback
(Assume base entitlement of 3.38 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	10% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	3,252	3,252		0		338	68			3,252	0
2003	3,381	3,381		1	0	338	68		0	3,335	46
2004	3,403	3,403		23	1	338	68		1	3,333	70
2005	3,347	3,346	3,379	0	23	338	68	1	23	3,347	(1)
2006	3,260	3,237	3,357	0	0	338	68	23	0	3,260	(23)
2007	3,261	3,261		0	0	338	68		0	3,261	0
2008	3,119	3,119		0	0	338	68		0	3,119	0
2009	3,393	3,393		13	0	338	68		0	3,381	12
2010	3,264	3,264		0	13	338	68		13	3,264	0
2011	3,355	3,342	3,367	0	0	338	68	13	0	3,351	(9)
2012	3,121	3,121		0	0	338	68		0	3,121	0
2013	3,555	3,555		175	0	338	68		0	3,426	129
2014	3,555	3,555		175	175	338	68		175	3,428	127
2015	3,407	3,232	3,205	27	175	338	68	175	175	3,407	(175)
2016	3,246	3,071	3,205	0	27	338	68	175	27	3,246	(175)
2017	3,408	3,381	3,353	28	0	338	68	27	0	3,369	12
2018	3,246	3,246		0	28	338	68		28	3,246	0
2019	3,556	3,528	3,352	176	0	338	68	28	0	3,373	155
2020	3,266	3,266		0	176	338	68		176	3,266	0
2021	3,529	3,353	3,204	149	0	338	68	176	0	3,379	(26)
2022	3,123	3,123		0	149	338	68		149	3,123	0
2023	3,395	3,246	3,231	15	0	338	68	149	0	3,345	(99)
2024	3,357	3,357		0	15	338	68		15	3,357	0
2025	3,556	3,541	3,365	176		338	68	15	0	3,350	191
2026	3,409	3,409		29	176	338	68		176	3,361	48
2027	3,358	3,182	3,204	0	29	338	68	176	29	3,358	(176)
2028	3,415	3,386	3,351	35	0	338	68	29	0	3,415	(29)
2029	3,409	3,409	3,380	29	35	338	68		35	3,409	0
2030	3,358	3,323	3,345	0	29	338	68	35	29	3,358	(35)
2031	3,358	3,329	3,351	0	0	338	68	29	0	3,358	(29)
2032	3,530	3,530		150	0	338	68		0	3,391	139
2033	3,358	3,358		0	150	338	68		150	3,333	25
2034	3,124	2,974	3,230	0	0	338	68	150	0	3,124	(150)
2035	3,410	3,410		30	0	338	68		0	3,373	37
2036	3,410	3,410		30	30	338	68		30	3,355	55
2037	3,267	3,237	3,350	0	30	338	68	30	30	3,267	(30)
2038	3,410	3,380	3,350	30	0	338	68	30	0	3,404	(24)
2039	3,410	3,410	3,380	30	30	338	68		30	3,410	0
2040	3,531	3,501	3,350	151	30	338	68	30	30	3,439	62
2041	3,397	3,367	3,350	17	151	338	68	30	151	3,397	(30)
2042	3,124	2,973	3,229	0	17	338	68	151	17	3,124	(151)
2043	3,081	3,064	3,363	0	0	338	68	17	0	3,081	(17)
2044	3,248	3,248		0	0	338	68		0	3,248	0
2045	3,416	3,416		36	0	338	68		0	3,400	16
2046	3,124	3,124		0	36	338	68		36	3,124	0
2047	3,416	3,380	3,344	36	0	338	68	36	0	3,383	(3)
2048	3,397	3,397		17	36	338	68		36	3,336	61
2049	3,397	3,361	3,344	17	17	338	68	36	17	3,354	7
2050	3,410	3,393	3,363	30	17	338	68	17	17	3,330	63
2051	3,410	3,393	3,363	30	30	338	68	17	30	3,338	55
2052	3,081	3,051	3,350	0	30	338	68	30	30	3,081	(30)
2053	3,248	3,218	3,350	0	0	338	68	30	0	3,248	(30)
2054	3,480	3,480		100	0	338	68		0	3,361	119
2055	3,124	3,124		0	100	338	68		100	3,123	1
2056	3,397	3,297	3,280	17	0	338	68	100	0	3,338	(41)
2057	3,124	3,124		0	17	338	68		17	3,124	0
2058	3,410	3,393	3,363	30	0	338	68	17	0	3,284	109
2059	3,248	3,248		0	30	338	68		30	3,248	0
2060	3,248	3,218	3,350	0	0	338	68	30	0	3,248	(30)
2061	3,124	3,124		0	0	338	68		0	3,124	0
2062	3,531	3,531		151	0	338	68		0	3,396	135
2063	3,416	3,416	3,380	36	151	338	68		151	3,388	28
2064	3,081	2,930	3,229	0	36	338	68	151	36	3,081	(151)
2065	3,267	3,231	3,344	0	0	338	68	36	0	3,267	(36)
2066	3,359	3,359		0	0	338	68		0	3,344	15
2067	3,416	3,416		36	0	338	68		0	3,336	80
2068	3,248	3,248		0	0	338	68		0	3,248	0
2069	2,880	2,880		0	0	338	68		0	2,880	0
2070	3,124	3,124		0	0	338	68		0	3,124	0
2071	3,397	3,397	3,380	17	0	338	68		0	3,397	0
2072	3,410	3,410	3,380	30	17	338	68		17	3,366	44
2073	3,558	3,541	3,363	178	30	338	68	17	30	3,304	237
2074	3,531	3,501	3,350	151	178	338	68	30	178	3,374	127
2075	3,480	3,302	3,202	100	151	338	68	178	151	3,368	(66)
2076	3,416	3,265	3,229	36	100	338	68	151	100	3,328	(63)

Table B-3
IID and Coachella Baselines Added Together - Baseline and Shortage Years w/ 10% Overrun
(Assume base entitlement of 3.38 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	10% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	3,252	3,252		0		338	68			3,252	0
2003	3,335	3,335		0	0	338	68		0	3,335	0
2004	3,333	3,333		0	0	338	68		0	3,333	0
2005	3,347	3,347		0	0	338	68		0	3,347	0
2006	3,260	3,260		0	0	338	68		0	3,260	0
2007	3,261	3,261		0	0	338	68		0	3,261	0
2008	3,119	3,119		0	0	338	68		0	3,119	0
2009	3,381	3,380		0	0	338	68		0	3,380	0
2010	3,264	3,264		0	0	338	68		0	3,264	0
2011	3,351	3,351		0	0	338	68		0	3,351	0
2012	3,121	3,121		0	0	338	68		0	3,121	0
2013	3,426	3,380		0	0	338	68		0	3,380	0
2014	3,428	3,380		0	0	338	68		0	3,380	0
2015	3,407	3,380		0	0	338	68		0	3,380	0
2016	3,246	3,246		0	0	338	68		0	3,246	0
2017	3,369	3,369		0	0	338	68		0	3,369	0
2018	3,246	3,246		0	0	338	68		0	3,246	0
2019	3,373	3,373		0	0	338	68		0	3,373	0
2020	3,266	3,266		0	0	338	68		0	3,266	0
2021	3,379	3,379		0	0	338	68		0	3,379	0
2022	3,123	3,123		0	0	338	68		0	3,123	0
2023	3,345	3,345		0	0	338	68		0	3,345	0
2024	3,357	3,357		0	0	338	68		0	3,357	0
2025	3,350	3,350		0		338	68		0	3,350	0
2026	3,361	3,361		0	0	338	68		0	3,361	0
2027	3,358	3,358		0	0	338	68		0	3,358	0
2028	3,415	3,380		0	0	338	68		0	3,380	0
2029	3,409	3,380		0	0	338	68		0	3,380	0
2030	3,358	3,358		0	0	338	68		0	3,358	0
2031	3,358	3,358		0	0	338	68		0	3,358	0
2032	3,391	3,380		0	0	338	68		0	3,380	0
2033	3,333	3,333		0	0	338	68		0	3,333	0
2034	3,124	3,124		0	0	338	68		0	3,124	0
2035	3,373	3,373		0	0	338	68		0	3,373	0
2036	3,355	3,355		0	0	338	68		0	3,355	0
2037	3,267	3,267		0	0	338	68		0	3,267	0
2038	3,404	3,380		0	0	338	68		0	3,380	0
2039	3,410	3,380		0	0	338	68		0	3,380	0
2040	3,439	3,380		0	0	338	68		0	3,380	0
2041	3,397	3,380		0	0	338	68		0	3,380	0
2042	3,124	3,124		0	0	338	68		0	3,124	0
2043	3,081	3,081		0	0	338	68		0	3,081	0
2044	3,248	3,248		0	0	338	68		0	3,248	0
2045	3,400	3,380		0	0	338	68		0	3,380	0
2046	3,124	3,124		0	0	338	68		0	3,124	0
2047	3,383	3,380		0	0	338	68		0	3,380	0
2048	3,336	3,336		0	0	338	68		0	3,336	0
2049	3,354	3,354		0	0	338	68		0	3,354	0
2050	3,330	3,330		0	0	338	68		0	3,330	0
2051	3,338	3,338		0	0	338	68		0	3,338	0
2052	3,081	3,081		0	0	338	68		0	3,081	0
2053	3,248	3,248		0	0	338	68		0	3,248	0
2054	3,361	3,361		0	0	338	68		0	3,361	0
2055	3,123	3,123		0	0	338	68		0	3,123	0
2056	3,338	3,338		0	0	338	68		0	3,338	0
2057	3,124	3,124		0	0	338	68		0	3,124	0
2058	3,284	3,284		0	0	338	68		0	3,284	0
2059	3,248	3,248		0	0	338	68		0	3,248	0
2060	3,248	3,248		0	0	338	68		0	3,248	0
2061	3,124	3,124		0	0	338	68		0	3,124	0
2062	3,396	3,380		0	0	338	68		0	3,380	0
2063	3,388	3,380		0	0	338	68		0	3,380	0
2064	3,081	3,081		0	0	338	68		0	3,081	0
2065	3,267	3,267		0	0	338	68		0	3,267	0
2066	3,344	3,344		0	0	338	68		0	3,344	0
2067	3,336	3,336		0	0	338	68		0	3,336	0
2068	3,248	3,248		0	0	338	68		0	3,248	0
2069	2,880	2,880		0	0	338	68		0	2,880	0
2070	3,124	3,124		0	0	338	68		0	3,124	0
2071	3,397	3,380		0	0	338	68		0	3,380	0
2072	3,366	3,366		0	0	338	68		0	3,366	0
2073	3,304	3,304		0	0	338	68		0	3,304	0
2074	3,374	3,374		0	0	338	68		0	3,374	0
2075	3,368	3,368		0	0	338	68		0	3,368	0
2076	3,328	3,328		0	0	338	68		0	3,328	0

Modeling Conditions for

Table Nos. B-4, B-5 and B-6 (IID/CVWD)

Conditions:

1. Inadvertent Overruns are limited to a maximum of 5% of entities entitlement.

Rules:

1. Minimum Payback = greater of 20% maximum allowed Inadvertent Overrun or 1/3 of Account Balance.
2. Accounts which exceed 5% of entitlement - Strict enforcement 1 yr payback
3. First Year of payback not strictly enforced, except that exceeding maximum account will not be allowed during a payback year.
4. Second Year of payback - strict enforcement and balancing of Account
5. Inadvertent Overrun Account balances are forgiven when flood releases occur.
6. Under 1 year payback (normal, or overage greater than 5%)
7. For 1 year delay in reporting, as long as entity has not exceeded its 5% overrun allowance and they are meeting their payback schedule, the second year overrun, which was not reported prior to implementation of the first year of payback, would be treated as a separate overrun, with the payback amount criteria applying to the second amount. The full payback would be the sum of the two paybacks occurring together.

