IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.1 – Pages from 2012 Imperial IRWMP

Imperial Region
2014 IRWM Drought Grant Proposal

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

GEI Consultants

FINAL

Imperial Integrated Regional Water Management Plan

Volume 1: IRWM Plan

October 2012

and San Diego County Water Authority (SDCWA), two principal partners in the QSA/Transfer Agreements. The QSA/Transfer Agreements benefit California, since they provide the mechanism to stay within its 4.4 million acre-feet (MAF) a year Colorado River water apportionment consistent with the Law of the River. The U.S. Department of the Interior, through the U.S. Bureau of Reclamation (USBR), acts as water master for the Colorado River. Interstate and interregional coordination are through existing management structures including the Colorado River Board of California, the Colorado River Water Users Association, and the USBR.

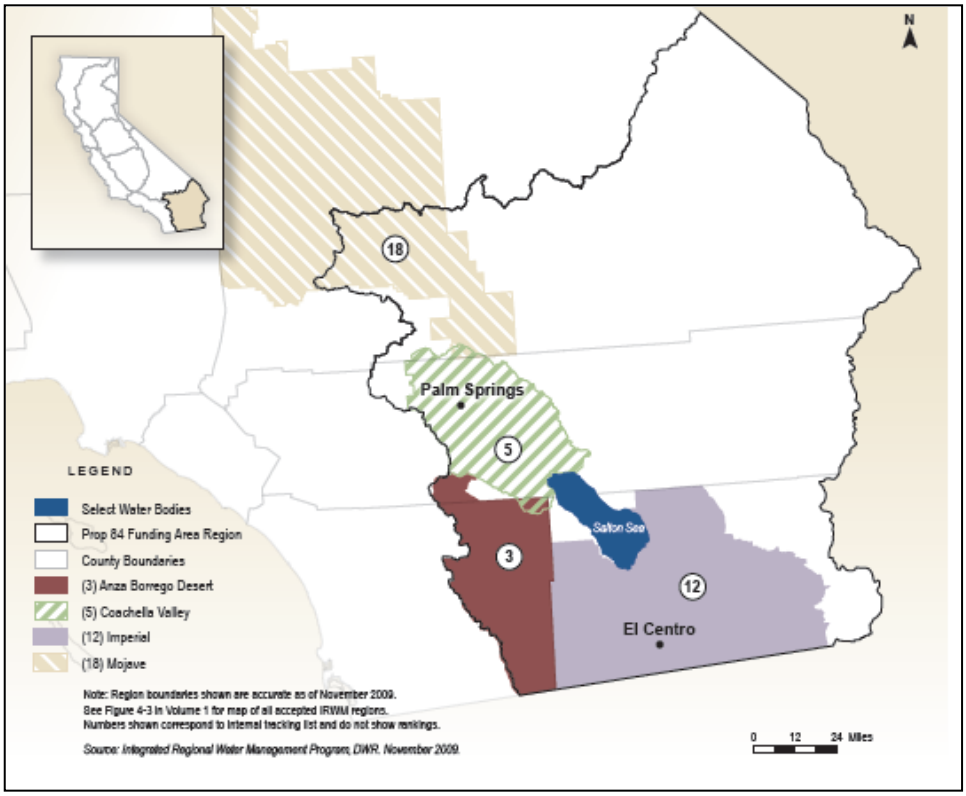

Figure 1-6. Colorado River Hydrologic Region and IRWM Regions

It is anticipated that interregional competition for Colorado River supplies will continue to influence water planning and management in both the South Coast and Colorado River Hydrologic Regions. Water used for agriculture in the Colorado River Hydrologic Region, within both the Imperial and Coachella IRWM planning regions, is identified as a potential source of future supply for expanding urban demands in the South Coast.

Salton Sea Coordination. Interregional cooperation on the Salton Sea Restoration Plan is through the Salton Sea Authority.[2] A restoration plan is beyond the scope of the Imperial IRWMP. The Salton Sea Restoration Plan is a separate and far more extensive planning effort than the Imperial IRWMP, involving a much larger geographic area that includes a large number of stakeholders. The Imperial Region and Water Forum remain committed to the development of a Salton Sea Restoration Plan by the

[2] Salton Sea Authority home page <http://www.saltonsea.ca.gov>

Even with a relatively stable and known water supply entitlement, under the terms of the QSA/Transfer Agreements, supply reliability may be an issue due to variations in annual agricultural demand. Understanding how supply and demand is related is important for: 1) identifying problems and potential impacts, 2) developing solutions to manage the supply, and 3) avoiding impacts to present day water users and/or the environment. This chapter discusses how the variation, largely in agricultural demand, can result in supply and demand imbalances (overruns) or in underruns. Overrun conditions result when water is diverted in excess of IID's Colorado River entitlement. Underrun conditions occur when less water is diverted than IID's net consumptive use amount as per the 2003 Colorado River Water Delivery Agreement (CRWDA) Exhibit B, Column 13.

5.2.1 Colorado River and Other Water Supply

The Imperial Valley depends solely on the Colorado River for surface water supply. IID imports raw water from the Colorado River and distributes it primarily for agricultural use (96.17 percent of total 2011 delivery).[5] Historically, non-agricultural water demand has accounted for around 3 percent of IID's delivered Colorado River water; in 2011 that had risen to 3.83 percent. Non-agricultural use percentage will continue to increase both from growth in the non-ag sectors – as municipal water demand continues to rise due to population growth; as industrial (renewable energy) water demand increases due to increased geothermal energy production; and as feedlot, dairy and fishery, and environmental and recreation uses all continue to increase – and as agricultural water use declines due to the terms of the QSA/Transfer Agreements.

IID distributes water for non-agricultural is to the Valley's seven municipalities, one private water company, and two community water systems for treatment to potable standards (1.25 percent); to industrial (renewable energy) users (0.88 percent); feedlot, dairy and fishery users (1.35 percent), and environmental resources demand and recreational uses (0.35 percent). Rainfall is less than three inches per year and does not contribute to IID water delivery, although at times it does increase or reduce agricultural water demand.[6] Groundwater in the Imperial Valley is of poor quality and is generally unsuitable for domestic or irrigation purposes, though some is pumped for industrial (geothermal) use. In addition, to avoid agricultural root zone contamination, tile drains are used to dewater the root zone. The tile drain and other drainage waters ultimately discharge to the Salton Sea.

5.2.2 Colorado River Water Rights

IID's rights to appropriate Colorado River water are long-standing. Beginning in 1885, a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water under California law for use in the Imperial Valley. Pursuant to then-existing California laws, these appropriations were initiated by the posting of public notices for approximately 7 million acre-feet per year (MAFY) at the point of diversion and recording such notices in the office of the county recorder.

[5] IID Water Information System (WIS), Provisional Water Balance 2011 volumes.
[6] One inch of rainfall across the IID irrigated area results in a reduction of about 50 KAF in net consumptive use.

12.1.2.2 Analysis of IID Capital Project Priorities and Preferences

IID staff and the board stressed key factors identified to categorize project alternatives and establish priorities. Lower priority projects were defined as those projects that were less feasible due to technical, political, or financial constraints. Preferential criteria were those project characteristics that could increase the relative benefits of a project and grant it a higher priority. After consultation with IID staff, four criteria were selected to prioritize the IID capital projects:

- **Financial Feasibility.** Projects whose unit cost was more than $600/AF were eliminated from further consideration.
- **Annual Yield.** Project alternatives generating 5,000 acre-feet or less of total annual yield were determined not to be cost-effective and lacking necessary economies of scale.
- **Groundwater Banking.** Groundwater banking to capture and store underruns is recognized as a beneficial use of Colorado River water. Project alternatives without groundwater banking were given a lower priority.
- **Partnering.** Project alternatives in which IID was dependent on others (private and/or public agencies) for implementation were considered to have a lower priority in the IID review; this criterion was reserved for the IRWMP process, where partnering is a desirable attribute.

Using these criteria, 6 desalination, 2 groundwater blending, 1 system conservation, and 1 groundwater storage project remained. These projects are displayed in the unshaded area at the top of Table 12-5. It should be noted that the recycled water projects have competitive unit costs ($/AF) and were only deferred due to the need to partner to build projects with the Cities that own and operate the facilities. Appendix N provides a summary description of the projects in Table 12-5

12.1.3 IRWMP Capital Project Alternatives

As a result of the First and Second calls for projects, 49 proposed projects were submitted for inclusion in the Imperial IRWMP. Table 12-6 presents a summary of submitted stakeholder sponsored projects. The projects are presented according to the Imperial IRWMP goal that each project supports; the list is not prioritized. The prioritized list, which can be found in the Executive Summary and in Appendix K, will be maintained by the Water Forum as an active document and updated at least annually.

Table 12-6. Imperial IRWMP Project Submittal Summary List

Project Title	Submitting Agency/Org	Estimated Cost	IRWMP Goals Met
HPUD WWTP Upgrade to Tertiary Treatment	Heber Public Utility District	$12,500,000	Water Supply
Keystone Desalination with IID Drain Water/Alamo River Source (50 KAFY)	Imperial Irrigation District	$147,440,000	Water Supply
East Brawley 25 KAFY Desalination with Well Field and Groundwater Recharge (Desal 12)	Imperial Irrigation District	$101,000,000	Water Supply
City of Brawley Raw Water Storage Project	City of Brawley	$4,000,000	Water Supply
Keystone Water Reclamation Facility	City of Imperial	$65,000,000	Water Supply
IID System Conservation/Improvement Projects for IWSP	Imperial Irrigation District	$4,752,000	Water Supply
Ramer Lake Conservation Plan for Water Savings	Southern Low Desert Resource Conservation & Dev Council	$280,000	Water Supply

Table 12-6. Imperial IRWMP Project Submittal Summary List

Project Title	Submitting Agency/Org	Estimated Cost	IRWMP Goals Met
Ave. 62, Thomas Levy Recharge Site.	Imperial Irrigation District	---	Water Supply
Painted Canyon	Imperial Irrigation District	---	Water Supply
East Mesa Groundwater Storage Project	Imperial Irrigation District	---	Water Supply
Drainage Upgrade (Holt Avenue, Imperial to 12th)	City of El Centro	$468,455	Water Supply
Drainage Upgrade (Development west of Wake Ave and 8th St: Cypress Dr: Farmer Dr: 10th St: 9th St)	City of El Centro	$1,000,848	Water Supply
Drainage Upgrade (Broadway St., No. Eighth St., Commercial Ave. from Imperial Ave to sixth street.)	City of El Centro	$5,653,723	Water Supply
Drainage Upgrade (Dogwood Rd., Ross Rd., Heil Ave., Hope Ave. between 1st and Orange)	City of El Centro	$7,371,448	Water Supply
Phased Underrun Storage and Agricultural Wastewater Reclamation Project	Imperial Irrigation District	---	Water Supply
Ave 72, Martinez Canyon Groundwater Storage Project	Imperial Irrigation District	---	Water Supply, Regional Policy
Water distribution storage tanks, 2 each 5MG	City of El Centro	$10,000,000	Water Supply, Water Quality, Regional Policy
Interconnection projects between City of El Centro, City of Imperial and Heber PUD	City of El Centro	$1,400,000	Water Supply, Water Quality, Regional Policy
Regional Wastewater Treatment and Recycled Water Project	City of Brawley and City of Imperial	$60,000,000	Water Supply, Water Quality, Regional Policy
City of Brawley Reclaim Water Project	City of Brawley	$12,500,000	Water Supply, Environ-mental Protection/ Enhancement, Water Quality, Regional Policy
Imperial Valley Biogas Initiative	Southern California Gas Company	$20,000,000	Water Supply, Environ-mental Protection/ Enhancement, Water Quality, Regional Policy
Macroalgae Solutions for the Imperial Valley and Salton Sea Region	The Gas Technology Institute (GTI)	$5,000,000	Water Supply, Environ-mental Protection/ Enhancement, Water Quality, Regional Policy
City of Brawley Water Meter Project	City of Brawley	$4,000,000	Water Supply, Environ-mental Protection/ Enhancement, Regional Policy
New River Bioremediation & Wildlife Habitat Restoration & Process Evaluation Project	SDSU Research Foundation	$600,000	Water Quality
Holtville Water Distribution System Project	City of Holtville	$3,040,000	Water Quality
Holtville Wastewater Treatment Plant Improvement Project	City of Holtville	$6,149,000	Water Quality
New River Bioremediation & Wildlife Habitat Restoration & Process Evaluation Project	SDSU Research Foundation	$600,000	Water Quality
Holtville Water Distribution System Project	City of Holtville	$3,040,000	Water Quality
Holtville Wastewater Treatment Plant Improvement Project	City of Holtville	$6,149,000	Water Quality
Holtville Wastewater Collection System Project	City of Holtville	$4,100,000	Water Quality
Holtville UV Transmittance Water Treatment System Project	City of Holtville	$540,000	Water Quality
Holtville Sewer Master Plan/Map Update	City of Holtville	$84,000	Water Quality

Table 12-6. Imperial IRWMP Project Submittal Summary List

Project Title	Submitting Agency/Org	Estimated Cost	IRWMP Goals Met
Project			
Holtville Water Master Plan/Map Update Project	City of Holtville	$75,000	Water Quality
Poe Colonia Wastewater Treatment Plant Upgrade	County of Imperial	---	Water Quality
Microalgal Cultivation for Improved Yields, Economic Value & Water Use Efficiency on Agricultural lands in Imperial Valley, CA	Scripps Institution of Oceanography (SIO), UCSD	$3,500,000	Environmental Protection/ Enhancement, Water Quality, Regional Policy
Large-Scale Microalgal Cultivation on Recently-Exposed Playa Lands for Improving Salton Sea Water Quality and Regional Air Quality	Scripps Institution of Oceanography (SIO), UCSD	$5,620,000	Environmental Protection/ Enhancement, Regional Policy Goals, Water Quality
Integrated Microalgae Cultivation Process for Improving Water Quality in Imperial Valley Drainage Canals	Scripps Institution of Oceanography (SIO), UCSD	$3,500,000	Environmental Protection/ Enhancement, Regional Policy Goals, Water Quality
Drainage Upgrade (La Brucherie Rd. to 23rd; Barbara Worth Ave. to Orange)	City of El Centro	$652,273	Flood Protection/ Stormwater Management
Drainage Upgrade (8th St., Woodward to Villa)	City of El Centro	$1,080,684	Flood Protection/ Stormwater Management
Drainage Upgrade (Lincoln Ave.; 6th St.)	City of El Centro	$1,570,900	Flood Protection/ Stormwater Management
Drainage Upgrade (Oak St. from San Diego to Villa)	City of El Centro	$595,039	Flood Protection/ Stormwater Management
Drainage Upgrade (Evan Hewes Hwy. Dogwood to Cooley)	City of El Centro	$3,633,099	Flood Protection/ Stormwater Management
Drainage Upgrade (8th St. from Villa to Central Main Drain)	City of El Centro	$3,069,597	Flood Protection/ Stormwater Management
Holtville Stormwater Master Plan Project	City of Holtville	$60,000	Flood Protection/ Stormwater Management
Holtville Stormwater Conveyance System and Detention Basin Project	City of Holtville	$7,095,000	Flood Protection /Stormwater Management
Drainage Improvements in the Township of Seeley; County Project No. 5363	Imperial County Public Works	$1,916,794	Flood Protection /Stormwater Management
Spearheading with Spirulina: An Sustainable Approach to Desert Aquaculture	Southern Low Desert RC&D Council	$350,000	Regional Policy Goals

The Projects Work Group heard presentations from project proponents in March and April 2012, and those in attendance scored the projects based on readiness to proceed. These readiness-to-proceed scores were added to the consultant scores to establish a grant funding priority list. This grant priority list will be maintained as an active document by the Water Forum on its website. This will provide flexibility to coordinate responses to state and federal grant opportunities.

A report, Stakeholder Sponsored Projects (GEI, 2012) was prepared to document the proposed projects. Using the Ranking and Evaluation Criteria adopted by the Water Forum, GEI Consultants, Inc. conducted

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.2 – CRWDA: Federal QSA

Imperial Region
2014 IRWM Drought Grant Proposal

THE SECRETARY OF THE INTERIOR

WASHINGTON

Colorado River Water Delivery Agreement:

Federal Quantification Settlement Agreement

for purposes of Section 5(B) of

Interim Surplus Guidelines

Approved:

Gale A. Norton

Gale A. Norton
Secretary of the Interior

Oct. 10, 2003

Date

COLORADO RIVER WATER DELIVERY AGREEMENT

The United States by and through the Secretary of the Interior (Secretary) hereby enters into this Colorado River Water Delivery Agreement (Agreement) 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). The Secretary, IID, CVWD, MWD and SDCWA hereby agree as follows:

RECITALS

A. 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.

B. The Secretary has entered into contracts with, among others, the Palo Verde Irrigation District (PVID), IID, CVWD, and MWD, 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, which for PVID and IID include the satisfaction of present perfected rights in accordance with Section 6 of the BCPA. MWD and CVWD also have surplus water delivery contracts with the Secretary.

C. IID, CVWD, MWD and SDCWA have entered into agreements relating to, among other matters, their respective beneficial consumptive use of Colorado River water and desire that, for the term of this Agreement, Colorado River water be delivered by the Secretary in the manner contemplated in this Agreement.

D. The Secretary has the authority to enter into this Agreement on behalf of the United States pursuant to the BCPA, the 1964 Decree in Arizona v. California, and other applicable authorities.

OPERATIVE TERMS

1. WATER DELIVERY CONTRACTS

a. Priorities 1, 2, 3(b), 6(b), and 7 of current Section 5 Contracts for the delivery of Colorado River water in the State of California and Indian and miscellaneous Present Perfected Rights (PPRs) within the State of California and other existing surplus water contracts are not affected by this Agreement.

b. The Secretary agrees to deliver Colorado River water in the manner set forth in this Agreement during the term of this Agreement. The Secretary shall cease delivering water pursuant to this Agreement at the end of the term of this Agreement; provided, however, that the Secretary's delivery commitment to the San Luis Rey Indian Water Rights Settlement Parties (SLR) shall not terminate at the end of the term but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended, subject to the terms and conditions of any applicable agreement to which the Secretary is a party concerning the allocation of water to be conserved from the lining of the All-American and Coachella Canals.

c. The Districts' respective Section 5 Contracts shall remain in full force and effect and, with this Agreement, shall govern the delivery of Colorado River water.

2. QUANTIFICATION OF PRIORITY 3(a)

a. Except as otherwise determined under the Inadvertent Overrun and Payback Policy identified in Section 9 of this Agreement, the Secretary shall deliver Priority 3(a) Colorado River water to IID in an amount up to but not more than a consumptive use amount of 3.1 million acre-feet per year (AFY) less the amount of water equal to that to be delivered by the Secretary for the benefit of CVWD, MWD, SDCWA, SLR, and Indian and miscellaneous PPRs as set forth in Exhibits A and B hereto. Colorado River water acquired by IID after the date of this Agreement, and where necessary approved by the Secretary, shall not count against this cap.

b. Except as otherwise determined under the Inadvertent Overrun and Payback Policy, the Secretary shall deliver Priority 3(a) Colorado River water to CVWD in an amount up to but not more than a consumptive use amount of 330,000 AFY less the amount of water equal to that to be delivered by the Secretary for the benefit of IID, MWD, SDCWA, SLR, and Indian and miscellaneous PPRs as set forth in Exhibits A and B hereto. Colorado River water acquired by CVWD in any transaction to the extent agreed upon prior to or concurrent with the execution of this Agreement by IID and MWD and, where necessary approved by the Secretary, shall not count against this cap.

3. QUANTIFICATION OF PRIORITY 6(a)

a. Subject to any rights that PVID may have, and except as otherwise provided under the Interim Surplus Guidelines, or under the agreements contemplated by those guidelines, the Secretary shall deliver Priority 6(a) water to MWD, IID and CVWD in the following order and consumptive use volumes: (i) 38,000 AFY to MWD; (ii) 63,000 AFY to IID; and (iii) 119,000 AFY to CVWD, or as those parties may agree to occasionally forbear.

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 3.a. above. 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 the date of this Agreement.

4. TRANSFERS AND OTHER WATER DELIVERY COMMITMENTS

a. The Secretary shall deliver IID's Priority 3(a) entitlement for the benefit of IID and others as specified in Exhibits A and B hereto and in the amounts and to the points of delivery set forth therein.

b. The Secretary shall deliver CVWD's Priority 3(a) entitlement for the benefit of the CVWD and others as specified in Exhibits A and B hereto and in the amounts and to the points of delivery set forth therein.

c. At SDCWA's election, the Secretary shall deliver water made available for SDCWA's benefit as set forth in Exhibits A and B hereto to the intake facilities for the Colorado River Aqueduct and SDCWA may then exchange up to 277,700 AFY of Colorado River water with MWD at Lake Havasu.

d. If in any given calendar year that 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 3(b), exceeds the consumptive use amount of 420,000 AFY, the Secretary will reduce the amount of water otherwise available to MWD in Priorities 4, 5 or 6(a) 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 3(b) is less than 420,000 AFY, the Secretary shall deliver to MWD the difference.

e. 1. The Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 20,000 AFY or such lesser consumptive use amount as may be requested by CVWD of Priority 3(a) Colorado River water made available to MWD under the Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water between IID and MWD dated December 22, 1988, as amended.

2. Beginning in 2048 and in each year thereafter, the Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 50,000 AFY or such lesser consumptive use amount as may be requested by CVWD from the Colorado River water available to MWD.

3. When requested by MWD for the purpose of satisfying an exchange obligation to CVWD under an agreement between CVWD and MWD for exchange of CVWD's State Water Project water, the Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 135,000 AFY or such lesser amount as may be requested by MWD.

f. CVWD may decline to take a portion of the water to be conserved by IID for CVWD. In this event, the Secretary shall instead deliver such portion of the water to IID or MWD, or to other unspecified water users provided, further, that any such delivery to an unspecified user is, where necessary, subject to Secretarial approval.

g. Colorado River water will be made available to MWD through forbearance under the existing priority system as a result of a proposed land management program between PVID landowners and MWD. Neither IID nor CVWD will make any claim to or object to delivery to MWD of PVID program water to the extent agreed upon prior to or concurrent with the execution of this Agreement by IID and CVWD. If the transfer of PVID program water is not implemented, then IID has agreed to transfer for the benefit of MWD/SDCWA amounts necessary to meet the minimum Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, not to exceed 145,000 AF in the aggregate.

h. CVWD may utilize Colorado River water outside of Improvement District No. 1 to the extent consented to and agreed upon prior to or concurrent with the execution of this Agreement by IID and MWD.

i. Notwithstanding the transfers set forth in this section and Exhibit B, IID, CVWD, MWD and SDCWA recognize and agree that at the conclusion of the effective period of the Interim Surplus Guidelines, they shall have implemented sufficient measures to be able to limit total uses of Colorado River water within California to 4.4 million AFY, unless the Secretary determines a surplus under a 70R strategy.

5. SHORTAGES

a. The Secretary's authority under II.B.3 of the 1964 Decree in Arizona v. California is not limited in any way by this Agreement.

b. If for any reason there is less than 3.85 million AFY available under Priorities 1, 2 and 3 during the term of this Agreement, any water which is made available by the Secretary to IID and CVWD shall be delivered to IID, CVWD, MWD, and SDCWA in accordance with the shortage sharing provisions agreed upon prior to or concurrent with the execution of this Agreement by IID, CVWD, MWD and SDCWA.

6. TERM

a. This Agreement will become effective upon execution of this Agreement by all Parties.

b. This Agreement will terminate on December 31, 2037, if the 1998 IID/SDCWA transfer program terminates in that year.

c. If this Agreement does not terminate on December 31, 2037, then this Agreement will terminate on December 31, 2047 unless extended by agreement of all parties until December 31, 2077, in which case this Agreement will terminate on December 31, 2077.

d. The Secretary's delivery commitment to the SLR and the Districts' recognition and acceptance of that delivery commitment, shall not terminate but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended.

7. INTERIM SURPLUS GUIDELINES

The Secretary finds that execution of this Agreement constitutes "all required actions" that the relevant California Colorado River water contractors are required to undertake pursuant to Section 5(B) of the Interim Surplus Guidelines. Accordingly, upon execution of this Agreement by all parties, the interim surplus determinations under Sections 2(B)(1) and 2(B)(2) of the Interim Surplus Guidelines are reinstated.

8. BENCHMARKS FOR THE STATE OF CALIFORNIA'S AGRICULTURAL USE

a. The parties to this Agreement agree to carry out the transfers identified in Section 4 above and in Exhibit A hereto in accordance with the schedule set forth in Exhibit B hereto. Nothing in this Agreement authorizes or precludes carrying out the transfers on a timetable sooner than provided in the schedule set forth in Exhibit B hereto. The transfers in the schedule set forth in Exhibit B hereto are undertaken to allow California agricultural usage (by PVID, Yuma Project Reservation Division, IID, and CVWD) plus 14,500 af of PPR use to be at or below the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines. Nothing in this Agreement authorizes or precludes additional transfers of Colorado River water as agreed upon prior to or concurrent with the execution of this Agreement by the Districts to meet the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines. All determinations by the Secretary with respect to this section shall be based upon Decree Accounting. Repayment of overrun amounts shall not count toward compliance with the transfers in the schedule set forth in Exhibit B hereto or toward compliance with the Benchmark Quantities set forth in Section 5(C) of the Interim Surplus Guidelines.

b. In the event that i) the transfers are carried out as set forth in the schedule in Exhibit B hereto or additional Colorado River transfers as agreed upon prior to or concurrent with the execution of this Agreement by the Districts are carried out and ii) California's Agricultural usage plus 14,500 af of PPR use is at or below the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, the provisions of this subparagraph shall apply.
1. Notwithstanding the provisions of the November 22, 2002 Supplement to the 2002 Annual Operating Plan, any existing overruns in calendar years 2001 and 2002 by parties to this Agreement must be repaid within an eight-year period beginning in calendar year 2004 in

accordance with the schedule attached in Exhibit C hereto, except that in the event that any Annual Operating Plan 24-Month Study indicates that a shortage will occur within months 13 through 24, any remaining balance of the 2001 and 2002 overruns shall be fully repaid during the next calendar year. Repayment of any overruns other than from calendar years 2001 and 2002 shall be pursuant to the Inadvertent Overrun and Payback Policy identified in Section 9 below.

2. The Secretary has considered the quantification of Priority 3(a) as set forth in Section 2 of this Agreement and the water transfers set forth in the schedule in Exhibit B hereto. These water transfers were developed to assist the Districts and SDCWA to meet the provisions of Section 4(i) of this Agreement and to reduce the occurrence of future reasonable and beneficial use reviews under 43 C.F.R. Pt. 417 to unique circumstances. These water transfers are based upon water conservation activities to be implemented over the term of this Agreement. For these reasons, the Secretary does not anticipate any further review of the reasonable and beneficial use of Colorado River water by IID pursuant to the annual 43 C.F.R. Pt. 417 reviews that are conducted during the initial term of this Agreement as set forth in Section 6.b. (December 31, 2037). Should the Secretary engage in any further review of the reasonable and beneficial use of Colorado River water by IID pursuant to 43 C.F.R. Pt. 417 under this Section, the Secretary will base her decision on (i) the purpose of the quantification of Priority 3(a) and the reductions and transfers set forth on Exhibit B hereto, and (ii) the implementation of the water transfers by IID as set forth in the schedule in Exhibit B, in addition to the consideration of the factors in 43 C.F.R. § 417.3

c. Notwithstanding any other provision of this Agreement, and in addition to any applicable provisions of the Interim Surplus Guidelines, in the event that either i) the transfers are not carried out as set forth in Exhibit B hereto or additional Colorado River transfers as agreed upon prior to or concurrent with the execution of this Agreement by the Districts are not carried out, or ii) California's Agricultural usage plus 14,500 af of PPR use is above the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, the provisions of this subparagraph shall apply.

1. For each District that has not implemented the water transfers to which it is a party upon the agreed upon schedule as set forth in Exhibit B hereto, the Inadvertent Overrun and Payback Policy identified in Section 9 below will be immediately suspended. During suspension of the Inadvertent Overrun and Payback Policy, for previously incurred overruns, the payback period shall be as provided in the existing Inadvertent Overrun and Payback Policy were such Policy not suspended. The Inadvertent Overrun and Payback Policy will be reinstated at such time as a District has implemented the water transfers to which it is a party upon the agreed upon schedule as set forth in Exhibit B hereto.

2. Any remaining existing overruns from calendar years 2001 and 2002 by parties to this Agreement must be repaid within a three-year period.

3. In addition to any applicable provisions of the Interim Surplus Guidelines, in the event that the transfers are not implemented in accordance with Column 23 in Exhibit B hereto, MWD shall not place any order to the Secretary for any Colorado River water otherwise available pursuant to sections 2(B)(1) and 2(B)(2) as set forth in the Interim Surplus Guidelines.

4. The Secretary anticipates that a further review of the reasonable and beneficial use of Colorado River water by the Districts will be required pursuant to the annual 43 C.F.R. Pt. 417 reviews that are conducted during the initial term of this Agreement as set forth in Section 6.b. (December 31, 2037). In any such review, the Secretary will base her decision on the factors set forth in Section 8.b.2 above as well as the basis for any District's non-implementation of the transfers set forth in Exhibit B hereto, in addition to the consideration of the factors in 43 C.F.R. § 417.3

9. INADVERTENT OVERRUN AND PAYBACK POLICY

For so long as the provisions of Section 8.b of this Agreement are applied, the Secretary will not materially modify the Inadvertent Overrun and Payback Policy for a 30-year period, absent extraordinary circumstances such as significant Colorado River infrastructure failures, and subject to the provisions of Section 5 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.

10. ADDITIONAL PROVISIONS

a. Imperial Irrigation District v. United States of America, et al., CV 0069W (JFS) (D. Cal. filed January 10, 2003) (JFS), is dismissed pursuant to Stipulation under Fed. R. Civ. P. 41(a)(1). Nothing in this Agreement shall affect the preclusive and non-preclusive effects of the Stipulation during the term of this Agreement and thereafter.

b. Upon dismissal of Imperial Irrigation District v. United States, et al., as provided in subsection 10(a) above, the Secretary will irrevocably terminate the *de novo* "Recommendations and Determinations Authorized by 43 C.F.R. Pt. 417, Imperial Irrigation District" for 2003, and IID's water order for 2003 is approved subject to the terms of this Agreement.

c. 1. IID, CVWD, 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. Furthermore, the Districts and SDCWA agree not to use this Agreement or any provision hereof, as precedence 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 further approval of any water transaction.

2. The terms of this Agreement do not control or apply to the nature or scope of rights to the delivery, use or transfer of Colorado River water within the State of California, except as those rights are defined and addressed in this Agreement during the term hereof.

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

4. Nothing herein waives the ability of any party to challenge the exercise of particular miscellaneous and Indian PPRs.

d. 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).

e. This Agreement does not (i) guarantee or assure any water user a firm supply for any specified period, (ii) change or expand existing authorities under applicable federal law, except as specifically provided herein with respect to the Districts, (iii) address interstate distribution of water; (iv) change the apportionments made for use within individual States, (v) affect any right under the California Limitation Act (Act of March 4, 1929; Ch. 16, 48th Sess.), or any other provision of applicable federal law.

f. This Agreement is not intended nor shall it be construed to create any third party beneficiary rights to enforce the terms of this Agreement in any person or entity that is not a party.

g. Each party to this Agreement represents that the person executing this Agreement on behalf of such party has full power and authority to do so, and that his/her signature is legally sufficient to bind the party on whose behalf he/she is signing.

h. This Agreement shall remain in full force and effect according to its terms regardless of whether the Interim Surplus Guidelines are in effect or terminated.

i. This Agreement with the United States is subject to and controlled by the Colorado River Compact of 1922.

UNITED STATES SECRETARY OF THE INTERIOR

Gale A. Norton — Oct. 10, 2003
Gale A. Norton — *Date*

COACHELLA VALLEY WATER DISTRICT
By

10/10/03
General Manager/Chief Engineer — *Date*

IMPERIAL IRRIGATION DISTRICT
By

10-10-03
Date

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
By

10/10/03
Date

SAN DIEGO COUNTY WATER AUTHORITY
By

10-10-03
Date

Exhibit A: Delivery of Priority 3(a) consumptive use entitlement to the Imperial Irrigation District and the Coachella Valley Water District

Imperial Irrigation District

The Secretary of the Interior shall deliver Imperial Irrigation District's Priority 3(a) consumptive use entitlement under this Colorado River Water Delivery Agreement, pursuant to this Exhibit A and Exhibit B hereto as follows:

Delivered to (entity):	At (point of diversion):	Amount not to exceed (af):	Notes
CVWD	Imperial Dam	103,000	---
MWD	Lake Havasu	110,000	1
SDCWA	Lake Havasu	56,200	2
SDCWA	Lake Havasu	200,000	3
SLR	*see note 4*	*see note 4*	4
Misc. & Indian PPRs	Current points of delivery	11,500	5
For benefit of MWD/SDCWA	Lake Havasu	145,000	6
IID	Imperial Dam	Remainder	---
IID's Priority 3(a) Total		3,100,000	---

Notes to Imperial Irrigation District:

1. Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water, dated December 22, 1988; Approval Agreement, dated December 19, 1989. Of amount identified: up to 90,000 af to MWD and 20,000 af to CVWD.
2. Water conserved from the construction of a new lined canal parallel to the All-American Canal from Pilot Knob to Drop 3.
3. Agreement for Transfer of Conserved Water, dated April 29, 1998, as amended. As set forth in Exhibit B, delivery amounts shall be 205,000 AF in calendar year 2021 and 202,500 AF in calendar year 2022.
4. Water conserved from All-American Canal lining project and made available for benefit of San Luis Rey Settlement Parties under applicable provisions of Pub. L. No. 100-675, as amended. Quantity may vary, not to exceed 16,000 afy, as may the point of diversion, subject to the terms of the Allocation Agreement.
5. Water to be delivered to miscellaneous and Indian PPRs identified in the Decree in Arizona v. California, as supplemented. The delivery of water will be to current points of delivery unless modified in accordance with applicable law.
6. As provided in subsection 4(g) of this Agreement.

Coachella Valley Water District

The Secretary of the Interior shall deliver Coachella Valley Water District's Priority 3(a) consumptive use entitlement under this Colorado River Water Delivery Agreement pursuant to this Exhibit A and Exhibit B hereto as follows:

Delivered to (entity):	At (point of diversion):	Amount not to exceed (af):	Notes
SLR	*see note 1*	*see note 1*	1
SDCWA	Lake Havasu	21,500	2
Misc. & Indian PPR	Current points of delivery	3,000	3
CVWD	Imperial Dam	Remainder	---
Coachella Valley Water District's Priority 3(a) Total		330,000	---

Notes:

1. Water conserved from Coachella Canal lining project and made available for benefit of San Luis Rey Settlement Parties under applicable provisions of Pub. L. No. 100-675, as amended. Quantity may vary, not to exceed 16,000 afy, as may the point of diversion, subject to the terms of the Allocation Agreement.
2. Water conserved from lining the unlined portion of the Coachella Canal.
3. Water to be delivered to miscellaneous and Indian PPRs identified in the Decree in Arizona v. California, as supplemented. The delivery of water will be to current points of delivery unless modified in accordance with applicable law.