Table B-4
IID and Coachella Baselines Added Together - 5% Overrun with 3-Year Payback
(Assume base entitlement of 3.38 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	5% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	3,252	3,252		0		169	34			3,252	0
2003	3,381	3,381		1	0	169	34		0	3,335	46
2004	3,403	3,403		23	1	169	34		1	3,333	70
2005	3,347	3,346	1,689	0	23	169	34	1	23	3,347	(1)
2006	3,260	3,237	1,667	0	0	169	34	23	0	3,260	(23)
2007	3,261	3,261		0	0	169	34		0	3,261	0
2008	3,119	3,119		0	0	169	34		0	3,119	0
2009	3,393	3,393		13	0	169	34		0	3,381	12
2010	3,264	3,264		0	13	169	34		13	3,264	0
2011	3,355	3,342	1,677	0	0	169	34	13	0	3,351	(9)
2012	3,121	3,121		0	0	169	34		0	3,121	0
2013	3,555	3,555		175	0	169	34		0	3,426	129
2014	3,555	3,555		175	175	169	34		175	3,428	127
2015	3,407	3,345	3,318	27	175	169	34	62	288	3,407	(62)
2016	3,246	3,128	3,262	0	27	169	34	118	197	3,246	(118)
2017	3,408	3,269	3,241	28	0	169	34	139	58	3,369	(100)
2018	3,246	3,188	3,322	0	28	169	34	58	28	3,246	(58)
2019	3,556	3,528	3,352	176	0	169	34	28	0	3,373	155
2020	3,266	3,266		0	176	169	34		176	3,266	0
2021	3,529	3,466	3,317	149	0	169	34	63	113	3,379	87
2022	3,123	3,067	3,324	0	149	169	34	56	206	3,123	(56)
2023	3,395	3,265	3,250	15	0	169	34	130	76	3,345	(80)
2024	3,357	3,320	3,343	0	15	169	34	37	54	3,357	(37)
2025	3,556	3,502	3,326	176	0	169	34	54	0	3,350	152
2026	3,409	3,409		29	176	169	34		176	3,361	48
2027	3,358	3,295	1,627	0	29	169	34	63	142	3,358	(63)
2028	3,415	3,330	1,605	35	0	169	34	85	57	3,415	(85)
2029	3,409	3,352	1,633	29	35	169	34	57	35	3,409	(57)
2030	3,358	3,324	1,656	0	29	169	34	34	30	3,358	(34)
2031	3,358	3,328	1,660	0	0	169	34	30	0	3,358	(30)
2032	3,530	3,530		150	0	169	34		0	3,391	139
2033	3,358	3,358		0	150	169	34		150	3,333	25
2034	3,124	3,074	1,640	0	0	169	34	50	100	3,124	(50)
2035	3,410	3,360	1,640	30	0	169	34	50	50	3,373	(13)
2036	3,410	3,360	1,640	30	30	169	34	50	30	3,355	5
2037	3,267	3,237	3,350	0	30	169	34	30	30	3,267	(30)
2038	3,410	3,380	3,350	30	0	169	34	30	0	3,404	(24)
2039	3,410	3,410	3,380	30	30	169	34		30	3,410	0
2040	3,531	3,501	3,350	151	30	169	34	30	30	3,439	62
2041	3,397	3,367	3,350	17	151	169	34	30	151	3,397	(30)
2042	3,124	3,074	3,330	0	17	169	34	50	118	3,124	(50)
2043	3,081	3,014	3,313	0	0	169	34	67	51	3,081	(67)
2044	3,248	3,197	3,329	0	0	169	34	51	0	3,248	(51)
2045	3,416	3,416		36	0	169	34		0	3,400	16
2046	3,124	3,124		0	36	169	34		36	3,124	0
2047	3,416	3,380	3,344	36	0	169	34	36	0	3,383	(3)
2048	3,397	3,397		17	36	169	34		36	3,336	61
2049	3,397	3,361	3,344	17	17	169	34	36	17	3,354	7
2050	3,410	3,393	3,363	30	17	169	34	17	17	3,330	63
2051	3,410	3,393	3,363	30	30	169	34	17	30	3,338	55
2052	3,081	3,051	3,350	0	30	169	34	30	30	3,081	(30)
2053	3,248	3,218	3,350	0	0	169	34	30	0	3,248	(30)
2054	3,480	3,480		100	0	169	34		0	3,361	119
2055	3,123	3,123		0	100	169	34		100	3,123	0
2056	3,397	3,363	3,346	17	0	169	34	34	66	3,338	25
2057	3,124	3,090	3,346	0	17	169	34	34	49	3,124	(34)
2058	3,410	3,361	3,331	30	0	169	34	49	0	3,284	77
2059	3,248	3,248		0	30	169	34		30	3,248	0
2060	3,248	3,218	3,350	0	0	169	34	30	0	3,248	(30)
2061	3,124	3,124		0	0	169	34		0	3,124	0
2062	3,531	3,531		151	0	169	34		0	3,396	135
2063	3,416	3,416	3,380	36	151	169	34		151	3,388	28
2064	3,081	3,031	3,330	0	36	169	34	50	137	3,081	(50)
2065	3,267	3,183	3,296	0	0	169	34	84	53	3,267	(84)
2066	3,359	3,306	3,327	0	0	169	34	53	0	3,344	(38)
2067	3,416	3,416		36	0	169	34		0	3,336	80
2068	3,248	3,248		0	36	169	34		36	3,248	0
2069	2,880	2,844	3,344	0	0	169	34	36	0	2,880	(36)
2070	3,124	3,124		0	0	169	34		0	3,124	0
2071	3,397	3,397	3,380	17	0	169	34		0	3,397	0
2072	3,410	3,410	3,380	30	17	169	34		17	3,366	44
2073	3,558	3,541	3,363	178	30	169	34	17	30	3,304	237
2074	3,531	3,501	3,350	151	178	169	34	30	178	3,374	127
2075	3,480	3,415	3,315	100	151	169	34	65	264	3,368	47
2076	3,416	3,231	3,195	36	100	169	34	185	179	3,328	(97)
								119			

Table B-5
IID and Coachella Baselines Added Together - 5% Overrun with 1-Year Payback
(Assume base entitlement of 3.38 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	5% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	3,252	3,252		0		169	34			3,252	0
2003	3,381	3,381		1	0	169	34		0	3,335	46
2004	3,403	3,403		23	1	169	34		1	3,333	70
2005	3,347	3,346	3,379	0	23	169	34	1	23	3,347	(1)
2006	3,260	3,237	3,357	0	0	169	34	23	0	3,260	(23)
2007	3,261	3,261		0	0	169	34		0	3,261	0
2008	3,119	3,119		0	0	169	34		0	3,119	0
2009	3,393	3,393		13	0	169	34		0	3,381	12
2010	3,264	3,264		0	13	169	34		13	3,264	0
2011	3,355	3,342	3,367	0	0	169	34	13	0	3,351	(9)
2012	3,121	3,121		0	0	169	34		0	3,121	0
2013	3,555	3,555		175	0	169	34		0	3,426	129
2014	3,555	3,555		175	175	169	34		175	3,428	127
2015	3,407	3,232	3,205	27	175	169	34	175	175	3,407	(175)
2016	3,246	3,071	3,205	0	27	169	34	175	27	3,246	(175)
2017	3,408	3,381	3,353	28	0	169	34	27	0	3,369	12
2018	3,246	3,246		0	28	169	34		28	3,246	0
2019	3,556	3,528	3,352	176	0	169	34	28	0	3,373	155
2020	3,266	3,266		0	176	169	34		176	3,266	0
2021	3,529	3,353	3,204	149	0	169	34	176	0	3,379	(26)
2022	3,123	3,123		0	149	169	34		149	3,123	0
2023	3,395	3,246	3,231	15	0	169	34	149	0	3,345	(99)
2024	3,357	3,357		0	15	169	34		15	3,357	0
2025	3,556	3,541	3,365	176		169	34	15	0	3,350	191
2026	3,409	3,409		29	176	169	34		176	3,361	48
2027	3,358	3,182	3,204	0	29	169	34	176	29	3,358	(176)
2028	3,415	3,386	3,351	35	0	169	34	29	0	3,415	(29)
2029	3,409	3,409	3,380	29	35	169	34		35	3,409	0
2030	3,358	3,323	3,345	0	29	169	34	35	29	3,358	(35)
2031	3,358	3,329	3,351	0	0	169	34	29	0	3,358	(29)
2032	3,530	3,530		150	0	169	34		0	3,391	139
2033	3,358	3,358		0	150	169	34		150	3,333	25
2034	3,124	2,974	3,230	0	0	169	34	150	0	3,124	(150)
2035	3,410	3,410		30	0	169	34		0	3,373	37
2036	3,410	3,410		30	30	169	34		30	3,355	55
2037	3,267	3,237	3,350	0	30	169	34	30	30	3,267	(30)
2038	3,410	3,380	3,350	30	0	169	34	30	0	3,404	(24)
2039	3,410	3,410	3,380	30	30	169	34		30	3,410	0
2040	3,531	3,501	3,350	151	30	169	34	30	30	3,439	62
2041	3,397	3,367	3,350	17	151	169	34	30	151	3,397	(30)
2042	3,124	2,973	3,229	0	17	169	34	151	17	3,124	(151)
2043	3,081	3,064	3,363	0	0	169	34	17	0	3,081	(17)
2044	3,248	3,248		0	0	169	34		0	3,248	0
2045	3,416	3,416		36	0	169	34		0	3,400	16
2046	3,124	3,124		0	36	169	34		36	3,124	0
2047	3,416	3,380	3,344	36	0	169	34	36	0	3,383	(3)
2048	3,397	3,397		17	36	169	34		36	3,336	61
2049	3,397	3,361	3,344	17	17	169	34	36	17	3,354	7
2050	3,410	3,393	3,363	30	17	169	34	17	17	3,330	63
2051	3,410	3,393	3,363	30	30	169	34	17	30	3,338	55
2052	3,081	3,051	3,350	0	30	169	34	30	30	3,081	(30)
2053	3,248	3,218	3,350	0	0	169	34	30	0	3,248	(30)
2054	3,480	3,480		100	0	169	34		0	3,361	119
2055	3,124	3,124		0	100	169	34		100	3,123	1
2056	3,397	3,297	3,280	17	0	169	34	100	0	3,338	(41)
2057	3,124	3,124		0	17	169	34		17	3,124	0
2058	3,410	3,393	3,363	30	0	169	34	17	0	3,284	109
2059	3,248	3,248		0	30	169	34		30	3,248	0
2060	3,248	3,218	3,350	0	0	169	34	30	0	3,248	(30)
2061	3,124	3,124		0	0	169	34		0	3,124	0
2062	3,531	3,531		151	0	169	34		0	3,396	135
2063	3,416	3,416	3,380	36	151	169	34		151	3,388	28
2064	3,081	2,930	3,229	0	36	169	34	151	36	3,081	(151)
2065	3,267	3,231	3,344	0	0	169	34	36	0	3,267	(36)
2066	3,359	3,359		0	0	169	34		0	3,344	15
2067	3,416	3,416		36	0	169	34		0	3,336	80
2068	3,248	3,248		0	0	169	34		0	3,248	0
2069	2,880	2,880		0	0	169	34		0	2,880	0
2070	3,124	3,124		0	0	169	34		0	3,124	0
2071	3,397	3,397	3,380	17	0	169	34		0	3,397	0
2072	3,410	3,410	3,380	30	17	169	34		17	3,366	44
2073	3,558	3,541	3,363	178	30	169	34	17	30	3,304	237
2074	3,531	3,501	3,350	151	178	169	34	30	178	3,374	127
2075	3,480	3,302	3,202	100	151	169	34	178	151	3,368	(66)
2076	3,416	3,265	3,229	36	100	169	34	151	100	3,328	(63)