EXHIBIT B

QUANTIFICATION AND TRANSFERS[1]

In Thousands of Acre-feet

Column:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
			IID Priority 3a											CVWD Priority 3a									
				Reductions											Reductions			Additions					
	Calendar Year	[2]Priority 1, 2 and 3b	IID Priority 3a Quantified Amount	[3]IID Reduction: MWD 1988 Agreement Transfer	IID Reduction: SDCWA Transfer	[4]IID Reduction: AAC Lining IID, SDCWA & SLR	[5,6]IID Reduction: SDCWA Mitigation Transfer	[7]Intra-Priority 3 Transfer IID/CVWD	[8]IID Reduction: MWD Transfer with Salton Sea Restoration	[8]IID Reduction: Conditional ISG Backfill	[9]IID Reduction: Misc. PPRs	IID Reductions: Total Amount *(sum of columns 4 through 11)*	[10]IID Net Consumptive Use Amount *(difference between column 3 and column 12)*	CVWD Priority 3a Quantified Amount	[4]CVWD Reduction: CC Lining, SDCWA & SLR	[9]CVWD Reduction: Misc. PPRs	[11]CVWD Reductions: Total Amount *(sum of columns 15 + 16)*	[7]Intra-Priority 3 Transfer IID/CVWD	[3]Intra-Priority 3 Transfer MWD/CVWD	CVWD Net Consumptive Use Amount *(columns 14 - 17 plus columns 18 + 19)*	Total Priority 1-3 Use Plus PPR Consumptive Use *(sum of columns 2+13+20 plus 11+16)*	[12]ISG Benchmarks	[12]Annual Targets
1	2003	420	3,100	110	10	0	5	0	0	0	11.5	136.5	2,963.5	330	0	3	3	0	20	347	3,745.0	3,740	3,740
2	2004	420	3,100	110	20	0	10	0	0	0	11.5	151.5	2,948.5	330	0	3	3	0	20	347	3,730.0		3,707
3	2005	420	3,100	110	30	0	15	0	0	0	11.5	166.5	2,933.5	330	0	3	3	0	20	347	3,715.0		3,674
4	2006	420	3,100	110	40	0	20	0	0	9	11.5	190.5	2,909.5	330	26	3	29	0	20	321	3,665.0	3,640	3,640
5	2007	420	3,100	110	50	0	25	0	0	0	11.5	196.5	2,903.5	330	26	3	29	0	20	321	3,659.0		3,603
6	2008	420	3,100	110	50	67.7	25	4	20	0	11.5	288.2	2,811.8	330	26	3	29	4	20	325	3,571.3		3,566
7	2009	420	3,100	110	60	67.7	30	8	40	0	11.5	327.2	2,772.8	330	26	3	29	8	20	329	3,536.3	3,530	3,530
8	2010	420	3,100	110	70	67.7	35	12	60	0	11.5	366.2	2,733.8	330	26	3	29	12	20	333	3,501.3		3,510
9	2011	420	3,100	110	80	67.7	40	16	80	0	11.5	405.2	2,694.8	330	26	3	29	16	20	337	3,466.3		3,490
10	2012	420	3,100	110	90	67.7	45	21	100	0	11.5	445.2	2,654.8	330	26	3	29	21	20	342	3,431.3	3,470	3,470
11	2013	420	3,100	110	100	67.7	70	26	100	0	11.5	485.2	2,614.8	330	26	3	29	26	20	347	3,396.3		3,462
12	2014	420	3,100	110	100	67.7	90	31	100	0	11.5	510.2	2,589.8	330	26	3	29	31	20	352	3,376.3		3,455
13	2015	420	3,100	110	100	67.7	110	36	100	0	11.5	535.2	2,564.8	330	26	3	29	36	20	357	3,356.3		3,448
14	2016	420	3,100	110	100	67.7	130	41	100	0	11.5	560.2	2,539.8	330	26	3	29	41	20	362	3,336.3		3,440
15	2017	420	3,100	110	100	67.7	150	45	91	0	11.5	575.2	2,524.8	330	26	3	29	45	20	366	3,325.3		
16	2018	420	3,100	110	130	67.7	0	63	0	0	11.5	382.2	2,717.8	330	26	3	29	63	20	384	3,536.3		
17	2019	420	3,100	110	160	67.7	0	68	0	0	11.5	417.2	2,682.8	330	26	3	29	68	20	389	3,506.3		
18	2020	420	3,100	110	193	67.7	0	73	0	0	11.5	454.7	2,645.3	330	26	3	29	73	20	394	3,473.8		
19	2021	420	3,100	110	205	67.7	0	78	0	0	11.5	472.2	2,627.8	330	26	3	29	78	20	399	3,461.3		
20	2022	420	3,100	110	203	67.7	0	83	0	0	11.5	474.7	2,625.3	330	26	3	29	83	20	404	3,463.8		
21	2023	420	3,100	110	200	67.7	0	88	0	0	11.5	477.2	2,622.8	330	26	3	29	88	20	409	3,466.3		
22	2024	420	3,100	110	200	67.7	0	93	0	0	11.5	482.2	2,617.8	330	26	3	29	93	20	414	3,466.3		
23	2025	420	3,100	110	200	67.7	0	98	0	0	11.5	487.2	2,612.8	330	26	3	29	98	20	419	3,466.3		
24	2026	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
25	2027	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
26	2028	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2029-2037	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2038-2047[13]	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2048-2077[14]	420	3,100	110	200	67.7	0	100	0	0	11.5	489.2	2,610.8	330	26	3	29	100	20	421	3,466.3		

1 Exhibit B is independent of increases and reductions as allowed under the Inadvertent Overrun and Payback Policy.

2 Any higher use covered by MWD, any lesser use will produce water for MWD and help satisfy ISG Benchmarks and Annual Targets.

3 IID/MWD 1988 Conservation Program conserves up to 110,000 AFY and the amount is based upon periodic verification. Of amount conserved, up to 20,000 AFY to CVWD (column 19), which does not count toward ISG Benchmarks and Annual Targets, and remainder to MWD.

4 Ramp-up amounts may vary based upon construction progress, and final amounts will be determined by the Secretary pursuant to the Allocation Agreement.

5 Any amount identified in Exhibit B for mitigation purposes will only be from non-Colorado River sources and these amounts may be provided by exchange for Colorado River water.

6 Water would be transferred to MWD subject to satisfaction of certain conditions and to appropriate federal approvals. For informational purposes only, these transfers may also be subject to state approvals. Schedules are subject to adjustments with mutual consent. After 2006, these quantities will count toward the ISG Benchmarks (column 22) and Annual Targets (column 23) only if and to the extent that water is transferred into the Colorado River Aqueduct for use by MWD and/or SDCWA.

7 MWD can acquire if CVWD declines the water. Any water obtained by MWD will be counted as additional agricultural reduction to help satisfy the ISG Benchmarks and Annual Targets. MWD will provide CVWD 50,000 AFY of the 100,000 AFY starting in year 46.

8 IID has agreed to provide transfer amounts to meet the minimum ISG benchmarks, not to exceed a cumulative total of 145,000 AF. Maximum transfer amounts are 25,000 AF in 2006, 50,000 AF plus the unused amount from 2006 in 2009, and 70,000 AF plus the unused amounts from 2006 and 2009 in 2012. In addition to the maximum transfer amounts IID has also committed that no more than 72,500 AF of reduced inflow to the Salton Sea would result from these additional transfers.

9 Up to the amount shown, as agreed upon reduction to IID or CVWD to cover collectively the sum of individual Miscellaneous PPRs, federal reserved rights and decreed rights. This is a reduction that counts towards ISG Benchmarks and Annual Targets.

10 For purposes of Subparagraph 8(b)(2)(i) and (ii) and 8(c)(1) and (4) the Secretary will take into account: (i) the satisfaction of necessary conditions to certain transfers (columns 7 and 9) not within IID's control: (ii) the amounts of conserved water as determined, where such amounts may vary (columns 4, 6, 9 and 10); and (iii) with respect to column 7, reductions by IID will be considered in determining IID's compliance regardless of whether the conserved water is diverted into the Colorado River Aqueduct.

11 For purposes of Subparagraph 8(c)(1) and (4) the Secretary will take into account: (i) the satisfaction of necessary conditions to certain transfers (columns 15 and 16) not within CVWD's control; and (ii) the amounts of conserved water as determined, where such amounts may vary (column 15).

12 All-consumptive use of priorities 1 through 3 plus 14,500 AF of PPRs must be within 25,000 AF of the amount stated.

13 Assumes SDCWA does not elect termination in year 35.

14 Assumes SDCWA and IID mutually consent to renewal term of 30 years.

Notes:

Substitute transfers can be made provided the total volume of water to be transferred remains equal or greater than amounts shown consistent with applicable federal approvals.

The shaded columns represent amounts of water that may vary.

Exhibit C: Payback Schedule of Overruns for Calendar Years 2001 and 2002

Year	*IID*	*CVWD*	*MWD*	*Total*
2004	18,900	9,100	11,000	39,000
2005	18,900	9,100	11,000	39,000
2006	18,900	9,100	11,100	39,100
2007	18,900	9,100	11,100	39,100
2008	18,900	9,200	11,100	39,200
2009	18,900	9,200	11,100	39,200
2010	19,000	9,200	11,100	39,300
2011	19,000	9,200	11,100	39,300
Cumulative	151,400	73,200	88,600	313,200

Note: Each district may, at its own discretion, elect to accelerate paybacks to retire its payback obligation before the end of the eight-year period ending in calendar year 2011. Each district's payback obligation is subject to acceleration in anticipation of a shortage in the Lower Colorado River Basin as provided for in section 8(b).

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.3 – Lower Colorado River Supply Report

Imperial Region
2014 IRWM Drought Grant Proposal

Jul 14, 2014

LOWER COLORADO WATER SUPPLY REPORT

River Operations

Bureau of Reclamation

Questions: BCOOWaterops@usbr.gov
(702)293-8373
http://www.usbr.gov/lc/region/g4000/weekly.pdf

CURRENT STORAGE	PERCENT FULL	Content 1000 ac-ft (kaf)	Elev. (Feet above mean sea level)	7-Day Release (CFS)
LAKE POWELL	52%	12,692	3609.62	13,000
* LAKE MEAD	39%	10,169	1081.90	13,800
LAKE MOHAVE	93%	1,677	642.20	14,600
LAKE HAVASU	95%	589	448.48	11,500
TOTAL SYSTEM CONTENTS **	51%	30,694		
As of 07/13/2014				
SYSTEM CONTENT LAST YEAR	51%	30,657		

* Percent based on capacity of 26,120 kaf or elevation 1219.6 feet.

** TOTAL SYSTEM CONTENTS includes Upper & Lower Colorado River Reservoirs, less Lake Mead exclusive flood control space.

Salt/Verde System	50%	1,164		
Painted Rock Dam	0%	0	530.00	0
Alamo Dam	5%	49	1086.06	25

Forecasted Water Use for Calendar Year 2014 (as of 07/14/2014) (values in kaf)

NEVADA	262	
SOUTHERN NEVADA WATER SYSTEM		232
OTHERS		30
CALIFORNIA	4,266	
METROPOLITAN WATER DISTRICT OF CALIFORNIA		723
IRRIGATION DISTRICTS		3,437
OTHERS		106
ARIZONA	2,768	
CENTRAL ARIZONA PROJECT		1,557
OTHERS		1,211
TOTAL LOWER BASIN USE		7,296
DELIVERY TO MEXICO - 2014 (Mexico Scheduled Delivery + Preliminary Yearly Excess[1])		1,524

OTHER SIGNIFICANT INFORMATION

UNREGULATED INFLOW INTO LAKE POWELL - JULY FINAL FORECAST DATED 07/01/2014

	MILLION ACRE-FEET	% of Normal
FORECASTED WATER YEAR 2014	10.314	95%
FORECASTED APRIL-JULY 2014	7.090	99%
JUNE OBSERVED INFLOW	3.039	114%
JULY INFLOW FORECAST	1.000	92%

	Upper Colorado Basin	Salt/Verde Basin
WATER YEAR 2014 PRECIP TO DATE	97% (24.8")	59% (11.9")
CURRENT BASIN SNOWPACK	NA (NA)	NA (NA)

[1] Delivery to Mexico forecasted yearly excess calculated using year-to-date observed and projected excess.

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.4 – Las Vegas Sun Article

LAS VEGAS SUN

Water levels at Lake Mead drop to new low, officials say

By Ken Ritter, Associated Press

Published Tuesday, July 8, 2014 | 5:05 p.m.

Updated Tuesday, July 8, 2014 | 8:35 p.m.

Drought in the southwestern U.S. will deplete the vast Lake Mead this week to levels not seen since Hoover Dam was completed and the reservoir on the Colorado River was filled in the 1930s, federal water managers said Tuesday.

The projected lake level of about 1,080 feet above sea level will be below the level of about 1,082 feet recorded in November 2010 and the 1,083-foot mark measured in April 1956 during another sustained drought.

But U.S. Bureau of Reclamation regional chief Terry Fulp said water obligations will be met at least through next year without a key shortage declaration. The result will be full deliveries to cities, states, farms and Indian tribes in an area that's home to some 40 million people and the cities of Las Vegas, Phoenix and Los Angeles.

"We continue to closely monitor the projections of declining lake levels and are working with stakeholders throughout the Lower Basin to keep as much water in Lake Mead as we can through various storage and conservation efforts," Fulp said in a statement.

The lake on Tuesday was just under 1,082 feet above sea level, and the reservoir was about 39 percent full, said Rose Davis, a bureau spokeswoman in Boulder City.

The dropping level since the reservoir was last full in 1998, at just under 1,296 feet above sea level, has left as much as 130 feet of distinctive white mineral "bathtub ring" on hard rock surfaces surrounding the lake.

Davis said the bureau expects a slight increase in water level to about 1,083 feet by Jan. 1, 2015.

Lake Mead National Recreation Area, 30 miles east of Las Vegas, is among the federal government's top tourist attractions. It drew some 6.3 million visitors in 2013, about the same number as the Lincoln Memorial in Washington, D.C.

Boaters and swimmers have largely ignored the dropping water levels in a place where splashing in cold fresh water on 100-plus-degree summer days is a treat. But they've also dealt with marina closures in recent years. Visitors who used to feed scraps to carp from restaurant deck tables may now need to trek hundreds of yards with sandwiches and beach blankets to enjoy a waterside lunch.

"We projected this was coming," Davis said. "We are basically where we expected to be, given the dry winters in 2012 and 2013."

Lake Mead today stores about 10.2 million acre-feet of water and is managed in conjunction with Lake Powell, the reservoir farther up the Colorado River near the Utah-Arizona state line.

Davis said Lake Powell was at 52 percent capacity, holding about 12.7 million acre-feet of water.

Water officials say an acre-foot is about enough water to supply an average Nevada household for a year.

Fulp compares controlled management of the two largest reservoirs on the Colorado River to pouring tea from one cup to another.

Seven southwestern U.S. states reap the result under a 1928 allocation agreement that also provides shares of Colorado River water to Native American tribes and Mexico.

Las Vegas, with more than 2 million residents and some 40 million tourists a year, is almost completely dependent on Lake Mead for drinking water.

Federal and state water officials have negotiated plans for a shortage declaration triggering delivery cuts to Nevada and Arizona if annual projections for the Lake Mead water level drop below a 1,075 foot elevation. That projection is based on data being compiled by the Bureau of Reclamation.

Davis said the 1,075-foot trigger point is not expected this year or next. But last year, after back-to-back driest years in a century, federal water managers gave Arizona and Nevada a 50-50 chance of having water deliveries cut in 2016.

California, Colorado, Utah, New Mexico and Wyoming wouldn't see direct cuts in their share of river water, but officials have acknowledged there would be ripple effects.

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Scene in Las Vegas
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INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.5 – 2003 ROD CRWDA IOPP

Imperial Region
2014 IRWM Drought Grant Proposal

RECORD OF DECISION

COLORADO RIVER WATER DELIVERY AGREEMENT

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

October 2003

Approved:

/s/ Gale A. Norton — *Oct. 10, 2003*

Gale A. Norton — Date

Secretary of the Department of the Interior

RECORD OF DECISION

COLORADO RIVER WATER DELIVERY AGREEMENT

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

I. Introduction

On December 21, 1928, Congress conditioned ratification of the Colorado River Compact of 1922, construction of Boulder (now Hoover) Dam, and authorization of the Boulder Canyon Project Act as follows:

> "[T]he State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the [six] States, as an express covenant and in consideration of the passage of this act, that the aggregate annual consumptive use . . . of water of and from the Colorado River for use in the State of California . . . shall not exceed four million four hundred thousand acre feet."[1]

By execution of this Record of Decision, and implementation of the Colorado River Water Delivery Agreement, California will take specific, incremental steps to fulfill this promise.

The Supreme Court has found that the Secretary of the Interior (Secretary) is vested with the responsibility of managing the mainstream waters of the lower Colorado River pursuant to Federal law. This document constitutes the Record of Decision (ROD) of the Department of the Interior regarding the preferred alternative for the Colorado River Water Delivery Agreement (Water Delivery Agreement), Inadvertent Overrun and Payback Policy (IOP) and related Federal actions.

Reclamation, as the agency designated to act on the Secretary's behalf with respect to these matters, is the lead Federal agency for purposes of National Environmental Policy Act (NEPA) compliance. The *Final Environmental Impact Statement – Implementation Agreement, Inadvertent Overrun and Payback Policy, and Related Federal Actions* dated October 2002 (INT-FES-02-35) (Final IA EIS) was prepared pursuant to NEPA, the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), Department of Interior Policies, and Reclamation's NEPA procedures implementing these regulations. The Final IA EIS described the potential environmental impacts from execution of an Implementation Agreement (IA),[2] adoption of the IOP, and implementation of biological conservation

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[1] Boulder Canyon Project Act, § 4(a), 43 U.S.C. § 617c(a).

[2] Subsequent to the filing of the Final IA EIS, the IA described in that document was renamed and redrafted and is now titled the "Colorado River Water Delivery Agreement" (Water Delivery

measures that would offset potential impacts to listed species on the Colorado River from the proposed water transfers. The Final IA EIS was filed with the U.S. Environmental Protection Agency (EPA) on November 1, 2002, and noticed by EPA and Reclamation in the *Federal Register* on November 8, 2002. The Federal actions called for in the Water Delivery Agreement are the same as those contained in the draft IA, and analyzed in the Final IA EIS (see section V below). For the remainder of this document, reference will be made to the Water Delivery Agreement, unless the notation is specific to the draft IA.

II. Decision

This document effects the approval of the following Federal actions:[3]

A. Execution of the proposed Water Delivery Agreement;

B. Adoption of the proposed IOP described in the Final IA EIS and originally noticed in the *Federal Register* as a proposed draft policy on January 18 and March 9, 2001; and

C. Implementation of biological conservation measures identified in the U.S. Fish and Wildlife Service (Service) January 2001 *Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements for California Water Plan Components, and Conservation Measures on the Lower Colorado River*, and the Service's December 2002 *Biological Opinion on Bureau of Reclamation's*

Agreement). The Water Delivery Agreement therefore replaces the IA. As with the IA, the function of the Water Delivery Agreement is to address any contracting requirements applicable to the Boulder Canyon Project Act of 1928, and implements quantification and transfers of Colorado River water. The Water Delivery Agreement also serves as a quantification settlement agreement for purposes of section 5(B) of the Interim Surplus Guidelines. The Water Delivery Agreement is different from, and from a Federal perspective, much improved on the IA in a number of important respects: the Water Delivery Agreement is effective upon execution; it does not contain conditions precedent or subsequent that could terminate its effectiveness; and, it does not provide for early termination. Thus, the Water Delivery Agreement provides certainty regarding water entitlements that are necessary for continued effective implementation of the Secretary's responsibilities as Water Master on the lower Colorado River. Importantly, these agreements are consensual agreements among the parties and therefore are more likely to remain effective as compared with alternative regulatory based approaches.

[3] This recommendation contemplates that Departmental officials will simultaneously execute a number of complementary agreements which will collectively implement the provisions of the Water Delivery Agreement. Included in this suite of agreements are the following: this Record of Decision, the Colorado River Water Delivery Agreement, the Allocation Agreement (regarding conservation of water from the All-American and Coachella canal lining projects); two agreements relating to Supplemental Water and the Conveyance of Water for the San Luis Rey Settlement Parties; two agreements relating to implementation of species conservation actions; and a contract amendment with the Coachella Valley Water District. These related agreements do not cause incremental environmental impacts in addition to those described in the Final IA EIS and the supplemental memorandum referenced in Section 5 of this ROD, but only serve to implement various aspects of the water transfers. Where appropriate, the Final IA EIS and this ROD make commitments for subsequent environmental compliance for Federal actions to be carried out pursuant to the Agreements.

Voluntary Fish and Wildlife Conservation Measures and Associated Conservation Agreements with the California Water Agencies.

III. Background

Under the Boulder Canyon Project Act, and the Decree entered by the U.S. Supreme Court in *Arizona v. California,* in 1964 California has a legal right in normal years to 4.4 million acre-feet (MAF).[4] California has historically been legally diverting more than its normal year apportionment of 4.4 MAF of Colorado River water. Prior to 1996, California's demands in excess of 4.4 million acre-feet per year (MAFY) were met by diverting unused apportionments of other Lower Division States (Arizona and Nevada) that were made available by the Secretary under applicable provisions of the Decree. Since 1996, California also has utilized surplus water pursuant to Art. II(B)(2) of the Decree as made available by Secretarial determinations contained in the Annual Operating Plans for Colorado River Reservoirs. The other Lower Division States have reached full utilization of their apportionments, and declared surpluses of Colorado River water are expected to diminish in future years. California, therefore, needs to reduce its consumptive use of Colorado River water to its 4.4 MAF apportionment in normal years.

In a major step toward achieving this goal, the California water agencies consisting of Coachella Valley Water District (CVWD), Imperial Irrigation District (IID), and The Metropolitan Water District of Southern California (MWD), developed a draft Quantification Settlement Agreement (QSA). The QSA is a proposed agreement among CVWD, IID, and MWD to quantify each entities' portion of California's apportionment of Colorado River water and to transfer Colorado River water among the California agencies. These transfers are for the benefit of IID, CVWD, MWD, and the San Diego County Water Authority (SDCWA). The QSA water transfers would continue for a period of up to 75 years and provide an important mechanism to assist California's efforts to reduce its diversions of Colorado River water in normal years to its 4.4 MAF apportionment, as required by the Boulder Canyon Project Act of 1928 and the California Limitation Act of March 4, 1929.

The QSA water transfers are implemented by the Water Delivery Agreement, an agreement among CVWD, IID, MWD, SDCWA, and the Secretary. The Water Delivery Agreement serves a number of complementary functions. During its term, the Water Delivery Agreement implements a quantification of Priority 3(a) entitlements. As such, this agreement serves as a Federal quantification agreement. As noted above, the Water Delivery Agreement addresses requirements applicable to the Boulder Canyon Project Act of 1928. The Water Delivery Agreement specifies the Federal actions that are necessary to implement the QSA. Execution of the Water Delivery Agreement would effectuate the changes in the amount and/or location of deliveries of approximately 400 thousand acre-feet per year (KAFY) of Colorado River water.

The Water Delivery Agreement also includes provisions that are intended to facilitate California's reduction of its historic overuse of Colorado River supplies and provide greater certainty with regard to future Colorado River operations.[5] The Federal objective in executing the Water Delivery Agreement

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[4] California's basic apportionment may, on an annual basis, be augmented by access to surplus apportionment or unused apportionment.

[5] The California agencies did not execute the QSA by December 31, 2002 in compliance with the relevant provisions of Section 5(B) of the Interim Surplus Guidelines (ISG). As a result the Secretary automatically suspended application of Sections 2(B)(1) and 2(B)(2) of the ISG as provided in the 2003 Annual Operating Plan. *See, e.g.,* Notice of Assistant Secretary Bennett W. Raley

is to achieve actual implementation of the identified transfers and scheduled reductions in California's agricultural water use. In particular, Paragraph 8 of the Water Delivery Agreement was carefully constructed to address future Boulder Canyon Project Act administration if the Quantification Settlement Agreement and associated transfers proceed as contemplated by all parties, including: adoption of a policy regarding prospective inadvertent overruns of Colorado River diversions (¶ 8.b.1), an extension of the repayment period for past overruns of Colorado River diversions (¶ 8.b.1), and provisions regarding the anticipated annual reviews pursuant to 43 C.F.R. Pt. 417 through December 31, 2037 (¶ 8.b.2).[6]

Paragraph 8 also provides certain consequences in the event that the QSA and the associated transfers are not carried out as anticipated by the parties. These consequences include: suspension of a policy regarding prospective inadvertent overruns of Colorado River diversions (¶ 8.c.1), a reduced period for repayment of past overruns of Colorado River diversions (¶ 8.c.2), mandatory forbearance by The Metropolitan Water District from accessing any surplus Colorado River water otherwise available pursuant to sections 2(B)(1) and 2(B)(2) of the Interim Surplus Guidelines (¶ 8.c.3), and provisions regarding the anticipated annual reviews of water orders pursuant to 43 C.F.R. Pt. 417 through December 31, 2037 (¶ 8.c.4).

In addition, under the Water Delivery Agreement, the Secretary adopts the IOP as set forth in section IX(A) below. The IOP establishes requirements for payback of any inadvertent overuse of Colorado River water by users in the Lower Division States.

The primary objective of the IOP policy is to insure operational compliance with the applicable

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regarding Section 5 of Interim Surplus Guidelines. 67 Fed. Reg. 41733-35 (June 19, 2002). The Water Delivery Agreement serves as the quantification agreement for purposes of section 5(B) of the ISG and accordingly, section 7 of the Water Delivery Agreement provides for reinstatement of interim surplus determinations under Sections 2(B)(1) and 2(B)(2) of the Interim Surplus Guidelines. This Record of Decision does not modify in any manner the Record of Decision for the Interim Surplus Guidelines, including the Secretary's authority to monitor prospective compliance with Section 5 of the Interim Surplus Guidelines.

[6] Like the draft IA, the Water Delivery Agreement addresses the reasonable and beneficial use of Colorado River water. This provision, in particular, required significant discussions and negotiations among the parties to the Water Delivery Agreement. Resolution of this issue was of particular importance in light of the ongoing *Imperial Irrigation District v. United States* litigation involving all parties to the Water Delivery Agreement with the exception of the San Diego County Water Authority (*see also* Water Delivery Agreement at ¶¶ 10.a., 10.b.). Imperial Irrigation District had sought certainty both with respect to future inquiries in this regard and with respect to future approvals of water orders. The Department did not acquiesce to this request, and does not believe that such an approach is compatible with provisions of applicable Federal law. In this regard, the Department concurs with the statement of the California Board of Water Resources (SWRCB) in a similar context, that "we do not intend to bind the SWRCB in any future proceeding, particularly if circumstances change. To do so would be an abdication of the SWRCB's ongoing responsibility to prevent the unreasonable use of water." State of California, State Water Resources Control Board, Order WRO 2002-0013 (Revised), at 81 (Dec. 20, 2002). Similar concerns informed the negotiations by the Department regarding ¶ 8 of the Water Delivery Agreement. *See, e.g.,* 43 U.S.C. 372. Ultimately, clarification and agreements with the parties to the Water Delivery Agreement are incorporated in ¶ 8 with respect to the circumstances and analyses that will be considered during the term of the Agreement.

provisions, and limitations on use of Colorado River water, as set forth in the Decree. Repayment of any overuse of Colorado River water, in accordance with the structured repayment schedule, insures that the system is repaid for inadvertent overuse. Prior to adoption of the IOP, contractors of Colorado River water were required to repay any overuse of water beyond annual approved quantities, *see e.g.,* 1992-1996 Annual Operating Plans for Colorado River Reservoirs, Supplement to 1992 Annual Operating Plan (Nov. 22, 2002). Adoption of the IOP formalizes this requirement and provides for specific payback (or repayment) periods which are linked to hydrological conditions on the Colorado River. *See, e.g.,* IOP at sec. 6, infra. This linkage to hydrologic conditions on the Colorado River, primarily by reference to elevations of Lake Mead, is consistent with efforts by Reclamation to further develop objective operational guidance for lower Colorado River operations. In particular, this approach was the basis for the Secretary's adoption of Interim Surplus Guidelines which determine available surplus quantities pursuant to Art. II of the Decree in *Arizona v. California* based on Lake Mead elevations and projected hydrological conditions on the Colorado River. *See, e.g.,* ISG at Section 2 ("Determination of Lake Mead Operation during the Interim Period.").

These two actions, as well as the implementation of biological conservation measures from two Service Biological Opinions (BO), are the Federal actions described in the Final IA EIS.

IV. Alternatives Considered in the Final IA EIS

In the Final IA EIS, the proposed action was described as the execution of the IA, adoption of the IOP, and implementation of the biological conservation measures. For each element of the proposed Federal action, a No Action alternative was considered, and for the IOP, one action alternative was considered in addition to the proposed IOP. No other action alternatives were considered for the reasons described below. Because of the important benefits to the entire Colorado River Basin of reducing California's over-reliance on the Colorado River,[7] and while avoiding the impacts of a more precipitous reduction in California's Colorado River diversions, the proposed action is considered the environmentally preferred alternative.

A. Implementation Agreement

1. Proposed Action. Under the proposed IA, the Secretary would commit to certain actions required to facilitate implementation of the QSA.[8] Chief among these is the change in location of the delivery point of Colorado River water to the QSA parties. The IA would result in a change in the amount of water the Secretary would deliver to MWD's diversion point at Lake Havasu (above Parker Dam), and CVWD's and IID's diversion point at Imperial Dam. In a "normal" year under Art. II(B)(1) of the Decree, in aggregate, deliveries to Imperial Dam would be reduced by as little as approximately 200 to as much as approximately 400 thousand acre-feet (KAF), and this water would instead be delivered to the MWD facility at Lake Havasu. Therefore, there would be a

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[7] For example, the Final EIS for adoption of Colorado River Interim Surplus Criteria stated the findings of the Secretary as follows: "As a result of operating experience over recent years, it is clear that one of the most important issues for Colorado River management is the need to bring use of Colorado River water into alignment with the allocation regime adopted by Congress in section 4 of the Boulder Canyon Project Act of 1928." Interim Surplus Criteria FEIS, Vol. III at p. 2 (citations omitted).

[8] For consistency purposes, this section refers to the IA, the title of the principal Federal agreement at the time the Final IA EIS was published. As noted above, the IA has been renamed and replaced by the Water Delivery Agreement.

reduction in flow in the Colorado River of this same amount of Colorado River water from Parker Dam to Imperial Dam. As part of the QSA, IID would implement agricultural water conservation measures (including land fallowing) to conserve as much as 300 KAFY, and an equal amount of Colorado River water would be transferred to SDCWA, CVWD, and/or MWD.

2. No Action. Because execution of the IA (now styled as the Water Delivery Agreement) is required to enable full implementation of the QSA, under No Action in the Final IA EIS, neither the IA nor the QSA would be implemented. The Secretary would continue to make Colorado River water deliveries subject to the Law of the River, including the existing priority system, Section 5 contracts, and determinations identified in the ISG ROD. Significant unresolved issues would remain regarding how Colorado River water would be delivered to the participating agencies within the California's normal year diversion limit of 4.4 MAF of Colorado River water. This 4.4 MAF limit required by applicable provisions of Federal law, would involve a reduction of approximately 600 KAFY from the 1990 to 1999 average Colorado River diversion for the State of California.[9]

3. Implementation Agreement Alternatives Considered in the EIS. Because the purpose of the proposed action is to provide Federal approval of an agreement negotiated among the California parties, no other action alternatives were considered. Accordingly, any other action alternative would have entailed provisions unacceptable to one or more of the parties, and therefore would not have constituted a reasonable and feasible alternative for NEPA purposes.

B. Inadvertent Overrun Policy

1. Proposed Action. The IOP component of the proposed action includes adoption of a policy that would identify and define inadvertent overruns of approved diversions of Colorado River water by lower Basin Colorado River contractors, establish procedures that account for inadvertent overruns, and define subsequent mandatory payback requirements to allow repayment to system storage for any inadvertent overruns. It is not anticipated that it would be necessary to materially modify the IOP for a 30-year period absent extraordinary circumstances such as significant Colorado River infrastructure failures. The IOP would be applicable to all lower Basin States users with quantified entitlements. The adoption of the IOP does not affect nor is it applicable to the United States' obligations under the 1944 Treaty with the Republic of Mexico.

Under the provisions of the IOP, an inadvertent overrun is defined as Colorado River water that is diverted, pumped, or received by an entitlement holder in excess of the water user's entitlement for that year. Under the IOP, payback would be required to begin in the calendar year that immediately follows the release date of the final Decree Accounting Record[10] that reports inadvertent overruns for a Colorado River water user. Prior to the beginning of the calendar year, the user's water order, along with the payback plan, and the user's existing Reclamation-approved conservation plan, would be submitted to Reclamation for review and approval within the annual 43 C.F.R. Pt. 417 process regarding annual water order approvals.

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[9] See, e.g., the Colorado River Compact of 1922, the Boulder Canyon Project Act of 1928, *Arizona v. California* 1964 Supreme Court Decree [Decree], and the Long-Range Operating Criteria.

[10] These records are published as: Compilation of Records in Accordance with Article V of the Decree of the Supreme Court of the United States in *Arizona v. California, et. al.*, dated March 9, 1964.

2. No Action. Under the No-Action Alternative, the IOP would not be adopted, and Reclamation would enforce its obligations under the Decree to ensure that no Colorado River water user exceeds its entitlement amount. Currently, diversions of Colorado River water are reported monthly for most water users, and Reclamation releases a monthly cumulative tabulation of the year's diversions and return flows. In enforcing its obligations under the Decree, Reclamation may reduce deliveries for those water users who would overrun based on diversions to date and projected diversions for the remainder of the year, and/or stop deliveries for water users who are at their entitlement amount. However, due to the nature of measurement, reporting, and accounting practices, there would continue to be some level of inadvertent overruns.

3. IOP Alternatives. Many alternative concepts were considered in the development of the proposed IOP. Much interest and many ideas were identified during the scoping process and in response to the draft policy published in the *Federal Register*. As a result of public comments, one additional IOP alternative, No Forgiveness During Flood Releases Alternative, was developed and considered in the EIS. The proposed IOP contains a provision that in a year during which the Secretary makes a flood control release or a space-building release pursuant to the Water Control Manual for Hoover Dam, Lake Mead, any accumulated amount in an overrun account would be forgiven. The No Forgiveness Alternative would eliminate that provision. Under this alternative, during a flood control or space-building release year, the overrun account would be deferred, but not forgiven. Payback would resume in the next year when such flood control or space-building releases is not scheduled. All other provisions in this alternative would be the same as the proposed IOP.

C. Implementation of Biological Conservation Measures

1. Proposed Action. This component of the proposed action involves implementation of biological conservation measures from two Service BOs. The first, dated January 2001 *(Biological Opinion for Interim Surplus Criteria, Secretarial Implementation Agreements, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary Arizona, California, and Nevada*), addresses potential impacts from the proposed change in point of diversion that could occur to federally-listed fish and wildlife species or their associated critical habitats within the historic floodplain of the Colorado River between Parker Dam and Imperial Dam. The conservation measures related to the water transfers include stocking of listed Razorback suckers in the lower Colorado River, restoration or creation of 44 acres of backwaters along the Colorado River between Parker Dam and Imperial Dam, provision of funding for capture and rearing efforts for listed Bonytail chubs from Lake Mohave, and a two-tiered conservation plan to minimize potential effects to occupied habitat of the listed Southwestern willow flycatcher on the Colorado River between Parker and Imperial Dams.

Based on the concern that IID would not be able to complete work necessary to obtain "take" authorization for effects of its proposed QSA-related water conservation actions through a Section 10 Habitat Conservation Plan (HCP) process by December 31, 2002, Reclamation, in July 2002, voluntarily submitted a Biological Assessment (BA) to the Service on a proposed voluntary species conservation program (*Biological Assessment of Reclamation's Proposed Section 7(a)(1) Conservation Measures for Listed Species in the Imperial Irrigation District/Salton Sea Areas*). This voluntary species conservation program serves as an alternative means for obtaining the necessary "take" authorization for the relevant California agencies under the ESA for IID's water conservation actions. The BA, prepared on a voluntary basis by Reclamation, included voluntary species conservation measures to address listed species in the IID/Salton Sea area that could be affected by water conservation actions taken by IID pursuant to the QSA. The conservation measures included beneficial measures for the Desert pupfish, Yuma clapper rail, Southwestern willow flycatcher, and California brown pelican.

The Final IA EIS addresses the conservation measures from both the 2001 BO and Reclamation's 2002 BA. The Final IA EIS indicates that as detailed plans are developed and specific land-disturbing activities are identified, Reclamation will determine and carry out supplemental NEPA compliance evaluations, for Federal implementation of the conservation measures, as appropriate.