Table B-6
IID and Coachella Baselines Added Together - Baseline and Shortage Years w/ 5% Overrun
(Assume base entitlement of 3.38 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	5% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	3,252	3,252		0		169	34			3,252	0
2003	3,335	3,335		0	0	169	34		0	3,335	0
2004	3,333	3,333		0	0	169	34		0	3,333	0
2005	3,347	3,347		0	0	169	34		0	3,347	0
2006	3,260	3,260		0	0	169	34		0	3,260	0
2007	3,261	3,261		0	0	169	34		0	3,261	0
2008	3,119	3,119		0	0	169	34		0	3,119	0
2009	3,381	3,380		0	0	169	34		0	3,380	0
2010	3,264	3,264		0	0	169	34		0	3,264	0
2011	3,351	3,351		0	0	169	34		0	3,351	0
2012	3,121	3,121		0	0	169	34		0	3,121	0
2013	3,426	3,380		0	0	169	34		0	3,380	0
2014	3,428	3,380		0	0	169	34		0	3,380	0
2015	3,407	3,380		0	0	169	34		0	3,380	0
2016	3,246	3,246		0	0	169	34		0	3,246	0
2017	3,369	3,369		0	0	169	34		0	3,369	0
2018	3,246	3,246		0	0	169	34		0	3,246	0
2019	3,373	3,373		0	0	169	34		0	3,373	0
2020	3,266	3,266		0	0	169	34		0	3,266	0
2021	3,379	3,379		0	0	169	34		0	3,379	0
2022	3,123	3,123		0	0	169	34		0	3,123	0
2023	3,345	3,345		0	0	169	34		0	3,345	0
2024	3,357	3,357		0	0	169	34		0	3,357	0
2025	3,350	3,350		0		169	34		0	3,350	0
2026	3,361	3,361		0	0	169	34		0	3,361	0
2027	3,358	3,358		0	0	169	34		0	3,358	0
2028	3,415	3,380		0	0	169	34		0	3,380	0
2029	3,409	3,380		0	0	169	34		0	3,380	0
2030	3,358	3,358		0	0	169	34		0	3,358	0
2031	3,358	3,358		0	0	169	34		0	3,358	0
2032	3,391	3,380		0	0	169	34		0	3,380	0
2033	3,333	3,333		0	0	169	34		0	3,333	0
2034	3,124	3,124		0	0	169	34		0	3,124	0
2035	3,373	3,373		0	0	169	34		0	3,373	0
2036	3,355	3,355		0	0	169	34		0	3,355	0
2037	3,267	3,267		0	0	169	34		0	3,267	0
2038	3,404	3,380		0	0	169	34		0	3,380	0
2039	3,410	3,380		0	0	169	34		0	3,380	0
2040	3,439	3,380		0	0	169	34		0	3,380	0
2041	3,397	3,380		0	0	169	34		0	3,380	0
2042	3,124	3,124		0	0	169	34		0	3,124	0
2043	3,081	3,081		0	0	169	34		0	3,081	0
2044	3,248	3,248		0	0	169	34		0	3,248	0
2045	3,400	3,380		0	0	169	34		0	3,380	0
2046	3,124	3,124		0	0	169	34		0	3,124	0
2047	3,383	3,380		0	0	169	34		0	3,380	0
2048	3,336	3,336		0	0	169	34		0	3,336	0
2049	3,354	3,354		0	0	169	34		0	3,354	0
2050	3,330	3,330		0	0	169	34		0	3,330	0
2051	3,338	3,338		0	0	169	34		0	3,338	0
2052	3,081	3,081		0	0	169	34		0	3,081	0
2053	3,248	3,248		0	0	169	34		0	3,248	0
2054	3,361	3,361		0	0	169	34		0	3,361	0
2055	3,123	3,123		0	0	169	34		0	3,123	0
2056	3,338	3,338		0	0	169	34		0	3,338	0
2057	3,124	3,124		0	0	169	34		0	3,124	0
2058	3,284	3,284		0	0	169	34		0	3,284	0
2059	3,248	3,248		0	0	169	34		0	3,248	0
2060	3,248	3,248		0	0	169	34		0	3,248	0
2061	3,124	3,124		0	0	169	34		0	3,124	0
2062	3,396	3,380		0	0	169	34		0	3,380	0
2063	3,388	3,380		0	0	169	34		0	3,380	0
2064	3,081	3,081		0	0	169	34		0	3,081	0
2065	3,267	3,267		0	0	169	34		0	3,267	0
2066	3,344	3,344		0	0	169	34		0	3,344	0
2067	3,336	3,336		0	0	169	34		0	3,336	0
2068	3,248	3,248		0	0	169	34		0	3,248	0
2069	2,880	2,880		0	0	169	34		0	2,880	0
2070	3,124	3,124		0	0	169	34		0	3,124	0
2071	3,397	3,380		0	0	169	34		0	3,380	0
2072	3,366	3,366		0	0	169	34		0	3,366	0
2073	3,304	3,304		0	0	169	34		0	3,304	0
2074	3,374	3,374		0	0	169	34		0	3,374	0
2075	3,368	3,368		0	0	169	34		0	3,368	0
2076	3,328	3,328		0	0	169	34		0	3,328	0

Modeling Conditions for

Table Nos. B-7, B-8 and B-9 (PVID/YPRD)

Conditions:

1. Inadvertent Overruns are limited to a maximum of 10% of entities entitlement.

Rules:

1. Minimum Payback = greater of 20% maximum allowed Inadvertent Overrun or 1/3 of Account Balance.
2. Accounts which exceed 10% of entitlement - Strict enforcement 1 yr payback
3. First Year of payback not strictly enforced, except that exceeding maximum account will not be allowed during a payback year.
4. Second Year of payback - strict enforcement and balancing of Account
5. Inadvertent Overrun Account balances are forgiven when flood releases occur.
6. Under 1 year payback (normal, or overage greater than 10%)
7. For 1 year delay in reporting, as long as entity has not exceeded its 10% overrun allowance and they are meeting their payback schedule, the second year overrun, which was not reported prior to implementation of the first year of payback, would be treated as a separate overrun, with the payback amount criteria applying to the second amount. The full payback would be the sum of the two paybacks occurring together.

Table B-7
PVID and YPRD Baselines Added Together – 10% Overrun with 3-Year Payback
(Assume base entitlement of 0.42 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	**Estimated Consumptive Use**	**Measured Consumptive Use**	**Entitlement Minus Payback Target**	**Over / Under Runs**	**Overrun Account Reported**	**10% of Entitlement**	**20% of Maximum Entitlement**	**Extraordinary Conservation Required**	**End of Year Overrun Account**	**Base Case**	**Difference From Base Case**
2002	350	620		0		42/ 97	18			620	0
2003	465	550		45	0	42/ 97	18		0	550	0
2004	467	550		47	45	42/ 97	18		45	550	0
2005	392	560	402	0	47	42/ 97	18	18	74	578	(18)
2006	336	598	384	0	0	42/ 97	18	36	38	634	(36)
2007	316	627	393	0	0	42/ 97	18	27	11	654	(27)
2008	176	783	409	0	0	42/ 97	18	11	0	794	(11)
2009	419	551		0	0	42/ 97	18		0	550	1
2010	305	665		0	0	42/ 97	18		0	665	0
2011	424	550		4	0	42/ 97	18		0	550	0
2012	102	868		0	4	42/ 97	18		4	868	0
2013	374	592	416	0	0	42/ 97	18	4	0	550	42
2014	372	598		0	0	42/ 97	18		0	550	48
2015	375	595		0	0	42/ 97	18		0	568	27
2016	254	716		0	0	42/ 97	18		0	716	0
2017	431	550		11	0	42/ 97	18		0	550	0
2018	273	697		0	11	42/ 97	18		11	697	0
2019	427	539	409	7	0	42/ 97	18	11	0	550	(11)
2020	297	673		0	7	42/ 97	18		7	673	0
2021	421	543	413	1	0	42/ 97	18	7	0	550	(7)
2022	163	807		0	1	42/ 97	18		1	807	0
2023	455	549	419	35	0	42/ 97	18	1	0	550	(1)
2024	408	562		0	35	42/ 97	18		35	562	0
2025	450	532	402	30	0	42/ 97	18	18	17	550	(18)
2026	439	533	403	19	30	42/ 97	18	17	30	550	(17)
2027	383	569	402	0	19	42/ 97	18	18	31	587	(18)
2028	369	571	390	0	0	42/ 97	18	30	1	566	5
2029	380	589	419	0	0	42/ 97	18	1	0	561	28
2030	374	596		0	0	42/ 97	18		0	596	0
2031	416	554		0	0	42/ 97	18		0	554	0
2032	409	561		0	0	42/ 97	18		0	550	11
2033	445	550	420	25	0	42/ 97	18		0	550	0
2034	158	812		0	25	42/ 97	18		25	812	0
2035	427	532	402	7	0	42/ 97	18	18	7	550	(18)
2036	445	543	413	25	7	42/97	18	7	7	550	(7)
2037	253	710	413	0	25	42/ 97	18	7	25	717	(7)
2038	396	556	402	0	0	42/ 97	18	18	7	550	6
2039	375	588	413	0	0	42/97	18	7	0	565	23
2040	361	609		0	0	42/ 97	18		0	550	59
2041	402	568		0	0	42/97	18		0	551	17
2042	107	863		0	0	42/ 97	18		0	863	0
2043	115	855		0	0	42/ 97	18		0	855	0
2044	241	729		0	0	42/97	18		0	729	0
2045	400	570		0	0	42/97	18		0	550	20
2046	144	826		0	0	42/ 97	18		0	826	0
2047	417	553		0	0	42/ 97	18		0	550	3
2048	464	550		44	0	42/ 97	18		0	550	0
2049	446	550		26	44	42/ 97	18		44	550	0
2050	470	532	402	50	26	42/ 97	18	18	52	550	(18)
2051	432	514	384	12	50	42/ 97	18	36	66	550	(36)
2052	154	782	386	0	12	42/ 97	18	34	44	816	(34)
2053	266	674	390	0	0	42/ 97	18	30	14	704	(30)
2054	439	536	406	19	0	42/ 97	18	14	0	550	(14)
2055	171	799		0	19	42/ 97	18		19	799	0
2056	462	532	402	42	0	42/ 97	18	18	1	550	(18)
2057	168	801	419	0	42	42/ 97	18	1	42	802	(1)
2058	516	532	402	96	0	42/ 97	18	18	24	550	(18)
2059	328	624	402	0	96	42/ 97	18	18	102	642	(18)
2060	213	714	390	0	0	42/ 97	18	43	59	757	(43)
2061	85	853	370	0	0	42/ 97	18	32	27	885	(32)
2062	404	539	370	0	0	42/ 97	18	27	0	550	(11)
2063	412	558	420	0	0	42/ 97	18		0	550	8
2064	129	841		0	0	42/ 97	18		0	841	0
2065	336	634		0	0	42/ 97	18		0	634	0
2066	435	550		15	0	42/ 97	18		0	550	0
2067	464	550		44	15	42/ 97	18		15	550	0
2068	289	666	405	0	44	42/ 97	18	15	29	681	(15)
2069	(152)	1,104	405	0	0	42/ 97	18	18	11	1,122	(18)
2070	93	866	404	0	0	42/ 97	18	11	0	877	(11)
2071	394	576	420	0	0	42/ 97	18		0	559	17
2072	434	550	420	14	0	42/ 97	18		0	550	0
2073	496	550		76	14	42/ 97	18		14	550	0
2074	426	536	406	6	76	42/ 97	18	14	76	550	(14)
2075	432	525	395	12	6	42/ 97	18	25	57	550	(25)
2076	472	519	389	52	12	42/ 97	18	31	38	550	(31)

Table B-8
PVID and YPRD Baselines Added Together – 10% Overrun with 1-Year Payback
(Assume base entitlement of 0.42 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	10% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	350	350		0		42/ 92	18			350	0
2003	465	465		45	0	42/ 92	18		0	420	45
2004	467	467	420	47	45	42/ 92	18		45	420	47
2005	392	347	375	0	47	42/ 92	18	45	47	392	(45)
2006	336	289	373	0	0	42/ 92	18	47	0	336	(47)
2007	316	316		0	0	42/ 92	18		0	316	0
2008	176	176		0	0	42/ 92	18		0	176	0
2009	419	419		0	0	42/ 92	18		0	419	0
2010	305	305		0	0	42/ 92	18		0	305	0
2011	424	424		4	0	42/ 92	18		0	420	4
2012	102	102		0	4	42/ 92	18		4	102	0
2013	374	370	416	0	0	42/ 92	18	4	0	374	(4)
2014	372	372	409	0	0	42/ 92	68		0	372	0
2015	375	375		0	0	42/ 92	68		0	375	0
2016	254	254		0	0	42/ 92	68		0	254	0
2017	431	431		11	0	42/ 92	68		0	420	11
2018	273	273		0	11	42/ 92	68		11	273	0
2019	427	416	409	7	0	42/ 92	68	11	0	420	(4)
2020	297	297		0	7	42/ 92	68		7	297	0
2021	421	414	413	1	0	42/ 92	68	7	0	420	(6)
2022	163	163		0	1	42/ 92	68		1	163	0
2023	455	454	419	35	0	42/ 92	68	1	0	420	34
2024	408	408		0	35	42/ 92	68		35	408	0
2025	450	415	385	30	11	42/ 92	18	35	11	420	(5)
2026	439	428	392	19	30	42/ 92	18	11	30	420	8
2027	383	353	390	0	19	42/ 92	18	30	19	383	(30)
2028	369	350	401	0	0	42/ 92	18	19	0	369	(19)
2029	380	380		0	0	42/ 92	18		0	380	0
2030	374	374		0	0	42/ 92	18		0	374	0
2031	416	416		0	0	42/ 92	18		0	416	0
2032	409	409		0	0	42/ 92	18		0	409	0
2033	445	445		25	0	42/ 92	18		0	420	25
2034	158	158		0	25	42/ 92	18		25	158	0
2035	427	402	395	7	0	42/ 92	18	25	0	420	(18)
2036	445	445		25	7	42/ 92	18		7	420	25
2037	253	246	413	0	25	42/ 92	18	7	25	253	(7)
2038	396	371	395	0	0	42/ 92	18	25	0	396	(25)
2039	375	375		0	0	42/ 92	18		0	375	0
2040	361	361		0	0	42/ 92	18		0	361	0
2041	402	402	420	0	0	42/ 92	18		0	402	0
2042	107	107		0	0	42/ 92	18		0	107	0
2043	115	115		0	0	42/ 92	18		0	115	0
2044	241	241		0	0	42/ 92	18		0	241	0
2045	400	400		0	0	42/ 92	18		0	400	0
2046	144	144		0	0	42/ 92	18		0	144	0
2047	417	417		0	0	42/ 92	18		0	417	0
2048	464	464		44	0	42/ 92	18		0	420	44
2049	446	446		26	44	42/ 92	18		44	420	26
2050	470	426	376	50	26	42/ 92	18	44	26	420	6
2051	432	406	394	12	50	42/ 92	18	26	50	420	(14)
2052	154	104	370	0	12	42/ 92	18	50	12	154	(50)
2053	266	254	408	0	0	42/ 92	18	12	0	266	(12)
2054	439	439		19	0	42/ 92	18		0	420	19
2055	171	171		0	19	42/ 92	18		19	171	0
2056	462	443	401	42	0	42/ 92	18	19	0	420	23
2057	168	168		0	42	42/ 92	18		42	168	0
2058	516	474	378	96	0	42/ 92	18	42	0	420	54
2059	328	328		0	96	42/ 92	18		96	328	0
2060	213	117	324	0	0	42/ 92	18	96	0	213	(96)
2061	85	85		0	0	42/ 92	18		0	85	0
2062	404	404		0	0	42/ 92	18		0	404	0
2063	412	412		0	0	42/ 92	18		0	412	0
2064	129	129		0	0	42/ 92	18		0	129	0
2065	336	336		0	0	42/ 92	18		0	336	0
2066	435	435		15	0	42/ 92	18		0	420	15
2067	464	464		44	15	42/ 92	18		15	420	44
2068	289	274	405	0	15	42/ 92	18	15	0	289	(15)
2069	(152)	(152)		0	0	42/ 92	18		0	(152)	0
2070	93	93		0	0	42/ 92	18		0	93	0
2071	394	394		0	0	42/ 92	18		0	394	0
2072	434	434		14	0	42/ 92	18		0	420	14
2073	496	496		76	14	42/ 92	18		14	420	76
2074	426	412	406	6	76	42/ 92	18	14	76	420	(8)
2075	432	356	344	12	6	42/ 92	18	76	6	420	(64)
2076	472	466	414	52	12	42/ 92	18	6	12	420	46