2. No Action. Under the No-Action Alternative in the Final IA EIS, the biological conservation measures identified for the 2001 BO would not be implemented. Reconsultation with the Service would be required prior to any additional required Federal approvals to effectuate any additional changes in point of delivery and diversion from the lower Colorado River.

3. Alternatives to Biological Conservation Measures. No alternatives to the biological conservation measures identified in the 2001 BO or 2002 BA were considered in the EIS. If Reclamation was unable to implement these measures as proposed, reinitiated consultation with the Service would be required.

V. Analysis of Post-Final IA EIS QSA Revisions

Subsequent to the filing of the Final IA EIS, on December 18, 2002, the Service issued its final BO (*Biological Opinion on the Bureau of Reclamation's Voluntary Fish and Wildlife Conservation Measures and Associated Conservation Agreements with the California Water Agencies for Listed Species in the Imperial Irrigation District/Salton Sea Areas)*. The measures described in the Final BO were refined and improved from those Reclamation described in its July 2002 Biological Assessment and included in its October 2002 Final IA EIS, particularly with respect to the California brown pelican.

In addition, in September 2003, the California water agencies finalized the terms of the QSA, and came to agreement with the Department of the Interior regarding terms of the Water Delivery Agreement, which replaced the draft IA.

The final terms of these documents resulted in minor changes to the water delivery ("ramp-up") schedule for the transfer of water from IID to SDCWA and from IID to CVWD. In general, there would be a decrease in the transfer of water to SDCWA during the first 18 years and a slight increase in years 19 and 20. There is a decrease in the water delivered to CVWD during the first 17 years and a slight increase through year 45. These changes to the QSA water transfers were made in an effort to avoid material impact to the salinity of the Salton Sea for a 15-year period, in order to assist the California agencies to comply with State legislation and California Department of Fish and Game (CDFG) permitting requirements under State law.

In addition, the Water Delivery Agreement: (1) provides for additional water conservation by IID (not to exceed 145 KAF total) if needed to meet ISG agricultural benchmark reduction targets in 2006, 2009, and 2012; (2) reflects transfer of the water conserved by lining the All-American and Coachella Canals to San Diego instead of MWD; and (3) provides a schedule for payback of 2001 and 2002 Colorado River water overruns.

Reclamation evaluated the environmental impacts associated with the final 2002 BO and all of the refinements to the QSA/Water Delivery Agreement in a memorandum dated October 9, 2003. As a result of its evaluation, Reclamation concluded that the minor changes in environmental impact were within the scope of the Final IA EIS, and that no supplemental NEPA compliance documentation was required.

VI. Basis for Decision

Reclamation has selected the proposed Water Delivery Agreement and IOP based on the need to reduce California's consumptive use of Colorado River water to its apportionment of 4.4 MAF in a normal year. In conjunction with the ISG, the proposed Water Delivery Agreement will gradually reduce California's over-reliance on Colorado River water and bring the State's use of Colorado River water into alignment with its allocation under the applicable provisions of the Law of the River, specifically the BCPA.[11]

The QSA is a consensual agreement among the three parties (IID, CVWD, and MWD) that resolves longstanding disputes regarding the priority, use (including quantification), and transferability of Colorado River water. The QSA was developed in response to the Secretary's insistence that California must implement a strategy that enables the State to limit its use of Colorado River water to 4.4 MAF during a normal year, or develop the means to meet its water needs from sources that do not jeopardize the delivery of Colorado River water to other States. The proposed Water Delivery Agreement implements the Federal water delivery components of that consensual agreement.

This historic agreement among the California parties is considered the best approach to achieve a timely and lasting reduction of California's overuse of Colorado River water. In the absence of this consensual agreement, it is clear that alternative approaches would have entailed provisions unacceptable to one or more of the parties. In fact, the differences among the parties have plagued efforts to resolve these issues since 1931. Moreover, a continued failure to adopt a plan in compliance with the structured reductions provided in section 5 of the ISG would require the Secretary to continue to enforce the precipitous reduction in available supplies from the Colorado River that California experienced during this calendar year. These factors were specifically considered by the Secretary as the basis for this decision.

The IOP will provide a mechanism for pay-back to the Colorado River system from inadvertent over-use of Colorado River water by entitlement holders, thus keeping system storage whole in spite of overruns, which are inevitable to some degree.

In making its decision, Reclamation carefully evaluated environmental impacts on the river system that are anticipated to result from the change in point of delivery and diversion from water transfers identified in the Water Delivery Agreement. This evaluation involved review of river stage impacts (change in water surface elevation), reservoir storage impacts (Lake Mead and Lake Powell), change in frequency and magnitude of flood control releases, and any potential transboundary impacts.

Reclamation has elected to implement all of the biological conservation measures included in the 2001 BO. Reclamation and the California water agencies, through execution of a Conservation Agreement, have agreed to implement all the biological conservation measures identified in the 2002 BO.

VII. Environmental Commitments

The Final IA EIS describes the impacts of the Federal action on the Colorado River, such as changes in flow and reservoir storage. The Final IA EIS also summarizes and incorporates by reference analyses of off-river impacts that would result from actions taken by the QSA participating agencies as a result of implementing the QSA. This is because the changes in water deliveries agreed to by the Secretary in the Water Delivery Agreement will enable the QSA to be fully implemented.

It is important to recognize that while the EIS describes the off-river impacts of actions taken by the

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[11] *See, e.g.,* Final EIS Interim Surplus Criteria at § 1.3.2.1.

QSA participating agencies, it does not "federalize" those actions, nor does it create a requirement for supplemental NEPA compliance for those actions. The Department recognizes that the non-Federal actions carried out by the participating California agencies pursuant to the QSA will need to comply with the California Environmental Quality Act (CEQA), California Endangered Species Act, and other State and local requirements. Toward that end, the California participating agencies prepared a Programmatic Environmental Impact Report (PEIR) for the QSA (*Implementation of the Colorado River Quantification Settlement Agreement, June 2002*), CVWD prepared a PEIR for the Coachella Valley Water Management Plan (*Coachella Valley Water Management Plan and State Water Project Entitlement Transfer PEIR, October* 2002), and an EIR/EIS was prepared for the *IID Water Conservation and Transfer Project, October 2002*, pursuant to these State and local requirements.[12]

The following environmental commitments are those relating to the proposed Federal action affecting water diversions and reservoir storage. Based on the impact analysis, mitigation measures were determined not to be necessary, and none are proposed, for land use, recreation, agricultural resources, socioeconomics, environmental justice, or transboundary impacts. Implementation of environmental commitments from the CEQA documents relating to actions taken by the QSA parties is the exclusive responsibility of those California parties.

A. Hydrology/Water Quality/Water Supply. The biological conservation measures included as part of the proposed action (from the January 2001 BO) were developed to mitigate impacts in the changes in point of delivery of Colorado River water. The changes in point of delivery result in reduced flows from Parker Dam to Imperial Dam. Implementation of all biological conservation measures would be subject to site-specific NEPA review. Mitigation measures specifically related to implementation of biological conservation measures would be developed as part of such site-specific review. The conservation measures related to river-flow reductions are described in detail in the Service's January 2001 BO, and are summarized below.

1. Reclamation would stock 20,000 Razorback suckers, 25 centimeters (cm) or greater in length, into the Colorado River between Parker and Imperial Dams. This stocking effort would be a continuation of present efforts and would bring the total number of razorbacks of 25 cm or greater in length stocked below Parker Dam to 70,000. These stocking efforts would be completed by 2006.

2. Reclamation would restore or create 44 acres of backwaters along the Colorado River between Parker Dam and Imperial Dam. This effort could include restoring existing decadent backwaters for which no ongoing effort provides funding or responsibility for restoration, or the creation of new backwaters where water availability, access, and other considerations can be met. Maintenance of these backwaters for native fish and wildlife would be ensured for the life of the water transfers. This backwater restoration and/or creation effort would be completed within 5 years of the first water transfers under the QSA (excluding the ongoing water transfer under the IID/MWD 1988 Agreement and subsequent agreements).

3. Reclamation would provide $50,000 in funding for the capture of wild-born or first generation (F1) Bonytail chubs from Lake Mohave to be incorporated into the broodstock for this species and/or to support rearing efforts at Achii Hanyo, a satellite rearing facility of Willow Beach National Fish Hatchery. These efforts would be funded for 5 years.

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[12] This EIR/EIS included a proposed HCP to address IID's identified actions. Efforts to finalize an HCP have not been completed as of the date of this Record of Decision.

4. A two-tiered conservation plan has been developed to minimize potential effects to occupied Southwestern willow flycatcher habitat that could result from reduced flows on the Colorado River between Parker and Imperial Dams as water transfers and associated changes in point of delivery are implemented. The details of the Plan may be found in the 2001 BO in Appendix E of the Final IA EIS.

B. Biological Resources – Vegetation. Implementation of biological conservation measures described above would mitigate impacts to vegetation along the river.

C. Biological Resources - Fish and Wildlife. Implementation of biological conservation measures described above would mitigate impacts to fish and wildlife along the river.

D. Biological Resources - Sensitive Species. Implementation of biological conservation measures described above would mitigate impacts to special status species.

E. Hydroelectric Power. Under the Law of the River and specific project legislation, power production has a priority subservient to Colorado River water delivery for authorized consumptive uses. Reclamation would continue to work closely with Western Area Power Authority to schedule water releases for satisfaction of water orders and to optimize power production at the various facilities. However, based on the fact that power production is a result of water releases to meet water orders, no mitigation for reduced opportunities to produce hydroelectric power is proposed.

F. Cultural Resources. At this time, Reclamation does not perceive a need to develop mitigation measures specific to historic properties for this action. On August 13, 2002, Reclamation transmitted a report to the Arizona, California and Nevada State Historic Preservation Offiers (SHPOs) entitled *A Class I Overview and Effects Analysis for Execution of an Implementation Agreement, Development and Adoption of an Inadvertent Overrun and Payback Policy, and Associated Biological Conservation Measures on the lower Colorado River Between Lake Mead and Imperial Dam*." In the transmittal letter to the SHPOs, Reclamation requested SHPO concurrence with the following:

1. Because effects of the IOP on reservoir and river elevations are projected to be well within the historic parameters for reservoir and river operations, the potential effects of the IOP on historic properties are indistinguishable from those that might be occurring as a result of ongoing river operations. Thus, consultation concerning development and adoption of an IOP would best be deferred to the broader consultation effort regarding its operation of the lower Colorado River that Reclamation previously committed to conduct with the Advisory Council on Historic Preservation and other interested parties under Section 110 of the National Historic Preservation Act (NHPA) in the ROD for ISG;

2. Section 106 consultation concerning the implementation of the biological conservation measures (associated with the change in diversion of up to 400 KAFY of Colorado River water) can be deferred until the specifics of the projects have been developed to the point where potential effects to historic properties can be better ascertained and assessed; and

3. There will be no adverse effect to historic properties located in Arizona and California as a result of the execution of a Water Delivery Agreement which provides for a change in the point of delivery from Imperial Dam, upstream to Park Dam, of up to 400 KAFY of Colorado River water.

In letters dated September 16, 2002, and November 2, 2002, respectively, both the Arizona and California SHPOs concurred with Reclamation's findings. Development and implementation of an IOP is the only one of the three proposed actions that could result in effects to historic properties in Nevada. In a letter dated September 6, 2002, the Nevada SHPO indicated it would concur with Reclamation's request to defer a determination of effect for the IOP to the broader NHPA Section 110 consultation on river operations.

G. Tribal Resources. Specific locations for the construction and maintenance of biological conservation measures along the Colorado River have not yet been determined. Conservation measures would not be located on tribal lands without the express consent of and desire by the tribe(s).

H. Air Quality. One or more of the following measures could be implemented as standard operating practices to minimize combustive particulate matter ($PM_{10}/PM_{2.5}$) and fugitive dust (PM_{10}) emissions from proposed construction activities associated with the implementation of biological conservation measures (this list does not preclude the use of other mitigation measures):

1. Use particulate traps on diesel-powered equipment.

2. Minimize the use of diesel-powered equipment where feasible.

3. Use alternative diesel fuels in construction equipment where feasible.

4. Properly tune and maintain all construction equipment.

5. Apply water to areas where vehicles and equipment are involved in ground-disturbing activities.

6. Pave dirt roads or keep them wet, or apply non-toxic soil stabilizers, such as salts or detergents.

7. Increase water applications or reduce ground-disturbing activities as wind speeds increase.

8. Minimize the amount of disturbed area and vehicle speeds on site.

9. Cover inactive soil stockpiles or treat them with soil binders, such as crusting agents or water them to keep moist.

10. Cover trucks that haul soils or fine aggregate materials.

11. Designate personnel to monitor dust control program activities to ensure that they are effective in minimizing fugitive dust emissions.

12. Clean dirt from construction vehicle tires and undercarriages when leaving the construction site and before entering local roadways.

13. Sweep streets near the construction area at the end of the day if visible soil material is present.

I. Biological Conservation Measures from the December 2002 BO. Reclamation and the California water agencies, through a Conservation Agreement, propose to implement the following

species conservation measures as a result of Reclamation's voluntary Endangered Species Act Section 7(a)(1) consultation regarding listed species in the IID/Salton Sea areas. Following is a summary of the conservation measures. The full text of the conservation measures, Reasonable and Prudent Measures, and Terms and Conditions may be found in the December 2002 BO.

1. Desert Pupfish Conservation Measure 1: Connectivity Impacts. In cooperation with its conservation agreement partners, Reclamation will ensure that an appropriate level of connectivity is maintained between pupfish populations in individual drains (in CVWD's area at the north end of the Salton Sea and in IID's area at the south end of the Sea) connected to the Salton Sea either directly or indirectly and that drain habitat below the first check will be maintained in the event that conditions in the Salton Sea become unsuitable for pupfish.

2. Desert Pupfish Conservation Measure 2: Selenium Impacts. Reclamation and its conservation agreement partners will commit to fund a study program to determine the impacts of selenium on desert pupfish. The objective of the study program will be to identify specific selenium thresholds at which pupfish survival or reproduction is adversely affected. Within 2 years of completion of the study program, Reclamation and its conservation agreement partners will meet with the Service and CDFG to review the results of the study program and the monitoring data. If the available information reviewed in this process indicates that the pupfish inhabiting the Imperial Valley drains that discharge directly to the Salton Sea are at risk from selenium, Reclamation will work in cooperation with IID, the Service and CDFG to identify and implement the best means for managing IID's drain channels to minimize potential selenium impacts on pupfish.

3. Desert Pupfish Conservation Measure 3: Management and Monitoring. In cooperation with its conservation agreement partners, Reclamation will carry out routine monitoring of pupfish presence to confirm continued presence in the drains and to develop information useful in adjusting management actions for this species.

4. Rail Conservation Measure 1: Salinity Impacts. Thirty-one acres of high quality managed marsh will be created to offset potential salinity impacts. In cooperation with its conservation agreement partners, Reclamation will work with the Service and CDFG to determine the design and location of these marshes. Design considerations will include the needs of both the Yuma clapper rail and California black rail.

5. Rail Conservation Measure 2: Selenium Impacts. Forty-two acres of additional high quality managed marsh habitat will be created to offset the potential selenium impacts on rail egg hatchability. The total amount of 73 acres of habitat will be created within 10 years of completion of this consultation.

6. Rail Conservation Measure 3: Management and Monitoring. A long-term adaptive management and monitoring plan will be developed for the mitigation marsh and submitted to the Service and CDFG for review and approval prior to initiation of habitat creation activities. The management plan will consider the requirements of both the Yuma clapper rail and the California black rail.

7. Southwestern Willow Flycatcher Conservation Measure 1: Evaluate Habitat. All potential cottonwood-willow and tamarisk stands will be evaluated for Southwestern willow flycatcher breeding habitat suitability.

8. Southwestern Willow Flycatcher Conservation Measure 2: Suitable Habitat Monitoring. If suitable Southwestern willow flycatcher breeding habitat is identified during

Conservation Measure 1, this habitat will be monitored to quantify changes in the amount and quality of habitat. If suitable breeding habitat is lost or the quality of the habitat declines as a result of IID's water conservation activities so that it is no longer considered suitable breeding habitat, this loss will be offset through the creation and/or acquisition and preservation of higher quality, native riparian replacement habitat at a 1:1 ratio.

9. Southwestern Willow Flycatcher Conservation Measure 3: Management and Monitoring of Habitat. A long-term adaptive management and monitoring plan will be developed for any replacement habitat whether created or acquired.

10. Southwestern Willow Flycatcher Conservation Measure 4 : Take Minimization During Construction. If suitable breeding habitat for Southwestern willow flycatchers is identified in the seepage communities adjacent to the East Highline Canal or in locations to be impacted by lateral interceptor construction, removal of suitable habitat in association with these construction activities will be scheduled to occur outside the breeding season for the Southwestern willow flycatcher. Specifically, removal of habitat would not occur between April 15 and August 15.

11. Brown Pelican Conservation Measure 1 B: Roost Site Creation. Reclamation, in cooperation with its conservation agreement partners, will construct at least two roost sites for California brown pelicans along the Southern California Coast. The objective of this conservation measure is to provide at least two major roost sites that in combination support roosting by at least 1,200 pelicans. The roosts will be sized to accommodate up to 1,000 pelicans each. A major roost site is defined as supporting at least 100 pelicans during June through October based on maximum counts. The roost sites are to be installed and functioning by 2018 and demonstrated to support at least 100 pelicans each and to support at least 1,200 pelicans in combination. They will be maintained through 2048.