Table B-9
PVID and YPRD Baselines Added Together - Baseline and Shortage Years with 10% Overrun
(Assume base entitlement of 0.42 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	10% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	350	350		0		42/ 92	18			350	0
2003	465	420		0	0	42/ 92	18		0	420	0
2004	467	420		0	0	42/ 92	18		0	420	0
2005	392	392		0	0	42/ 92	18		0	392	0
2006	336	336		0	0	42/ 92	18		0	336	0
2007	316	316		0	0	42/ 92	18		0	316	0
2008	176	176		0	0	42/ 92	18		0	176	0
2009	419	419		0	0	42/ 92	18		0	419	0
2010	305	305		0	0	42/ 92	18		0	305	0
2011	424	420		0	0	42/ 92	18		0	420	0
2012	102	102		0	0	42/ 92	18		0	102	0
2013	374	374		0	0	42/ 92	18		0	374	0
2014	372	372		0	0	42/ 92	18		0	372	0
2015	375	375		0	0	42/ 92	18		0	375	0
2016	254	254		0	0	42/ 92	18		0	254	0
2017	431	420		0	0	42/ 92	18		0	420	0
2018	273	273		0	0	42/ 92	18		0	273	0
2019	427	420		0	0	42/ 92	18		0	420	0
2020	297	297		0	0	42/ 92	18		0	297	0
2021	421	420		0	0	42/ 92	18		0	420	0
2022	163	163		0	0	42/ 92	18		0	163	0
2023	455	420		0	0	42/ 92	18		0	420	0
2024	408	408		0	0	42/ 92	18		0	408	0
2025	450	420		0		42/ 92	18		0	420	0
2026	439	420		0	0	42/ 92	18		0	420	0
2027	383	383		0	0	42/ 92	18		0	383	0
2028	369	369		0	0	42/ 92	18		0	369	0
2029	380	380		0	0	42/ 92	18		0	380	0
2030	374	374		0	0	42/ 92	18		0	374	0
2031	416	416		0	0	42/ 92	18		0	416	0
2032	409	409		0	0	42/ 92	18		0	409	0
2033	445	420		0	0	42/ 92	18		0	420	0
2034	158	158		0	0	42/ 92	18		0	158	0
2035	427	420		0	0	42/ 92	18		0	420	0
2036	445	420		0	0	42/ 92	18		0	420	0
2037	253	253		0	0	42/ 92	18		0	253	0
2038	396	396		0	0	42/ 92	18		0	396	0
2039	375	375		0	0	42/ 92	18		0	375	0
2040	361	361		0	0	42/ 92	18		0	361	0
2041	402	402		0	0	42/ 92	18		0	402	0
2042	107	107		0	0	42/ 92	18		0	107	0
2043	115	115		0	0	42/ 92	18		0	115	0
2044	241	241		0	0	42/ 92	18		0	241	0
2045	400	400		0	0	42/ 92	18		0	400	0
2046	144	144		0	0	42/ 92	18		0	144	0
2047	417	417		0	0	42/ 92	18		0	417	0
2048	464	420		0	0	42/ 92	18		0	420	0
2049	446	420		0	0	42/ 92	18		0	420	0
2050	470	420		0	0	42/ 92	18		0	420	0
2051	432	420		0	0	42/ 92	18		0	420	0
2052	154	154		0	0	42/ 92	18		0	154	0
2053	266	266		0	0	42/ 92	18		0	266	0
2054	439	420		0	0	42/ 92	18		0	420	0
2055	171	171		0	0	42/ 92	18		0	171	0
2056	462	420		0	0	42/ 92	18		0	420	0
2057	168	168		0	0	42/ 92	18		0	168	0
2058	516	420		0	0	42/ 92	18		0	420	0
2059	328	328		0	0	42/ 92	18		0	328	0
2060	213	213		0	0	42/ 92	18		0	213	0
2061	85	85		0	0	42/ 92	18		0	85	0
2062	404	404		0	0	42/ 92	18		0	404	0
2063	412	412		0	0	42/ 92	18		0	412	0
2064	129	129		0	0	42/ 92	18		0	129	0
2065	336	336		0	0	42/ 92	18		0	336	0
2066	435	420		0	0	42/ 92	18		0	420	0
2067	464	420		0	0	42/ 92	18		0	420	0
2068	289	289		0	0	42/ 92	18		0	289	0
2069	(152)	(152)		0	0	42/ 92	18		0	(152)	0
2070	93	93		0	0	42/ 92	18		0	93	0
2071	394	394		0	0	42/ 92	18		0	394	0
2072	434	420		0	0	42/ 92	18		0	420	0
2073	496	420		0	0	42/ 92	18		0	420	0
2074	426	420		0	0	42/ 92	18		0	420	0
2075	432	420		0	0	42/ 92	18		0	420	0
2076	472	420		0	0	42/ 92	18		0	420	0

Modeling Conditions for

Table Nos. 10, 11 and 12 (PVID/YPRD)

Conditions:

1. Inadvertent Overruns are limited to a maximum of 5% of entities entitlement.

Rules:

1. Minimum Payback = greater of 20% maximum allowed Inadvertent Overrun or 1/3 of Account Balance.
2. Accounts which exceed 5% of entitlement - Strict enforcement 1 yr payback
3. First Year of payback not strictly enforced, except that exceeding maximum account will not be allowed during a payback year.
4. Second Year of payback - strict enforcement and balancing of Account
5. Inadvertent Overrun Account balances are forgiven when flood releases occur.
6. Under 1 year payback (normal, or overage greater than 5%)
7. For 1 year delay in reporting, as long as entity has not exceeded its 5% overrun allowance and they are meeting their payback schedule, the second year overrun, which was not reported prior to implementation of the first year of payback, would be treated as a separate overrun, with the payback amount criteria applying to the second amount. The full payback would be the sum of the two paybacks occurring together.

Table B-10
PVID and YPRD Baselines Added Together – 5% Overrun with 3-Year Payback
(Assume base entitlement of 0.42 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	**Estimated Consumptive Use**	**Measured Consumptive Use**	**Entitlement Minus Payback Target**	**Over / Under Runs**	**Overrun Account Reported**	**5% of Entitlement**	**20% of Maximum Entitlement**	**Extraordinary Conservation Required**	**End of Year Overrun Account**	**Base Case**	**Difference From Base Case**
2002	350	620		0		42/ 48	10			620	0
2003	465	550		45	0	42/ 48	10		0	550	0
2004	467	550		47	45	42/48	10		45	550	0
2005	392	563	405	0	47	42/48	10	15	77	578	(15)
2006	336	604	390	0	0	42/ 48	10	30	47	634	(30)
2007	316	624	390	0	0	42/ 48	10	30	17	654	(30)
2008	176	779	405	0	0	42/ 48	10	15	2	794	(15)
2009	419	549	418	0	0	42/ 48	10	2	0	550	(1)
2010	305	665		0	0	42/ 48	10		0	665	0
2011	424	550		4	0	42/ 48	10		0	550	0
2012	102	868		0	4	42/ 48	10		4	868	0
2013	374	592	416	0	0	42/ 48	10	4	0	550	42
2014	372	598		0	0	42/ 48	10		0	550	48
2015	375	595		0	0	42/ 48	10		0	568	27
2016	254	716		0	0	42/ 48	10		0	716	0
2017	431	550		11	0	42/ 48	10		0	550	0
2018	273	697		0	11	42/ 48	10		11	697	0
2019	427	539	409	7	0	42/ 48	10	11	0	550	(11)
2020	297	673		0	7	42/ 48	10		7	673	0
2021	421	543	413	1	0	42/ 48	10	7	0	550	(7)
2022	163	807		0	1	42/ 48	10		1	807	0
2023	455	549	419	35	0	42/ 48	10	1	0	550	(1)
2024	408	562		0	35	42/ 48	10		35	562	0
2025	450	538	408	30	0	42/ 48	10	12	23	550	(12)
2026	439	538	408	19	30	42/ 48	10	12	41	550	(12)
2027	383	566	399	0	19	42/48	10	21	39	587	(21)
2028	369	581	400	0	0	42/ 48	10	20	19	566	15
2029	380	571	401	0	0	42/ 48	10	19	0	561	10
2030	374	596		0	0	42/ 48	10		0	596	0
2031	416	554		0	0	42/ 48	10		0	554	0
2032	409	561		0	0	42/ 48	10		0	550	11
2033	445	550	420	25	0	42/ 48	10		0	550	0
2034	158	812		0	25	42/ 48	10		25	812	0
2035	427	540	410	7	0	42/ 48	10	10	15	550	(10)
2036	445	540	410	25	7	42/ 48	10	10	12	550	(10)
2037	253	705	408	0	25	42/ 48	10	12	25	717	(12)
2038	396	564	410	0	0	42/ 48	10	10	15	550	14
2039	375	585	410	0	0	42/ 48	10	10	5	565	20
2040	361	604	415	0	0	42/ 48	10	5	0	550	54
2041	402	568		0	0	42/ 48	10		0	551	17
2042	107	863		0	0	42/ 48	10		0	863	0
2043	115	855		0	0	42/ 48	10		0	855	0
2044	241	729		0	0	42/ 48	10		0	729	0
2045	400	570		0	0	42/ 48	10		0	550	20
2046	144	826		0	0	42/ 48	10		0	826	0
2047	417	553		0	0	42/ 48	10		0	550	3
2048	464	550		44	0	42/ 48	10		0	550	0
2049	446	550		26	44	42/ 48	10		44	550	0
2050	470	535	405	50	26	42/ 48	10	15	55	550	(15)
2051	432	525	395	12	50	42/ 48	10	25	80	550	(25)
2052	154	775	379	0	12	42/ 48	10	41	51	816	(41)
2053	266	671	387	0	0	42/ 48	10	33	18	704	(33)
2054	439	532	402	19	0	42/ 48	10	18	0	550	(18)
2055	171	799		0	19	42/ 48	10		19	799	0
2056	462	540	410	42	0	42/ 48	10	10	9	550	(10)
2057	168	793	411	0	42	42/ 48	10	9	42	802	(9)
2058	516	536	406	96	0	42/ 48	10	14	28	550	(14)
2059	328	628	402	0	96	42/ 48	10	14	110	642	(14)
2060	213	679	390	0	0	42/ 48	10	78	32	757	(78)
2061	85	869	370	0	0	42/ 48	10	16	16	885	(16)
2062	404	550	370	0	0	42/ 48	10	16	0	550	0
2063	412	558	420	0	0	42/ 48	10		0	550	8
2064	129	841		0	0	42/ 48	10		0	841	0
2065	336	634		0	0	42/ 48	10		0	634	0
2066	435	550		15	0	42/ 48	10		0	550	0
2067	464	550		44	15	42/ 48	10		15	550	0
2068	289	671	410	0	44	42/ 48	10	10	49	681	(10)
2069	(152)	1,102	405	0	0	42/ 48	10	20	29	1,122	(20)
2070	93	862	404	0	0	42/ 48	10	15	14	877	(15)
2071	394	562	406	0	0	42/ 48	10	14	0	559	3
2072	434	550	420	14	0	42/ 48	10		0	550	0
2073	496	550		76	14	42/ 48	10		14	550	0
2074	426	540	410	6	76	42/ 48	10	10	80	550	(10)
2075	432	502	372	12	6	42/ 48	10	48	38	550	(48)
2076	472	528	398	52	12	42/ 48	10	22	28	550	(22)
								28			