VIII. Comments Received on Final EIS

Three comment letters were received on the Final IA EIS. Comment letters from the Southern Nevada Water Authority and Colorado River Commission of Nevada requested a wording change in the final IOP to reflect that introduction of non-system water could be considered as a source of payback, but only after appropriate environmental review and approval by Reclamation. Reclamation has concluded that such a change is within the scope of the environmental analysis in the Final IA EIS, and has made this change in the final IOP language.[13]
The third letter of comment was from the EPA. The EPA stated that the Final IA EIS addressed many of its concerns, but that EPA remained concerned about potential cumulative impacts on drinking water quality and on Indian Trust Assets. EPA suggested an EIS on the HCP would be an appropriate forum to address their remaining concerns, and that Reclamation should commit to extending Cooperating Agency status to the Service in the EIS for the HCP. Reclamation agrees that the NEPA process for the HCP is the appropriate forum to consider EPA's remaining concerns. Reclamation expects that the Service will be the lead agency for such NEPA evaluation, and will consider whether a new EIS is appropriate depending on the magnitude of change in the proposed HCP from that considered in the

[13] Other minor changes in the final IOP Policy language were made for purposes of clarity. In addition, clarifications have been included to more carefully link calculation and repayment of overruns to the annual approvals of water orders by Reclamation pursuant to 43 C.F.R. Pt. 417. These changes and clarifications to the IOP Policy do not result in any new or additional environmental impacts beyond those described in the Final IA EIS.

IID Transfer EIR/EIS.

In addition, two comment letters were received on the IID Water Conservation and Transfer Project EIR/EIS. Although this ROD is not based on that EIR/EIS, the issues raised in the comment letters are related to the IA (now Water Delivery Agreement), and are summarized here. Mr. Les W. Ramirez provided a comment letter on behalf of the Torres Martinez Band of Desert Cahuilla Indians. The letter stated the IID water conservation and transfer project will have direct impacts on the Tribe's fish, wildlife, land, water, and cultural assets. The Tribe is concerned that IID has not committed to implement the Salton Sea Habitat Conservation Strategy identified in the Final IID Transfer EIR/EIS. The Tribe also expressed concerns about potential air quality impacts, water quality (perchlorate) impacts to drinking water, and requested delay of CVWD recharge projects in Martinez Canyon and Dike 4. As noted above, Reclamation has included a description of off-river impacts associated with IID's water conservation actions pursuant to the QSA water transfer, but Reclamation does not have any control over the methods used by IID to conserve water. Since the potential impacts to Torres-Martinez resources result from decisions made by IID, mitigation of impacts is appropriately dealt with by IID and, in the case of CVWD recharge projects, by CVWD.

The second comment letter was from EPA. It raised concerns about substitution of a "15-year" plan for the Salton Sea Habitat Conservation Strategy after the Final IID Transfer EIR/EIS was filed (see Section V above). Based on this concern, and because supplemental NEPA compliance has not been carried out on the differences between the two approaches, EPA reiterated its objections to potential impacts on surface and groundwater quality, air quality, and biological resources.[14] EPA stated that its substantive objections could be addressed by the Habitat Conservation Plan and the Salton Sea Restoration Project. Reclamation notes that the Final IA EIS included the Section 7 approach as an alternative to the Salton Sea Habitat Conservation Strategy, and described the resulting environmental impacts in the absence of the Salton Sea Habitat Conservation Strategy.

Lastly, in an October 2, 2003 letter to Secretary Norton, the Colorado River Indian Tribes (CRIT) expressed concerns regarding the QSA's possible effect on the senior decreed rights of the CRIT. Specifically, the tribes noted that the agreements would allow additional deliveries of water from Lake Havasu into the Colorado River Aqueduct. The CRIT was unsure of any impact but expressed a desire for further information. The tribe's Colorado River rights would not be affected by the changes in points of diversion contemplated under the QSA. The QSA creates no new rights to Colorado River water, but only facilitates the movement of water from one user to another within California. The CRIT's use of Colorado River water will not be compromised by the QSA transfers.

The CRIT also expressed concern about how changes in points of diversion might affect hydropower production at the Headgate Rock Dam, the tribe's diversion point for Colorado River water. As described in the Draft and Final IA EIS, the QSA water transfers will result in less flow of water through the dam and will cause an associated reduction in hydropower generation. However, hydropower generation under the Boulder Canyon Project Act of 1928 is a secondary function and is available only to the extent that releases of water are required for downstream water use. The Boulder Canyon Act and the Supreme Court Decree in *Arizona v. California* make it clear that no right to

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[14] On October 9, 2003, as this ROD was being finalized, the United States Court of Appeals for the Ninth Circuit issued an opinion directing the EPA to classify the Imperial Valley as a serious non-attainment area because of PM-10 concentrations exceeding standards established pursuant to the Clean Air Act. *Sierra Club v. EPA*, No. 01-71902. While the implications of this ruling are unclear at this time, the Department of the Interior will monitor developments and undertake additional review under NEPA, as appropriate.

water is created by hydropower generation and, therefore, the change in points of diversion will not impact the CRIT's senior water right. As described in the Final IA EIS, the QSA water transfers are estimated to reduce the opportunity to produce power at Headgate Rock Dam by an average of about 5 percent. The variation in Colorado River flow is within the range that occurs as a normal course of river operation.

IX. Implementing the Decision

A. INADVERTENT OVERRUN AND PAYBACK POLICY

Reclamation is adopting a policy that will identify inadvertent overruns, will establish procedures that account for inadvertent overruns and will define subsequent payback requirements for users of Colorado River mainstream water in the Lower Division States. The Inadvertent Overrun and Payback Policy is effective beginning on January 1, 2004. The language of the policy has been modified from the language published in Appendix I of the Final IA EIS. The comments from Southern Nevada Water Authority and Colorado River Commission of Nevada were accommodated. Edits were made for grammar and consistency, and to eliminate duplication. None of the changes would result in environmental impacts different from those described in the Final IA EIS. The policy as finalized follows.

1. 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 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 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.[15]

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 each Colorado River water user in the Lower

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[15] These records are published as: Compilation of Records in Accordance with Article V of the Decree of the Supreme Court of the United States in *Arizona v. California, et. al.*, dated March 9, 1964.

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) and 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 ensure 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 sends a letter approving the Contractor's water order for the ensuing year in the amount determined to be appropriate by Reclamation. 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 entitlements as provided in annual approved water orders (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 adopting an administrative policy that defines inadvertent overruns, establishes procedures that account for the inadvertent overruns and defines the subsequent requirements for payback to the Colorado River mainstream.

2. Inadvertent Overruns

Effective January 1, 2004, Reclamation adopts the following Inadvertent Overrun and Payback Policy for the Lower Colorado River Basin:

1. Inadvertent overruns are those which the Secretary deems to be beyond the control of the entitlement holder; for example, overruns due to the discrepancy between preliminary and final stream flow and diversion records.

2. 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. This IOP policy provides a structure to payback the amount of water diverted, pumped or received in excess of entitlement for that year. This IOP 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 annual approved orders, and sources of unused Colorado River water are not available to accommodate adjustment of water orders by Reclamation, the inadvertent overrun policy will govern the payback. This IOP Policy will not be applied in any manner to the deliveries made under the United States Mexico Water Treaty of 1944.

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

entitlement.

4. Payback must be made only from measures that are above and beyond the normal reasonable and beneficial 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 which will show how it will intentionally forbear use of Colorado River water by extraordinary conservation measures, including fallowing, sufficient to meet its payback obligation and which demonstrates that the measures being proposed are in addition to those being implemented to meet any existing transfer or conservation agreement, and 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 without appropriate environmental review and approval by Reclamation. 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.

5. Maximum cumulative inadvertent overrun accounts will be specified for individual entitlement holders as 10 percent of an entitlement holder's normal year consumptive use entitlement. (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.)

6. 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:

   a. In a year in which the Secretary makes a flood control release or a space building release pursuant to the applicable Water Control Manual for Hoover Dam, Lake Mead, any accumulated amount in the overrun account will be forgiven.

   b. If the Secretary has declared a 70R surplus in an AOP applicable to the calendar year of payback, any payback obligation for that calendar year will be deferred at the entitlement holder's option.

   c. In a year when Lake Mead elevation is between the elevation for a 70R surplus determination 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.

   d. In a year when Lake Mead elevation is at or below elevation 1,125 feet above mean sea level on January 1, the total account balance must be paid back in full in that calendar year.

   e. For any year in which the Secretary declares a shortage under the Decree, the total

account must be paid back in full that calendar year, and further accumulation of inadvertent overruns will be suspended as long as shortage conditions prevail.

7. A separate inadvertent overrun account may be established in those limited cases in which a lower priority user is contractually responsible for payback of other senior entitlement holders. The separate inadvertent overrun account will be limited to a maximum cumulative amount of 10 percent of the senior entitlement holder's average consumptive use. Such inadvertent overrun accounts will be the assigned responsibility of the lower priority user in addition to its own entitlement-based inadvertent overrun account. If, however, senior entitlement holder's approved aggregate calendar year water orders are in excess of the specified amount for 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.

8. 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 entitlements pursuant to annual approved water orders 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.

9. During years in which an entitlement holder is forbearing use to meet its payback obligation, Reclamation will monitor the implementation of the extraordinary conservation measures, and require that the entitlement holder's consumptive use be at or below its approved water order for that year. Should the entitlement holder's actual monthly deliveries for the first 5 months of the year exceed their forecasted orders, and projections indicate the entitlement holder's end of year use is likely to be 5 percent or more above their adjusted entitlement, Reclamation will notify the entitlement holder in writing. At the end of 7 months, if it continues to appear that the entitlement holder is likely to be above its adjusted entitlement Reclamation will notify the entitlement holder that they are at risk of exceeding their adjusted entitlement, and having their next year's orders placed under enforcement proceedings. Reclamation will monitor the implementation of the extraordinary conservation measures and monitor the forbearance of consumptive use of Colorado River water. Should preliminary determinations of the implementation of extraordinary conservation or of monthly Colorado River consumptive uses indicate that sufficient extraordinary conservation or sufficient forbearance of Colorado River consumptive use is not projected to occur, Reclamation will notify the appropriate entitlement holders in writing that the preliminary determinations are forecasting that their annual payback obligations are not on target or being met. If this condition occurs for two consecutive years, in the second year Reclamation will begin enforcement proceedings, and will so advise the entitlement holder in writing by July 31 of the second year. Reclamation will consult with the entitlement holder on a modified release schedule and will limit releases to the entitlement holder for the remainder of the year such that by the end of the year the individual entitlement holder has met its payback obligation.

10. 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 5 years. Final determinations under this IOP policy shall be made by Reclamation's Lower Colorado Regional Director.

B. COLORADO RIVER WATER DELIVERY AGREEMENT

Effective upon signature, under the authority of the Secretary, the Department proposes to execute the following Colorado River Water Delivery Agreement.

Colorado River Water Delivery Agreement:

Federal Quantification Settlement Agreement

for purposes of Section 5(B) of

Interim Surplus Guidelines

Approved:

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_____

Gale A. Norton *Date*
Secretary of the Interior

COLORADO RIVER WATER DELIVERY AGREEMENT

The United States by and through the Secretary of the Interior (Secretary) hereby enters into this Colorado River Water Delivery Agreement (Agreement) 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). The Secretary, IID, CVWD, MWD and SDCWA hereby agree as follows:

RECITALS

A. 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.

B. The Secretary has entered into contracts with, among others, the Palo Verde Irrigation District (PVID), IID, CVWD, and MWD, 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, which for PVID and IID include the satisfaction of present perfected rights in accordance with Section 6 of the BCPA. MWD and CVWD also have surplus water delivery contracts with the Secretary.

C. IID, CVWD, MWD and SDCWA have entered into agreements relating to, among other matters, their respective beneficial consumptive use of Colorado River water and desire that, for the term of this Agreement, Colorado River water be delivered by the Secretary in the manner contemplated in this Agreement.

D. The Secretary has the authority to enter into this Agreement on behalf of the United States pursuant to the BCPA, the 1964 Decree in Arizona v. California, and other applicable authorities.

OPERATIVE TERMS

1. WATER DELIVERY CONTRACTS

a. Priorities 1, 2, 3(b), 6(b), and 7 of current Section 5 Contracts for the delivery of Colorado River water in the State of California and Indian and miscellaneous Present Perfected Rights (PPRs) within the State of California and other existing surplus water contracts are not affected by this Agreement.

b. The Secretary agrees to deliver Colorado River water in the manner set forth in this Agreement during the term of this Agreement. The Secretary shall cease delivering water pursuant to this Agreement at the end of the term of this Agreement; provided, however, that the Secretary's delivery commitment to the San Luis Rey Indian Water Rights Settlement Parties (SLR) shall not terminate at the end of the term but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended, subject to the terms and conditions of any applicable agreement to which the Secretary is a party concerning the allocation of water to be conserved from the lining of the All-American and Coachella Canals.

c. The Districts' respective Section 5 Contracts shall remain in full force and effect and, with this Agreement, shall govern the delivery of Colorado River water.

2. QUANTIFICATION OF PRIORITY 3(a)

a. Except as otherwise determined under the Inadvertent Overrun and Payback Policy identified in Section 9 of this Agreement, the Secretary shall deliver Priority 3(a) Colorado River water to IID in an amount up to but not more than a consumptive use amount of 3.1 million acre-feet per year (AFY) less the amount of water equal to that to be delivered by the Secretary for the benefit of CVWD, MWD, SDCWA, SLR, and Indian and miscellaneous PPRs as set forth in Exhibits A and B hereto. Colorado River water acquired by IID after the date of this Agreement, and where necessary approved by the Secretary, shall not count against this cap.

b. Except as otherwise determined under the Inadvertent Overrun and Payback Policy, the Secretary shall deliver Priority 3(a) Colorado River water to CVWD in an amount up to but not more than a consumptive use amount of 330,000 AFY less the amount of water equal to that to be delivered by the Secretary for the benefit of IID, MWD, SDCWA, SLR, and Indian and miscellaneous PPRs as set forth in Exhibits A and B hereto. Colorado River water acquired by CVWD in any transaction to the extent agreed upon prior to or concurrent with the execution of this Agreement by IID and MWD and, where necessary approved by the Secretary, shall not count against this cap.

3. QUANTIFICATION OF PRIORITY 6(a)

a. Subject to any rights that PVID may have, and except as otherwise provided under the Interim Surplus Guidelines, or under the agreements contemplated by those guidelines, the Secretary shall deliver Priority 6(a) water to MWD, IID and CVWD in the following order and consumptive use volumes: (i) 38,000 AFY to MWD; (ii) 63,000 AFY to IID; and (iii) 119,000 AFY to CVWD, or as those parties may agree to occasionally forbear.

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 3.a. above. 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 the date of this Agreement.

4. TRANSFERS AND OTHER WATER DELIVERY COMMITMENTS

a. The Secretary shall deliver IID's Priority 3(a) entitlement for the benefit of IID and others as specified in Exhibits A and B hereto and in the amounts and to the points of delivery set forth therein.

b. The Secretary shall deliver CVWD's Priority 3(a) entitlement for the benefit of the CVWD and others as specified in Exhibits A and B hereto and in the amounts and to the points of delivery set forth therein.

c. At SDCWA's election, the Secretary shall deliver water made available for SDCWA's benefit as set forth in Exhibits A and B hereto to the intake facilities for the Colorado River Aqueduct and SDCWA may then exchange up to 277,700 AFY of Colorado River water with MWD at Lake Havasu.

d. If in any given calendar year that 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 3(b), exceeds the consumptive use amount of 420,000 AFY, the Secretary will reduce the amount of water otherwise available to MWD in Priorities 4, 5 or 6(a) 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 3(b) is less than 420,000 AFY, the Secretary shall deliver to MWD the difference.

e. 1. The Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 20,000 AFY or such lesser consumptive use amount as may be requested by CVWD of Priority 3(a) Colorado River water made available to MWD under the Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water between IID and MWD dated December 22, 1988, as amended.

2. Beginning in 2048 and in each year thereafter, the Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 50,000 AFY or such lesser consumptive use amount as may be requested by CVWD from the Colorado River water available to MWD.

3. When requested by MWD for the purpose of satisfying an exchange obligation to CVWD under an agreement between CVWD and MWD for exchange of CVWD's State Water Project water, the Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 135,000 AFY or such lesser amount as may be requested by MWD.

f. CVWD may decline to take a portion of the water to be conserved by IID for CVWD. In this event, the Secretary shall instead deliver such portion of the water to IID or MWD, or to other unspecified water users provided, further, that any such delivery to an unspecified user is, where necessary, subject to Secretarial approval.

g. Colorado River water will be made available to MWD through forbearance under the existing priority system as a result of a proposed land management program between PVID landowners and MWD. Neither IID nor CVWD will make any claim to or object to delivery to MWD of

PVID program water to the extent agreed upon prior to or concurrent with the execution of this Agreement by IID and CVWD. If the transfer of PVID program water is not implemented, then IID has agreed to transfer for the benefit of MWD/SDCWA amounts necessary to meet the minimum Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, not to exceed 145,000 AF in the aggregate.

h. CVWD may utilize Colorado River water outside of Improvement District No. 1 to the extent consented to and agreed upon prior to or concurrent with the execution of this Agreement by IID and MWD.

i. Notwithstanding the transfers set forth in this section and Exhibit B, IID, CVWD, MWD and SDCWA recognize and agree that at the conclusion of the effective period of the Interim Surplus Guidelines, they shall have implemented sufficient measures to be able to limit total uses of Colorado River water within California to 4.4 million AFY, unless the Secretary determines a surplus under a 70R strategy.

5. SHORTAGES

a. The Secretary's authority under II.B.3 of the 1964 Decree in Arizona v. California is not limited in any way by this Agreement.

b. If for any reason there is less than 3.85 million AFY available under Priorities 1, 2 and 3 during the term of this Agreement, any water which is made available by the Secretary to IID and CVWD shall be delivered to IID, CVWD, MWD, and SDCWA in accordance with the shortage sharing provisions agreed upon prior to or concurrent with the execution of this Agreement by IID, CVWD, MWD and SDCWA.

6. TERM

a. This Agreement will become effective upon execution of this Agreement by all Parties.

b. This Agreement will terminate on December 31, 2037, if the 1998 IID/SDCWA transfer program terminates in that year.

c. If this Agreement does not terminate on December 31, 2037, then this Agreement will terminate on December 31, 2047 unless extended by agreement of all parties until December 31, 2077, in which case this Agreement will terminate on December 31, 2077.

d. The Secretary's delivery commitment to the SLR and the Districts' recognition and acceptance of that delivery commitment, shall not terminate but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended.