Table B-11
PVID and YPRD Baselines Added Together – 5% Overrun with 1-Year Payback
(Assume base entitlement of 0.42 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	5% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	350	350		0		42/ 92	18			350	0
2003	465	465		45	0	42/ 92	18		0	420	45
2004	467	467	420	47	45	42/ 92	18		45	420	47
2005	392	347	375	0	47	42/ 92	18	45	47	392	(45)
2006	336	289	373	0	0	42/ 92	18	47	0	336	(47)
2007	316	316		0	0	42/ 92	18		0	316	0
2008	176	176		0	0	42/ 92	18		0	176	0
2009	419	419		0	0	42/ 92	18		0	419	0
2010	305	305		0	0	42/ 92	18		0	305	0
2011	424	424		4	0	42/ 92	18		0	420	4
2012	102	102		0	4	42/ 92	18		4	102	0
2013	374	370	416	0	0	42/ 92	18	4	0	374	(4)
2014	372	372	409	0	0	42/ 92	68		0	372	0
2015	375	375		0	0	42/ 92	68		0	375	0
2016	254	254		0	0	42/ 92	68		0	254	0
2017	431	431		11	0	42/ 92	68		0	420	11
2018	273	273		0	11	42/ 92	68		11	273	0
2019	427	416	409	7	0	42/ 92	68	11	0	420	(4)
2020	297	297		0	7	42/ 92	68		7	297	0
2021	421	414	413	1	0	42/ 92	68	7	0	420	(6)
2022	163	163		0	1	42/ 92	68		1	163	0
2023	455	454	419	35	0	42/ 92	68	1	0	420	34
2024	408	408		0	35	42/ 92	68		35	408	0
2025	450	415	385	30	11	42/ 92	18	35	11	420	(5)
2026	439	428	392	19	30	42/ 92	18	11	30	420	8
2027	383	353	390	0	19	42/ 92	18	30	19	383	(30)
2028	369	350	401	0	0	42/ 92	18	19	0	369	(19)
2029	380	380		0	0	42/ 92	18		0	380	0
2030	374	374		0	0	42/ 92	18		0	374	0
2031	416	416		0	0	42/ 92	18		0	416	0
2032	409	409		0	0	42/ 92	18		0	409	0
2033	445	445		25	0	42/ 92	18		0	420	25
2034	158	158		0	25	42/ 92	18		25	158	0
2035	427	402	395	7	0	42/ 92	18	25	0	420	(18)
2036	445	445		25	7	42/ 92	18		7	420	25
2037	253	246	413	0	25	42/ 92	18	7	25	253	(7)
2038	396	371	395	0	0	42/ 92	18	25	0	396	(25)
2039	375	375		0	0	42/ 92	18		0	375	0
2040	361	361		0	0	42/ 92	18		0	361	0
2041	402	402	420	0	0	42/ 92	18		0	402	0
2042	107	107		0	0	42/ 92	18		0	107	0
2043	115	115		0	0	42/ 92	18		0	115	0
2044	241	241		0	0	42/ 92	18		0	241	0
2045	400	400		0	0	42/ 92	18		0	400	0
2046	144	144		0	0	42/ 92	18		0	144	0
2047	417	417		0	0	42/ 92	18		0	417	0
2048	464	464		44	0	42/ 92	18		0	420	44
2049	446	446		26	44	42/ 92	18		44	420	26
2050	470	426	376	50	26	42/ 92	18	44	26	420	6
2051	432	406	394	12	50	42/ 92	18	26	50	420	(14)
2052	154	104	370	0	12	42/ 92	18	50	12	154	(50)
2053	266	254	408	0	0	42/ 92	18	12	0	266	(12)
2054	439	439		19	0	42/ 92	18		0	420	19
2055	171	171		0	19	42/ 92	18		19	171	0
2056	462	443	401	42	0	42/ 92	18	19	0	420	23
2057	168	168		0	42	42/ 92	18		42	168	0
2058	516	474	378	96	0	42/ 92	18	42	0	420	54
2059	328	328		0	96	42/ 92	18		96	328	0
2060	213	117	324	0	0	42/ 92	18	96	0	213	(96)
2061	85	85		0	0	42/ 92	18		0	85	0
2062	404	404		0	0	42/ 92	18		0	404	0
2063	412	412		0	0	42/ 92	18		0	412	0
2064	129	129		0	0	42/ 92	18		0	129	0
2065	336	336		0	0	42/ 92	18		0	336	0
2066	435	435		15	0	42/ 92	18		0	420	15
2067	464	464		44	15	42/ 92	18		15	420	44
2068	289	274	405	0	15	42/ 92	18	15	0	289	(15)
2069	(152)	(152)		0	0	42/ 92	18		0	(152)	0
2070	93	93		0	0	42/ 92	18		0	93	0
2071	394	394		0	0	42/ 92	18		0	394	0
2072	434	434		14	0	42/ 92	18		0	420	14
2073	496	496		76	14	42/ 92	18		14	420	76
2074	426	412	406	6	76	42/ 92	18	14	76	420	(8)
2075	432	356	344	12	6	42/ 92	18	76	6	420	(64)
2076	472	466	414	52	12	42/ 92	18	6	12	420	46

Table B-12
PVID and YPRD Baselines Added Together – Baseline and Shortage Years with 5% Overrun
(Assume base entitlement of 0.42 maf)

Column 1	2	3	4	5	6	7	8	9	10	11	12
Year	Estimated Consumptive Use	Measured Consumptive Use	Entitlement Minus Payback Target	Over / Under Runs	Overrun Account Reported	5% of Entitlement	20% of Maximum Entitlement	Extraordinary Conservation Required	End of Year Overrun Account	Base Case	Difference From Base Case
2002	350	350		0		42/ 92	18			350	0
2003	465	420		0	0	42/ 92	18		0	420	0
2004	467	420		0	0	42/ 92	18		0	420	0
2005	392	392		0	0	42/ 92	18		0	392	0
2006	336	336		0	0	42/ 92	18		0	336	0
2007	316	316		0	0	42/ 92	18		0	316	0
2008	176	176		0	0	42/ 92	18		0	176	0
2009	419	419		0	0	42/ 92	18		0	419	0
2010	305	305		0	0	42/ 92	18		0	305	0
2011	424	420		0	0	42/ 92	18		0	420	0
2012	102	102		0	0	42/ 92	18		0	102	0
2013	374	374		0	0	42/ 92	18		0	374	0
2014	372	372		0	0	42/ 92	18		0	372	0
2015	375	375		0	0	42/ 92	18		0	375	0
2016	254	254		0	0	42/ 92	18		0	254	0
2017	431	420		0	0	42/ 92	18		0	420	0
2018	273	273		0	0	42/ 92	18		0	273	0
2019	427	420		0	0	42/ 92	18		0	420	0
2020	297	297		0	0	42/ 92	18		0	297	0
2021	421	420		0	0	42/ 92	18		0	420	0
2022	163	163		0	0	42/ 92	18		0	163	0
2023	455	420		0	0	42/ 92	18		0	420	0
2024	408	408		0	0	42/ 92	18		0	408	0
2025	450	420		0		42/ 92	18		0	420	0
2026	439	420		0	0	42/ 92	18		0	420	0
2027	383	383		0	0	42/ 92	18		0	383	0
2028	369	369		0	0	42/ 92	18		0	369	0
2029	380	380		0	0	42/ 92	18		0	380	0
2030	374	374		0	0	42/ 92	18		0	374	0
2031	416	416		0	0	42/ 92	18		0	416	0
2032	409	409		0	0	42/ 92	18		0	409	0
2033	445	420		0	0	42/ 92	18		0	420	0
2034	158	158		0	0	42/ 92	18		0	158	0
2035	427	420		0	0	42/ 92	18		0	420	0
2036	445	420		0	0	42/ 92	18		0	420	0
2037	253	253		0	0	42/ 92	18		0	253	0
2038	396	396		0	0	42/ 92	18		0	396	0
2039	375	375		0	0	42/ 92	18		0	375	0
2040	361	361		0	0	42/ 92	18		0	361	0
2041	402	402		0	0	42/ 92	18		0	402	0
2042	107	107		0	0	42/ 92	18		0	107	0
2043	115	115		0	0	42/ 92	18		0	115	0
2044	241	241		0	0	42/ 92	18		0	241	0
2045	400	400		0	0	42/ 92	18		0	400	0
2046	144	144		0	0	42/ 92	18		0	144	0
2047	417	417		0	0	42/ 92	18		0	417	0
2048	464	420		0	0	42/ 92	18		0	420	0
2049	446	420		0	0	42/ 92	18		0	420	0
2050	470	420		0	0	42/ 92	18		0	420	0
2051	432	420		0	0	42/ 92	18		0	420	0
2052	154	154		0	0	42/ 92	18		0	154	0
2053	266	266		0	0	42/ 92	18		0	266	0
2054	439	420		0	0	42/ 92	18		0	420	0
2055	171	171		0	0	42/ 92	18		0	171	0
2056	462	420		0	0	42/ 92	18		0	420	0
2057	168	168		0	0	42/ 92	18		0	168	0
2058	516	420		0	0	42/ 92	18		0	420	0
2059	328	328		0	0	42/ 92	18		0	328	0
2060	213	213		0	0	42/ 92	18		0	213	0
2061	85	85		0	0	42/ 92	18		0	85	0
2062	404	404		0	0	42/ 92	18		0	404	0
2063	412	412		0	0	42/ 92	18		0	412	0
2064	129	129		0	0	42/ 92	18		0	129	0
2065	336	336		0	0	42/ 92	18		0	336	0
2066	435	420		0	0	42/ 92	18		0	420	0
2067	464	420		0	0	42/ 92	18		0	420	0
2068	289	289		0	0	42/ 92	18		0	289	0
2069	(152)	(152)		0	0	42/ 92	18		0	(152)	0
2070	93	93		0	0	42/ 92	18		0	93	0
2071	394	394		0	0	42/ 92	18		0	394	0
2072	434	420		0	0	42/ 92	18		0	420	0
2073	496	420		0	0	42/ 92	18		0	420	0
2074	426	420		0	0	42/ 92	18		0	420	0
2075	432	420		0	0	42/ 92	18		0	420	0
2076	472	420		0	0	42/ 92	18		0	420	0

ATTACHMENT C

Results of Additional Analysis of Potential Impacts to Excess Flows Below Mexico Diversion at Morelos Dam

This attachment provides the results of additional analyses performed to evaluate the potential impacts that the Inadvertent Overrun and Payback Policy (IOP) combined with the other action alternatives may have on excess flows that occur below the Mexico diversion at Morelos Dam. Specifically, the results included herein consists of an evaluation of the probability of occurrence of excess flows greater than 250 kaf and 1.0 maf below the Mexico diversion at Morelos Dam. Figures C-1 through C-4 compare the results of the Implementation Agreement (IA) to the No Action (NA) modeled conditions. Figures C-5 through C-8 compare the results of the Cumulative Analysis (CA) to the Baseline for Cumulative Analysis (Baseline) modeled conditions. A total of eight figures are presented herein. The modeled conditions represented by each of figure is as follows:

Figure No.	Probability of Occurrence of Excess Flows Greater than	Comparison of Modeled Conditions	Overrun Account Balance Considered	Payback Period and Maximum Allowed Overrun
C-1	250 kaf	NA to IA-IOP	Average (66 kafy)	3- Year / 10%
C-2	250 kaf	NA to IA-IOP	Maximum (331 kafy)	3- Year / 10%
C-3	1.0maf	NA to IA-IOP	Average (66 kafy)	3- Year / 10%
C-4	1.0maf	NA to IA-IOP	Maximum (331 kafy)	3- Year / 10%
C-5	250 kaf	Baseline to CA-IOP	Average (66 kafy)	3- Year / 10%
C-6	250 kaf	Baseline to CA-IOP	Maximum (331 kafy)	3- Year / 10%
C-7	1.0maf	Baseline to CA-IOP	Average (66 kafy)	3- Year / 10%
C-8	1.0maf	Baseline to CA-IOP	Maximum (331 kafy)	3- Year / 10%

A summary of the results in tabular format follows:

Table C-1
Probability Of Occurrence Of Excess Flows Greater Than 250 Kaf And 1.0 Maf Below The Mexico Diversion At Morelos Dam

	Differences in Probability of Excess Flows Greater than 250 kaf		Differences in Probability of Excess Flows Greater than 1.0 maf	
Differences in Probability	**NA to IA-IOP w/ Overrun Account Balance of 66 kaf**	**NA to IA-IOP w/ Overrun Account Balance of 331 kaf**	**NA to IA-IOP w/ Overrun Account Balance of 66 kaf**	**NA to IA-IOP w/ Overrun Account Balance of 331 kaf**
No. of Years w/ Observed Differences	10	45	22	33
No. of Years w/ Observed Increases	5	8	4	4
No. of Years w/ Observed Decreases	5	37	18	29
Average Difference	**0.0%**	**-0.7%**	**-0.2%**	**-0.5%**
Maximum Increase	1.2%	2.4%	1.2%	1.2%
Maximum Decrease	-1.2%	-3.5%	-2.4%	-3.5%
Differences in Probability	**Baseline to CA-IOP w/ Average Account Balance of 66 kaf**	**Baseline to CA-IOP w/ Average Account Balance of 331 kaf**	**Baseline to CA--IOP w/ Average Account Balance of 66 kaf**	**Baseline to CA--IOP w/ Average Account Balance of 331 kaf**
No. of Years w/ Observed Differences	34	48	37	43
No. of Years w/ Observed Increases	4	3	7	2
No. of Years w/ Observed Decreases	30	45	30	41
Average Difference	**-0.8%**	**-1.4%**	**-0.6%**	**-1.1%**
Maximum Increase	1.2%	1.2%	2.4%	1.2%
Maximum Decrease	-4.7%	-5.9%	-3.5%	-3.5%

Figure C-1
Probability of Occurrence of Excess Flows Greater than 250 KAF Below Mexico Diversion at Morelos Dam
Comparison of No Action to IA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

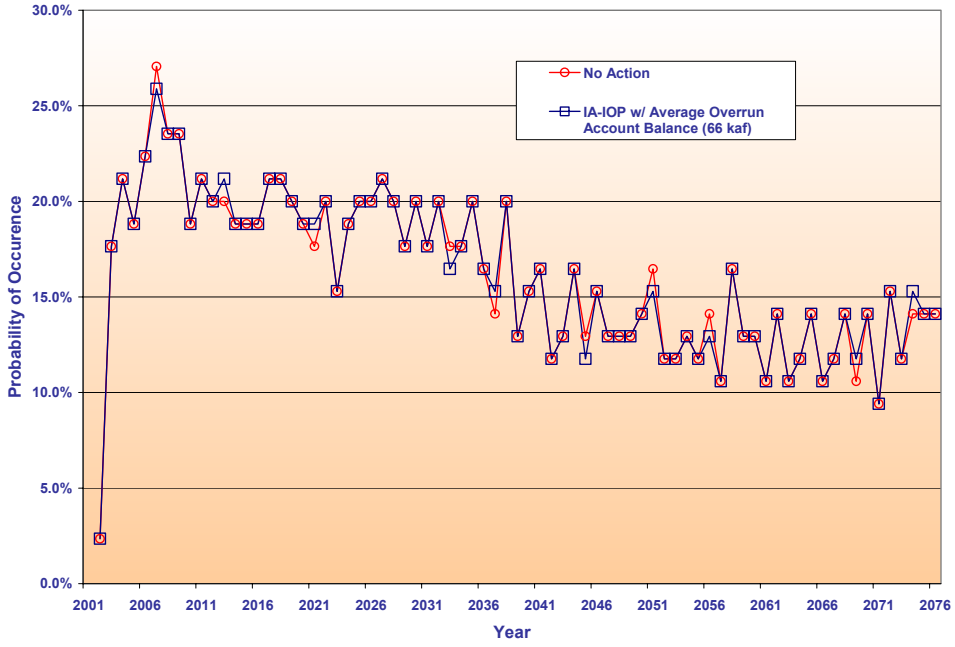


Figure C-2
Probability of Occurrence of Excess Flows Greater than 250,000 KAF Below Mexico Diversion at Morelos Dam
Comparison of No Action to IA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

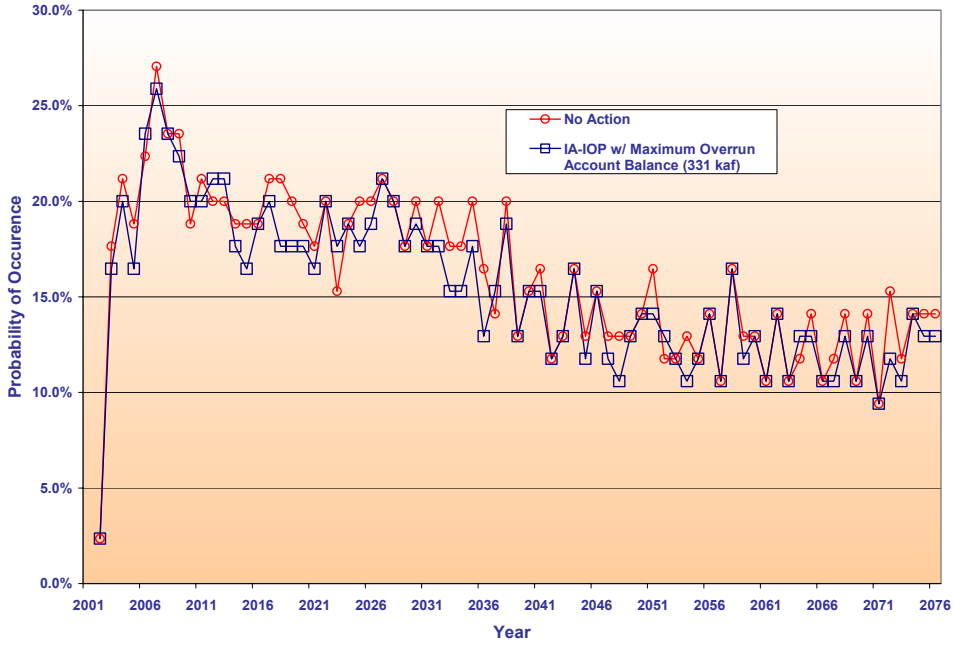


Figure C-3
Probability of Occurrence of Excess Flows Greater than 1,000,000 KAF Below Mexico Diversion at Morelos Dam
Comparison of No Action to IA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

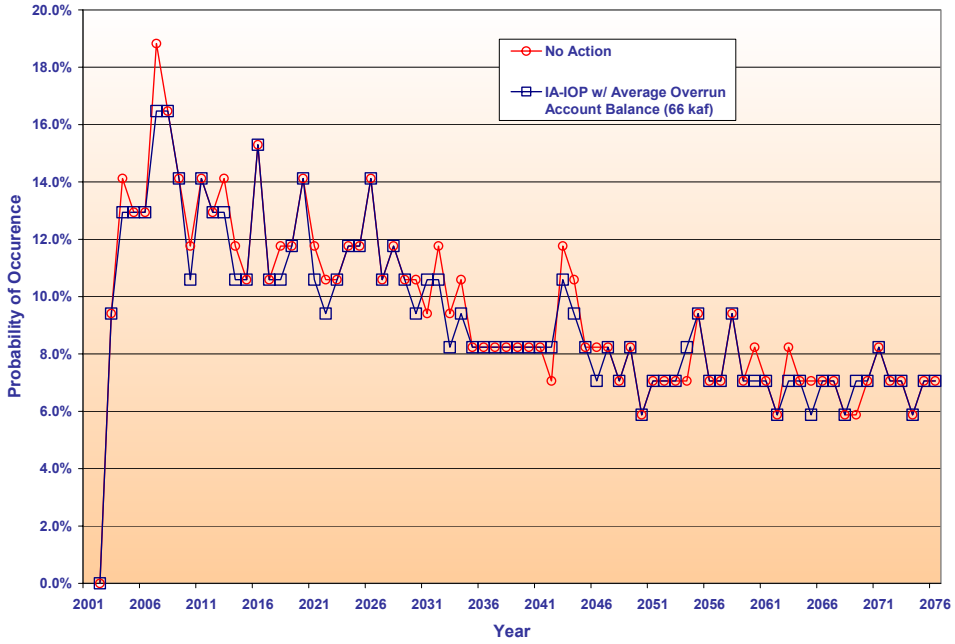


Figure C-4
Probability of Occurrence of Excess Flows Greater than 1,000,000 KAF Below Mexico Diversion at Morelos Dam
Comparison of No Action to IA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