7. INTERIM SURPLUS GUIDELINES

The Secretary finds that execution of this Agreement constitutes "all required actions" that the relevant California Colorado River water contractors are required to undertake pursuant to Section 5(B) of the Interim Surplus Guidelines. Accordingly, upon execution of this Agreement by all parties, the interim surplus determinations under Sections 2(B)(1) and 2(B)(2) of the Interim Surplus Guidelines are reinstated.

8. BENCHMARKS FOR THE STATE OF CALIFORNIA'S AGRICULTURAL USE

a. The parties to this Agreement agree to carry out the transfers identified in Section 4 above and in Exhibit A hereto in accordance with the schedule set forth in Exhibit B hereto. Nothing in this Agreement authorizes or precludes carrying out the transfers on a timetable sooner than provided in the schedule set forth in Exhibit B hereto. The transfers in the schedule set forth in Exhibit B hereto are undertaken to allow California agricultural usage (by PVID, Yuma Project Reservation Division, IID, and CVWD) plus 14,500 af of PPR use to be at or below the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines. Nothing in this Agreement authorizes or precludes additional transfers of Colorado River water as agreed upon prior to or concurrent with the execution of this Agreement by the Districts to meet the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines. All determinations by the Secretary with respect to this section shall be based upon Decree Accounting. Repayment of overrun amounts shall not count toward compliance with the transfers in the schedule set forth in Exhibit B hereto or toward compliance with the Benchmark Quantities set forth in Section 5(C) of the Interim Surplus Guidelines.

b. In the event that i) the transfers are carried out as set forth in the schedule in Exhibit B hereto or additional Colorado River transfers as agreed upon prior to or concurrent with the execution of this Agreement by the Districts are carried out and ii) California's Agricultural usage plus 14,500 af of PPR use is at or below the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, the provisions of this subparagraph shall apply.

1. Notwithstanding the provisions of the November 22, 2002 Supplement to the 2002 Annual Operating Plan, any existing overruns in calendar years 2001 and 2002 by parties to this Agreement must be repaid within an eight-year period beginning in calendar year 2004 in accordance with the schedule attached in Exhibit C hereto, except that in the event that any Annual Operating Plan 24-Month Study indicates that a shortage will occur within months 13 through 24, any remaining balance of the 2001 and 2002 overruns shall be fully repaid during the next calendar year. Repayment of any overruns other than from calendar years 2001 and 2002 shall be pursuant to the Inadvertent Overrun and Payback Policy identified in Section 9 below.

2. The Secretary has considered the quantification of Priority 3(a) as set forth in Section 2 of this Agreement and the water transfers set forth in the schedule in Exhibit B hereto. These water transfers were developed to assist the Districts and SDCWA to meet the provisions of Section 4(i) of this Agreement and to reduce the occurrence of future reasonable and beneficial use reviews under 43 C.F.R. Pt. 417 to unique circumstances. These water transfers are based upon water conservation activities to be implemented over the term of this Agreement. For these reasons, the Secretary does not anticipate any further review of the reasonable and beneficial use of Colorado River water by IID pursuant to the annual 43 C.F.R. Pt. 417 reviews that are conducted during the initial term of this Agreement as set forth in Section 6.b. (December 31, 2037). Should the Secretary engage in any further review of the reasonable and beneficial use of Colorado River water by IID pursuant to 43 C.F.R. Pt. 417 under this Section, the Secretary will base her decision on (i) the purpose of the quantification of Priority 3(a) and the reductions and transfers set forth on Exhibit B hereto, and (ii) the implementation of the water transfers by IID as set forth in the schedule in Exhibit B, in addition to the consideration of the factors in 43 C.F.R. § 417.3

c. Notwithstanding any other provision of this Agreement, and in addition to any applicable provisions of the Interim Surplus Guidelines, in the event that either i) the transfers are not carried out as set forth in Exhibit B hereto or additional Colorado River transfers as agreed upon prior to or concurrent with the execution of this Agreement by the Districts are not carried out, or ii) California's Agricultural usage plus 14,500 af of PPR use is above the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, the provisions of this subparagraph shall apply.

1. For each District that has not implemented the water transfers to which it is a party upon the agreed upon schedule as set forth in Exhibit B hereto, the Inadvertent Overrun and Payback Policy identified in Section 9 below will be immediately suspended. During suspension of the Inadvertent Overrun and Payback Policy, for previously incurred overruns, the payback period shall be as provided in the existing Inadvertent Overrun and Payback Policy were such Policy not suspended. The Inadvertent Overrun and Payback Policy will be reinstated at such time as a District has implemented the water transfers to which it is a party upon the agreed upon schedule as set forth in Exhibit B hereto.

2. Any remaining existing overruns from calendar years 2001 and 2002 by parties to this Agreement must be repaid within a three-year period.

3. In addition to any applicable provisions of the Interim Surplus Guidelines, in the event that the transfers are not implemented in accordance with Column 23 in Exhibit B hereto, MWD shall not place any order to the Secretary for any Colorado River water otherwise available pursuant to sections 2(B)(1) and 2(B)(2) as set forth in the Interim Surplus Guidelines.

4. The Secretary anticipates that a further review of the reasonable and beneficial use of Colorado River water by the Districts will be required pursuant to the annual 43 C.F.R. Pt. 417 reviews that are conducted during the initial term of this Agreement as set forth in Section 6.b. (December 31, 2037). In any such review, the Secretary will base her decision on the factors set forth in Section 8.b.2 above as well as the basis for any District's non-implementation of the transfers set forth in Exhibit B hereto, in addition to the consideration of the factors in 43 C.F.R. § 417.3

9. INADVERTENT OVERRUN AND PAYBACK POLICY

For so long as the provisions of Section 8.b of this Agreement are applied, the Secretary will not materially modify the Inadvertent Overrun and Payback Policy for a 30-year period, absent extraordinary circumstances such as significant Colorado River infrastructure failures, and subject to the provisions of Section 5 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.

10. ADDITIONAL PROVISIONS

a. Imperial Irrigation District v. United States of America, et al., CV 0069W (JFS) (D. Cal. filed January 10, 2003) (JFS), is dismissed pursuant to Stipulation under Fed. R. Civ. P. 41(a)(1). Nothing in this Agreement shall affect the preclusive and non-preclusive effects of the Stipulation during the term of this Agreement and thereafter.

b. Upon dismissal of Imperial Irrigation District v. United States, et al., as provided in subsection 10(a) above, the Secretary will irrevocably terminate the *de novo* "Recommendations and Determinations Authorized by 43 C.F.R. Pt. 417, Imperial Irrigation District" for 2003, and IID's water order for 2003 is approved subject to the terms of this Agreement.

c. 1. IID, CVWD, 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. Furthermore, the Districts and SDCWA agree not to use this Agreement or any provision hereof, as precedence 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 further approval of any water transaction.

2. The terms of this Agreement do not control or apply to the nature or scope of rights to the delivery, use or transfer of Colorado River water within the State of California, except as those rights are defined and addressed in this Agreement during the term hereof.

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

4. Nothing herein waives the ability of any party to challenge the exercise of particular miscellaneous and Indian PPRs.

d. 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).

e. This Agreement does not (i) guarantee or assure any water user a firm supply for any specified period, (ii) change or expand existing authorities under applicable federal law, except as specifically provided herein with respect to the Districts, (iii) address interstate distribution of water; (iv) change the apportionments made for use within individual States, (v) affect any right under the California Limitation Act (Act of March 4, 1929; Ch. 16, 48th Sess.), or any other provision of applicable federal law.

f. This Agreement is not intended nor shall it be construed to create any third party beneficiary rights to enforce the terms of this Agreement in any person or entity that is not a party.

g. Each party to this Agreement represents that the person executing this Agreement on behalf of such party has full power and authority to do so, and that his/her signature is legally sufficient to bind the party on whose behalf he/she is signing.

h. This Agreement shall remain in full force and effect according to its terms regardless of whether the Interim Surplus Guidelines are in effect or terminated.

i. This Agreement with the United States is subject to and controlled by the Colorado River Compact of 1922.

UNITED STATES SECRETARY OF THE INTERIOR

_____ _____
Gale A. Norton *Date*

COACHELLA VALLEY WATER DISTRICT
By

_____ _____
General Manager/Chief Engineer *Date*

IMPERIAL IRRIGATION DISTRICT
By

_____ _____
Date

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
By

_____ _____
Date

SAN DIEGO COUNTY WATER AUTHORITY
By

_____ _____
Date

Exhibit A: Delivery of Priority 3(a) consumptive use entitlement to the Imperial Irrigation District and the Coachella Valley Water District

Imperial Irrigation District

The Secretary of the Interior shall deliver Imperial Irrigation District's Priority 3(a) consumptive use entitlement under this Colorado River Water Delivery Agreement, pursuant to this Exhibit A and Exhibit B hereto as follows:

Delivered to (entity):	At (point of diversion):	Amount not to exceed (af):	Notes
CVWD	Imperial Dam	103,000	---
MWD	Lake Havasu	110,000	1
SDCWA	Lake Havasu	56,200	2
SDCWA	Lake Havasu	200,000	3
SLR	*see note 4*	*see note 4*	4
Misc. & Indian PPRs	Current points of delivery	11,500	5
For benefit of MWD/SDCWA	Lake Havasu	145,000	6
IID	Imperial Dam	Remainder	---
IID's Priority 3(a) Total		3,100,000	---

Notes to Imperial Irrigation District:

1. Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water, dated December 22, 1988; Approval Agreement, dated December 19, 1989. Of amount identified: up to 90,000 af to MWD and 20,000 af to CVWD.
2. Water conserved from the construction of a new lined canal parallel to the All-American Canal from Pilot Knob to Drop 3.
3. Agreement for Transfer of Conserved Water, dated April 29, 1998, as amended. As set forth in Exhibit B, delivery amounts shall be 205,000 AF in calendar year 2021 and 202,500 AF in calendar year 2022.
4. Water conserved from All-American Canal lining project and made available for benefit of San Luis Rey Settlement Parties under applicable provisions of Pub. L. No. 100-675, as amended. Quantity may vary, not to exceed 16,000 afy, as may the point of diversion, subject to the terms of the Allocation Agreement.
5. Water to be delivered to miscellaneous and Indian PPRs identified in the Decree in Arizona v. California, as supplemented. The delivery of water will be to current points of delivery unless modified in accordance with applicable law.
6. As provided in subsection 4(g) of this Agreement.

Coachella Valley Water District

The Secretary of the Interior shall deliver Coachella Valley Water District's Priority 3(a) consumptive use entitlement under this Colorado River Water Delivery Agreement pursuant to this Exhibit A and Exhibit B hereto as follows:

Delivered to (entity):	At (point of diversion):	Amount not to exceed (af):	Notes
SLR	*see note 1*	*see note 1*	1
SDCWA	Lake Havasu	21,500	2
Misc. & Indian PPR	Current points of delivery	3,000	3
CVWD	Imperial Dam	Remainder	---
Coachella Valley Water District's Priority 3(a) Total		330,000	---

Notes:

1. Water conserved from Coachella Canal lining project and made available for benefit of San Luis Rey Settlement Parties under applicable provisions of Pub. L. No. 100-675, as amended. Quantity may vary, not to exceed 16,000 afy, as may the point of diversion, subject to the terms of the Allocation Agreement.
2. Water conserved from lining the unlined portion of the Coachella Canal.
3. Water to be delivered to miscellaneous and Indian PPRs identified in the Decree in Arizona v. California, as supplemented. The delivery of water will be to current points of delivery unless modified in accordance with applicable law.

EXHIBIT B

QUANTIFICATION AND TRANSFERS[1]

In Thousands of Acre-feet

Column:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
			IID Priority 3a											CVWD Priority 3a									
				Reductions											Reductions			Additions					
	Calendar Year	[2]Priority 1, 2 and 3b	IID Priority 3a Quantified Amount	[3]IID Reduction: MWD 1988 Agreement Transfer	IID Reduction: SDCWA Transfer	[4]IID Reduction: AAC Lining IID, SDCWA & SLR	[5,6]IID Reduction: SDCWA Mitigation Transfer	[7]Intra-Priority 3 Transfer IID/CVWD	[8]IID Reduction: MWD Transfer with Salton Sea Restoration	[8]IID Reduction: Conditional ISG Backfill	[9]IID Reduction: Misc. PPRs	IID Reductions: Total Amount *(sum of columns 4 through 11)*	[10]IID Net Consumptive Use Amount *(difference between column 3 and column 12)*	CVWD Priority 3a Quantified Amount	[4]CVWD Reduction: CC Lining, SDCWA & SLR	[9]CVWD Reduction: Misc. PPRs	[11]CVWD Reductions: Total Amount *(sum of columns 15 + 16)*	[7]Intra-Priority 3 Transfer IID/CVWD	[3]Intra-Priority 3 Transfer MWD/CVWD	CVWD Net Consumptive Use Amount *(columns 14 - 17 plus columns 18 + 19)*	Total Priority 1-3 Use Plus PPR Consumptive Use *(sum of columns 2+13+20 plus 11+16)*	[12]ISG Benchmarks	[12]Annual Targets
1	2003	420	3,100	110	10	0	5	0	0	0	11.5	136.5	2,963.5	330	0	3	3	0	20	347	3,745.0	3,740	3,740
2	2004	420	3,100	110	20	0	10	0	0	0	11.5	151.5	2,948.5	330	0	3	3	0	20	347	3,730.0		3,707
3	2005	420	3,100	110	30	0	15	0	0	0	11.5	166.5	2,933.5	330	0	3	3	0	20	347	3,715.0		3,674
4	2006	420	3,100	110	40	0	20	0	0	9	11.5	190.5	2,909.5	330	26	3	29	0	20	321	3,685.0	3,640	3,640
5	2007	420	3,100	110	50	0	25	0	0	0	11.5	196.5	2,903.5	330	26	3	29	0	20	321	3,659.0		3,603
6	2008	420	3,100	110	50	67.7	25	4	20	0	11.5	288.2	2,811.8	330	26	3	29	4	20	325	3,571.3		3,566
7	2009	420	3,100	110	60	67.7	30	8	40	0	11.5	327.2	2,772.8	330	26	3	29	8	20	329	3,536.3	3,530	3,530
8	2010	420	3,100	110	70	67.7	35	12	60	0	11.5	366.2	2,733.8	330	26	3	29	12	20	333	3,501.3		3,510
9	2011	420	3,100	110	80	67.7	40	16	80	0	11.5	405.2	2,694.8	330	26	3	29	16	20	337	3,466.3		3,490
10	2012	420	3,100	110	90	67.7	45	21	100	0	11.5	445.2	2,654.8	330	26	3	29	21	20	342	3,431.3	3,470	3,470
11	2013	420	3,100	110	100	67.7	70	26	100	0	11.5	485.2	2,614.8	330	26	3	29	26	20	347	3,396.3		3,462
12	2014	420	3,100	110	100	67.7	90	31	100	0	11.5	510.2	2,589.8	330	26	3	29	31	20	352	3,376.3		3,455
13	2015	420	3,100	110	100	67.7	110	36	100	0	11.5	535.2	2,564.8	330	26	3	29	36	20	357	3,356.3		3,448
14	2016	420	3,100	110	100	67.7	130	41	100	0	11.5	560.2	2,539.8	330	26	3	29	41	20	362	3,336.3		3,440
15	2017	420	3,100	110	100	67.7	150	45	91	0	11.5	575.2	2,524.8	330	26	3	29	45	20	366	3,325.3		
16	2018	420	3,100	110	130	67.7	0	63	0	0	11.5	382.2	2,717.8	330	26	3	29	63	20	384	3,536.3		
17	2019	420	3,100	110	160	67.7	0	68	0	0	11.5	417.2	2,682.8	330	26	3	29	68	20	389	3,506.3		
18	2020	420	3,100	110	193	67.7	0	73	0	0	11.5	454.7	2,645.3	330	26	3	29	73	20	394	3,473.8		
19	2021	420	3,100	110	205	67.7	0	78	0	0	11.5	472.2	2,627.8	330	26	3	29	78	20	399	3,461.3		
20	2022	420	3,100	110	203	67.7	0	83	0	0	11.5	474.7	2,625.3	330	26	3	29	83	20	404	3,463.8		
21	2023	420	3,100	110	200	67.7	0	88	0	0	11.5	477.2	2,622.8	330	26	3	29	88	20	409	3,466.3		
22	2024	420	3,100	110	200	67.7	0	93	0	0	11.5	482.2	2,617.8	330	26	3	29	93	20	414	3,466.3		
23	2025	420	3,100	110	200	67.7	0	98	0	0	11.5	487.2	2,612.8	330	26	3	29	98	20	419	3,466.3		
24	2026	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
25	2027	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
26	2028	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2029-2037	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2038-2047[13]	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2048-2077[14]	420	3,100	110	200	67.7	0	100	0	0	11.5	489.2	2,610.8	330	26	3	29	100	20	421	3,466.3		

1 Exhibit B is independent of increases and reductions as allowed under the Inadvertent Overrun and Payback Policy.

2 Any higher use covered by MWD, any lesser use will procuce water for MWD and help satisfy ISG Benchmarks and Annual Targets.

3 IID/MWD 1988 Conservation Program conserves up to 110,000 AFY and the amount is based upon periodic verification. Of amount conserved, up to 20,000 AFY to CVWD (column 19), which does not count toward ISG Benchmarks and Annual Targets, and remainder to MWD.

4 Ramp-up amounts may vary based upon construction progress, and final amounts will be determined by the Secretary pursuant to the Allocation Agreement.

5 Any amount identified in Exhibit B for mitigation purposes will only be from non-Colorado River sources and these amounts may be provided by exchange for Colorado River water.

6 Water would be transferred to MWD subject to satisfaction of certain conditions and to appropriate federal approvals. For informational purposes only, these transfers may also be subject to state approvals. Schedules are subject to adjustments with mutual consent. After 2006, these quantities will count toward the ISG Benchmarks (column 22) and Annual Targets (column 23) only if and to the extent that water is transferred into the Colorado River Aqueduct for use by MWD and/or SDCWA.

7 MWD can acquire if CVWD declines the water. Any water obtained by MWD will be counted as additional agricultural reduction to help satisfy the ISG Benchmarks and Annual Targets. MWD will provide CVWD 50,000 AFY of the 100,000 AFY starting in year 46.