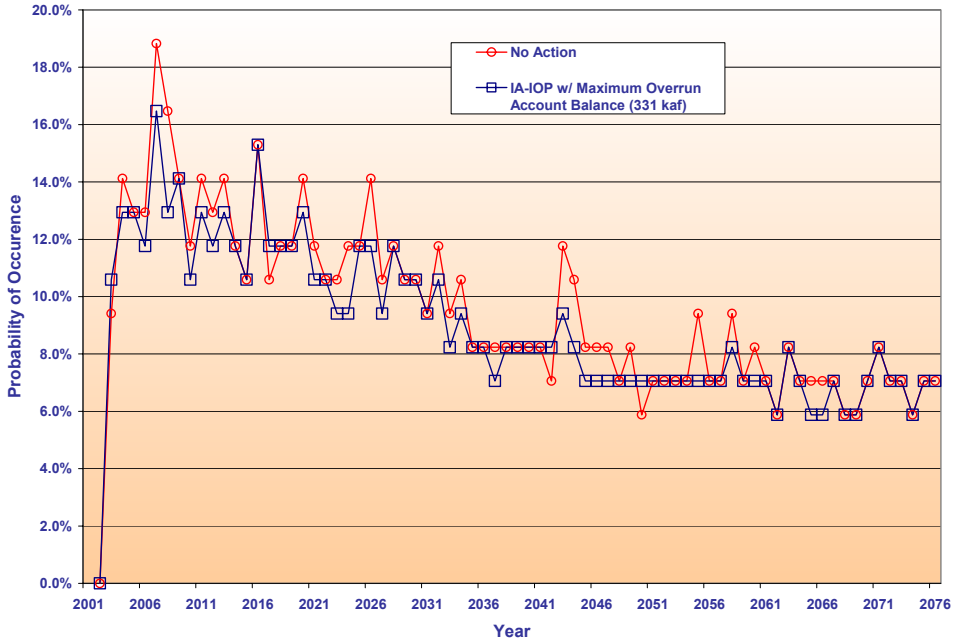


Figure C-5
Probability of Occurrence of Excess Flows Greater than 250,000 KAF Below Mexico Diversion at Morelos Dam
Comparison of Baseline to CA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

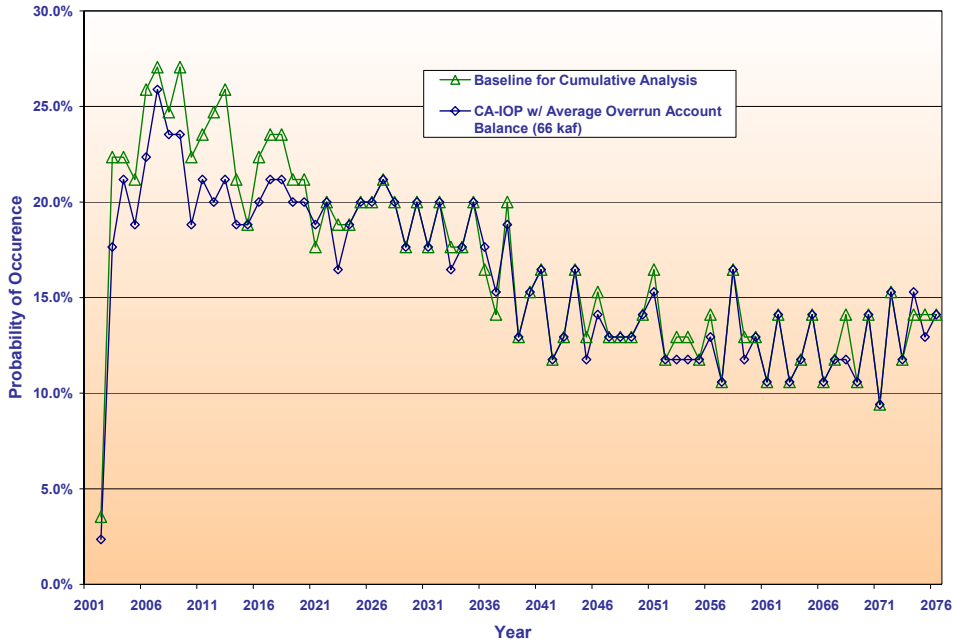


Figure C-6
Probability of Occurrence of Excess Flows Greater than 250,000 KAF Below Mexico Diversion at Morelos Dam
Comparison of Baseline to CA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

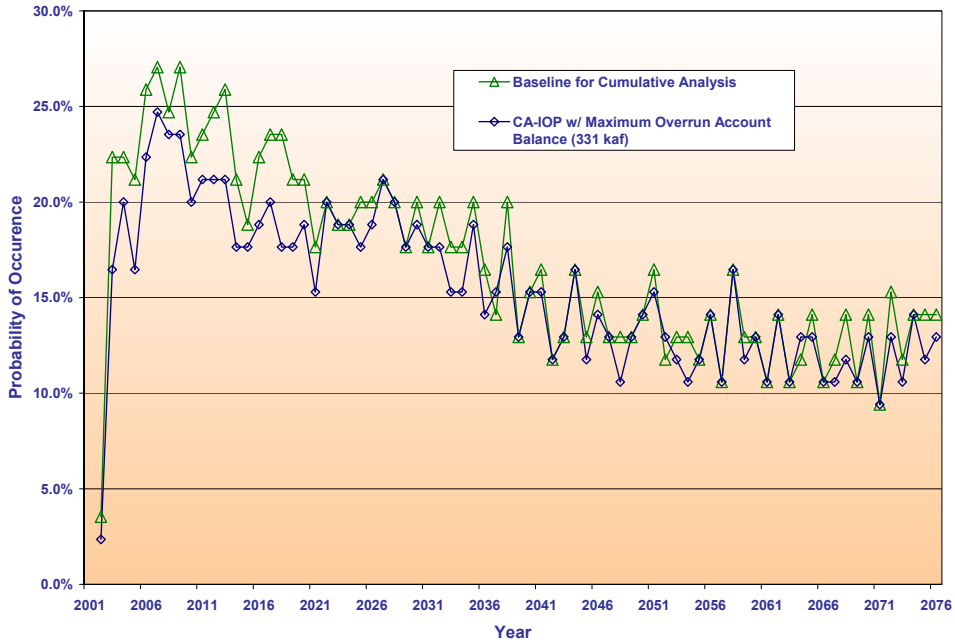


Figure C-y
Probability of Occurrence of Excess Flows Greater than 1,000,000 KAF Below Mexico Diversion at Morelos Dam
Comparison of No Action to IA-IOP w/ Average Lower Basin Overrun Account Balance of 66 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule

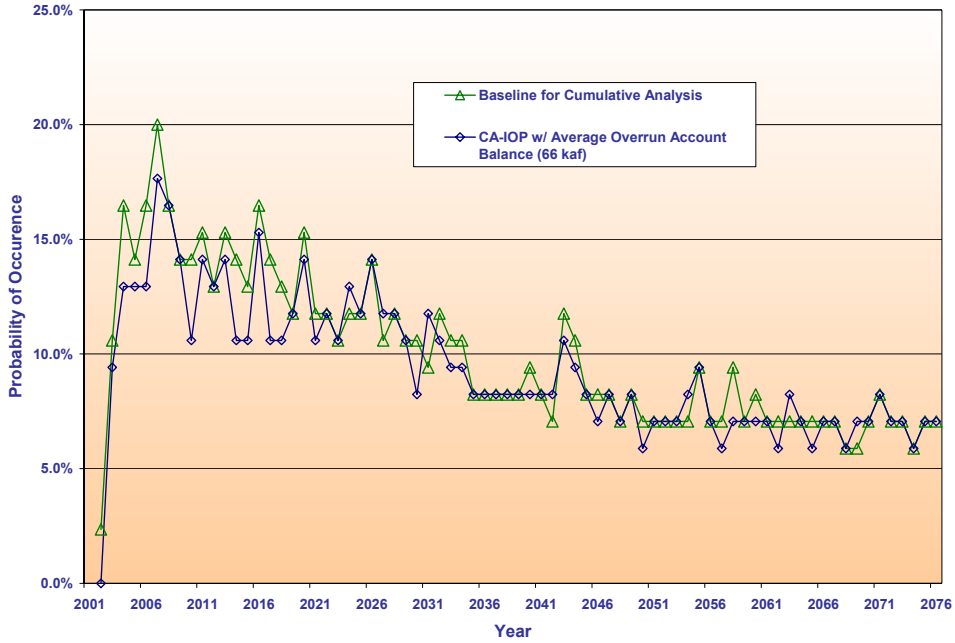
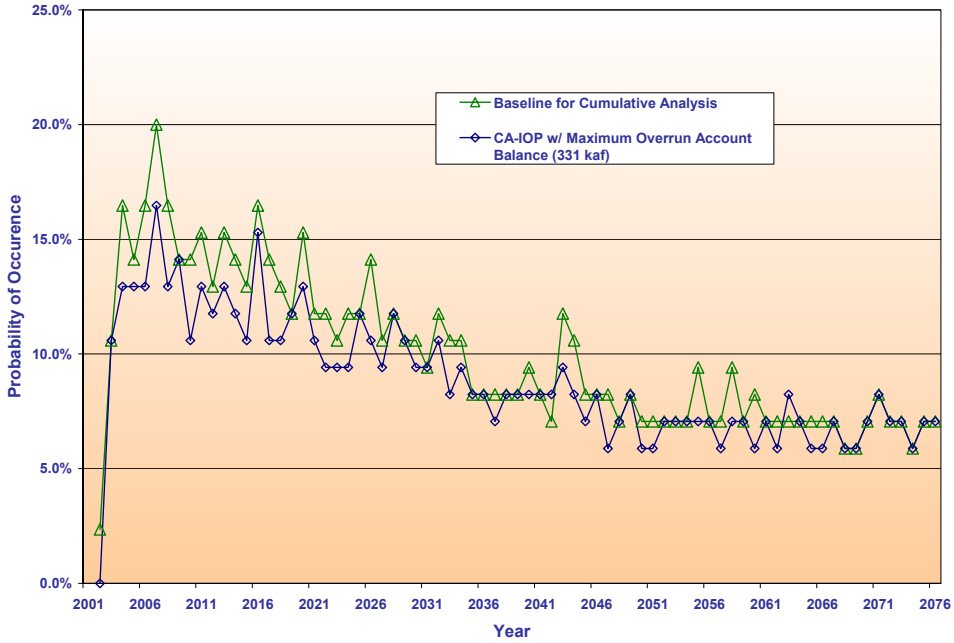



Figure C-8
Probability of Occurrence of Excess Flows Greater than 1,000,000 KAF Below Mexico Diversion at Morelos Dam
Comparison of No Action to IA-IOP w/ Maximum Lower Basin Overrun Account Balance of 331 kafy
10 Percent Maximum Allowed Overrun w/ 3-Year Payback Schedule