8 IID has agreed to provide transfer amounts to meet the minimum ISG benchmarks, not to exceed a cumulative total of 145,000 AF. Maximum transfer amounts are 25,000 AF in 2006, 50,000 AF plus the unused amount from 2006 in 2009, and 70,000 AF plus the unused amounts from 2006 and 2009 in 2012. In addition to the maximum transfer amounts IID has also committed that no more than 72,500 AF of reduced inflow to the Salton Sea would result from these additional transfers.

9 Up to the amount shown, as agreed upon reduction to IID or CVWD to cover collectively the sum of individual Miscellaneous PPRs, federal reserved rights and decreed rights. This is a reduction that counts towards ISG Benchmarks and Annual Targets.

10 For purposes of Subparagraph 8(b)(2)(i) and (ii) and 8(c)(1) and (4) the Secretary will take into account: (i) the satisfaction of necessary conditions to certain transfers (columns 7 and 9) not within IID's control: (ii) the amounts of conserved water as determined, where such amounts may vary (columns 4, 6, 9 and 10); and (iii) with respect to column 7, reductions by IID will be considered in determining IID's compliance regardless of whether the conserved water is diverted into the Colorado River Aqueduct.

11 For purposes of Subparagraph 8(c)(1) and (4) the Secretary will take into account: (i) the satisfaction of necessary conditions to certain transfers (columns 15 and 16) not within CVWD's control; and (ii) the amounts of conserved water as determined, where such amounts may vary (column 15).

12 All-consumptive use of priorities 1 through 3 plus 14,500 AF of PPRs must be within 25,000 AF of the amount stated.

13 Assumes SDCWA does not elect termination in year 35.

14 Assumes SDCWA and IID mutually consent to renewal term of 30 years.

Notes:

Substitute transfers can be made provided the total volume of water to be transferred remains equal or greater than amounts shown consistent with applicable federal approvals.

The shaded columns represent amounts of water that may vary.

Exhibit C: Payback Schedule of Overruns for Calendar Years 2001 and 2002

Year	*IID*	*CVWD*	*MWD*	*Total*
2004	18,900	9,100	11,000	39,000
2005	18,900	9,100	11,000	39,000
2006	18,900	9,100	11,100	39,100
2007	18,900	9,100	11,100	39,100
2008	18,900	9,200	11,100	39,200
2009	18,900	9,200	11,100	39,200
2010	19,000	9,200	11,100	39,300
2011	19,000	9,200	11,100	39,300
Cumulative	151,400	73,200	88,600	313,200

Note: Each district may, at its own discretion, elect to accelerate paybacks to retire its payback obligation before the end of the eight-year period ending in calendar year 2011. Each district's payback obligation is subject to acceleration in anticipation of a shortage in the Lower Colorado River Basin as provided for in section 8(b).

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INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.6 – Lake Mead Daily Water Levels

Imperial Region
2014 IRWM Drought Grant Proposal

Worth more than 1,000 words...
Below is just a small taste of gorgeous work you can find at www.lucidlandscape.com

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Colorado and Green River Raft Trips
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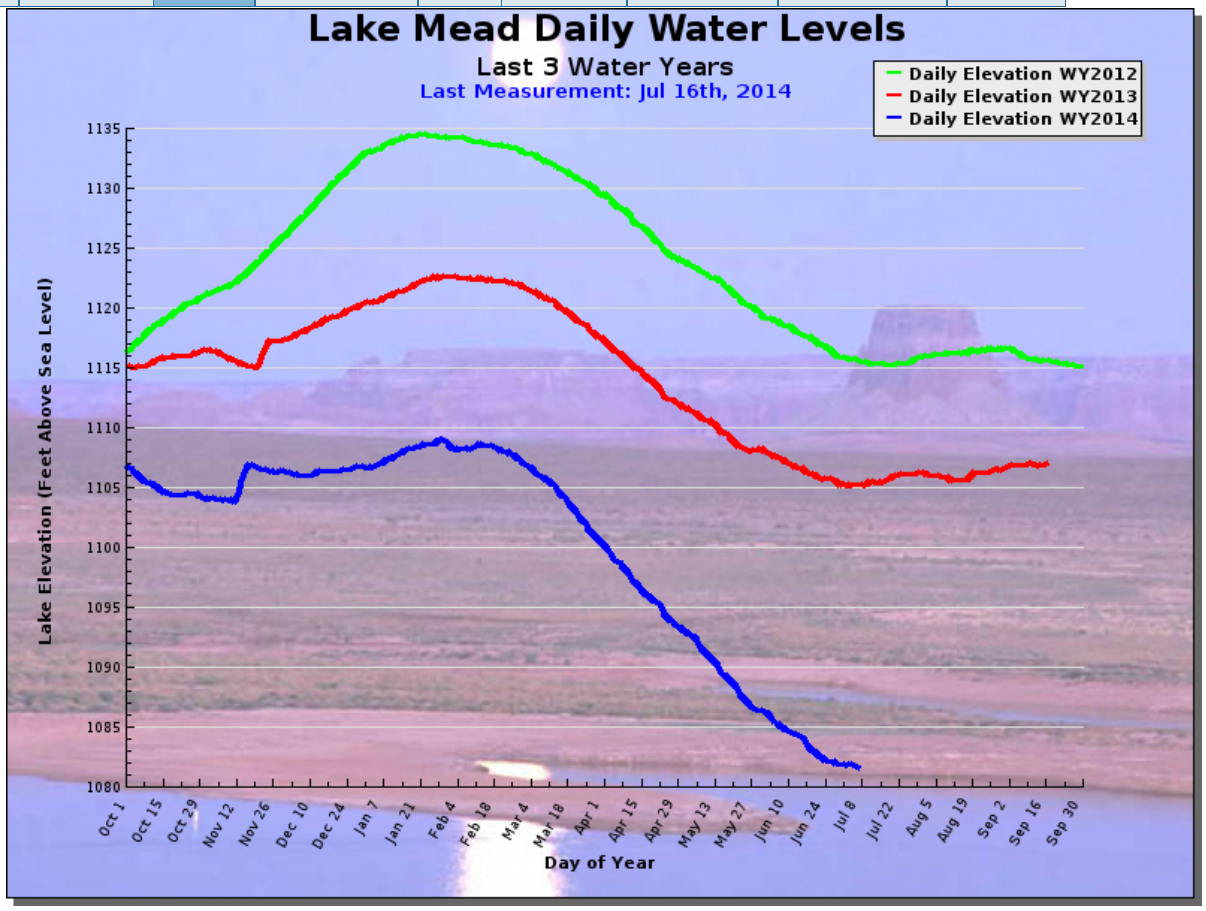

Select the graph you wish to view: Daily Water Levels ▼ Get Graph

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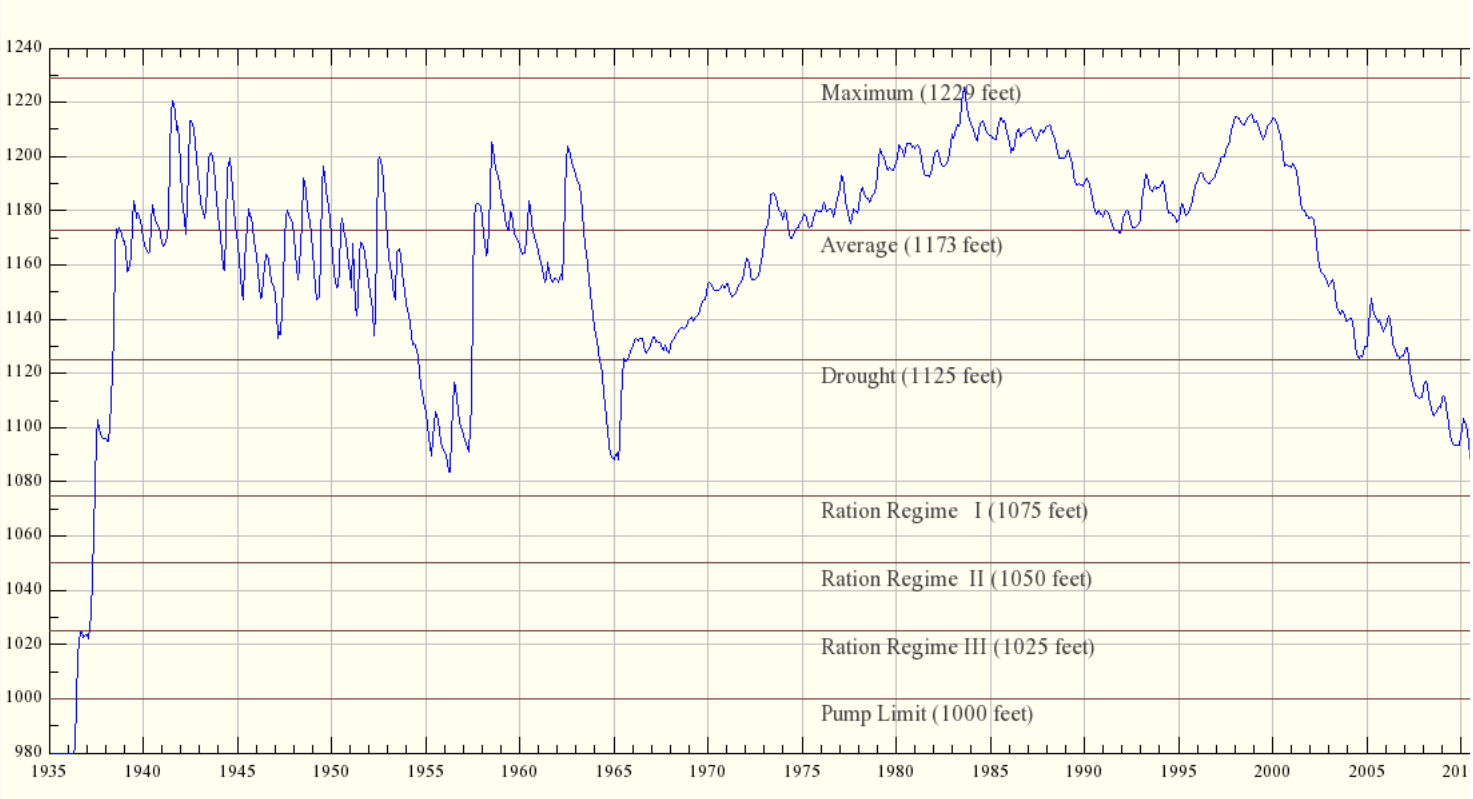
INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.7 – Lake Mead Elevation Levels

Imperial Region
2014 IRWM Drought Grant Proposal

Lake Mead Water Levels — Historical and Current



Horizontal Axis: Years
Vertical Axis: Feet above Mean Sea Level

(Chart scale and labels updated January 2014)

This chart is dynamically updated. This page reads data from a government archive of water heights for Lake Mead from 1935 to the present, and draws the chart on that basis. The database, located at http://www.usbr.gov/lc/region/g4000/hourly/mead-elv.html, is updated once per month. This page's graphic updates itself in step with the data source, over time giving an easy-to-interpret picture of Lake Mead water levels.

The chart on this page will show the Lake Mead water level until the source data page disappears or is moved, after which I will have to revise the code responsible for drawing the graphic.

And why am I interested in monitoring this particular lake? In years past I have been able to paddle my kayak from Pearce Ferry, on the east end of Lake Meade, into the very pretty western Grand Canyon, but in the past few years (writing in 2005), the east end of the lake has dried up, making an enjoyable outing impossible until the water rises again — assuming it ever does.

Figure 1: View of Lake Mead and the Colorado River from Pearce Ferry, January 2004

Figure 1 shows a picture from my archives of the area around Pearce Ferry, showing the dry land between the end of the road and the Colordo River.

The observant reader will notice a pattern of rapidly varying water height in the Lake Mead chart above from 1935 until the mid-1960s, after which the water level became more consistent in the short term. My theory is this smoothing was caused by the fact that Lake Powell, upstream from Lake Mead, began to fill in 1966, taking 17 years to fill completely (that would take us to 1983). It is reasonable to assume the people overseeing this filling operation took more water for Lake Powell at times of rapid flow, thus smoothing out the flow peaks and troughs that were seen in Lake Mead beforehand. Since that time I would guess that Lake Powell now absorbs the annual peaks and troughs once seen in the Lake Mead data, and acts as a buffer for Lake Mead. I would love to confirm this theory, but there seems not to be a convenient monthly water level database for Lake Powell, as there is for Lake Mead.

Update (2010) New York Times: Water Use in Southwest Heads for a Day of Reckoning — Describes steps that will have to

be taken if Lake Mead's water level drops below 1075 feet. Briefly, this critical shortage level will automatically trigger emergency measures agreed on by the seven nearby states that depend on Lake Mead's water — including rationing. Ironically, the proposed rationing measures don't include California, whose water demands get first priority.

Update (2014) New York Times: Colorado River Drought Forces a Painful Reckoning for States — More detail, more concern, as Colorado river flow declines further. "The sinuous Colorado River and its slew of man-made reservoirs from the Rockies to southern Arizona are being sapped by 14 years of drought nearly unrivaled in 1,250 years." "...many experts believe the current drought is only the harbinger of a new, drier era in which the Colorado's flow will be substantially and permanently diminished." The meaning of the above chart's ration regime and pump limit labels is provided in the linked article.

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.8 – Pages from California Water Plan

Imperial Region
2014 IRWM Drought Grant Proposal

State of California
The Natural Resources Agency
Department of Water Resources

California Water Plan

Update 2013

Investing in Innovation and Infrastructure

Volume 1 — The Strategic Plan

PUBLIC REVIEW DRAFT

October 2013

Edmund G. Brown Jr.
Governor
State of California

John Laird
Secretary for Resources
The Natural Resources Agency

Mark Cowin
Director
Department of Water Resources

Colorado River Hydrologic Region — Table of Contents

Colorado River Hydrologic Region CR-1

Colorado River Hydrologic Region Summary CR-1
Current State of the Region CR-1
Setting CR-1
Watersheds CR-2
Salton Sea Transboundary Watershed CR-2
Other Watersheds CR-4
Groundwater Aquifers CR-5
Alluvial Aquifers CR-5
Fractured-Rock Aquifers CR-6
Well Infrastructure and Distribution CR-6
California Statewide Groundwater Elevation Monitoring (CASGEM) Basin Prioritization CR-7
Colorado River Hydrologic Region Groundwater Monitoring Efforts CR-8
Groundwater Quality Monitoring CR-9
Land Subsidence Monitoring CR-9
Groundwater Occurrence and Movement CR-10
Ecosystems CR-11
Salton Sea CR-11
Mojave Desert Natural Reserve CR-12
Flood CR-12
Historic Floods CR-12
Climate CR-13
Demographics CR-14
Population CR-14
Tribal Communities CR-15
Disadvantaged Communities CR-15
Land Use Patterns CR-17
Agriculture and Livestock CR-17
Urban and Industrial CR-18
Managed Public Lands CR-19
Regional Resource Management Conditions CR-19
Water in the Environment CR-19
Water Supplies CR-20
Colorado River Basin Water Supply: Demand Study CR-20
Surface Water Supply CR-20
Groundwater Supply CR-21
Water Uses CR-24
Drinking Water CR-26
Water Conservation Act of 2009 (SB x7-7) Implementation Status and Issues CR-27
Water Balance Summary CR-27
Project Operations CR-29
Imperial Irrigation District System Conservation Plan CR-29
Water Quality CR-29
Agricultural / Irrigated Lands Regulatory Program CR-30
New River Pollution CR-30
Drinking Water Quality CR-30
Groundwater Quality CR-30

Compliance program in Imperial Valley. The goal of the program is to decrease the sediment loads being transported into the Salton Sea from the fields. Interested farmers received information on best management practices that can be integrated into their farming operations to decrease sediment and nutrient runoffs from their fields. The second project is the New River Wetlands Project, which began in 2003. It is a collaborative project that includes U. S. Congressman Duncan Hunter (R-Alpine), Desert Wildlife Unlimited, the Imperial Irrigation District (IID), and the U.S. Bureau of Reclamation (USBR). Its goals are to construct aeration ponds and establish two small wetlands on the New River to help with the cleanup of the water downstream from the Mexico-United States border. These sites have been constructed. A third area was completed to the northeast of the City of Brawley on the Alamo River. A maximum of 12 wetland areas will be constructed with most for the New River.

The construction of the three areas was a collaboration between the USBR and IID and was made possible through federal funding. Many other agencies and organizations have participated in the project including Imperial County, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (DFW), and Citizen Congressional Task force on the New River. The areas also have become small ecosystems attracting birds and fish as well as popular fishing spots for local area residents.

Salton Sea

The Salton Sea is the largest inland lake in California. Although its reputation for recreation and sports-fishing has diminished in recent years, the sea still provides critical habitat for migratory birds in the Pacific Flyway and is an important fishery, serving as a food source for the birds. The Sonny Bono Salton Sea National Wildlife Refuge is an important wetland area. The native and built wetlands on the shoreline of the sea provide habitat for Eared Grebes, White-faced Ibis, American White Pelicans, Yuma clapper rail, Black Skimmers, Double-breasted Cormorants, and Gull-billed Terns, just a few of the species of birds that can be found during winter-nesting. The population of the nesting birds is often in the hundreds and thousands.

The Salton Sea has no outlet to the Pacific Ocean or Gulf of California, and drainage of all surface water in the watershed flows to the Salton Sea. It has a surface area of 376 square miles and a shoreline of 105 miles. The elevation of the water surface is about 232 feet below sea level. One of the major functions of the Salton Sea is to serve as a sump for agricultural tailwater and for urban treated and untreated wastewater flows.

Although its physical characteristics have fluctuated over the years, the sea has remained relatively constant over the past two decades. Its size, shape, and volume has been sustained by annual inflow of 1.3 million acre-feet (maf) of agricultural tailwater and drain water; IID Quantification Settlement Agreement mitigation discharges; surface runoff; treated and untreated urban wastewater flows from the Coachella Valley, Imperial Valley, and the Calexico Valley in Mexico; and a small amount of subsurface flow.

Runoff from precipitation also contributes: 3 inches of rainfall over a 380 square-mile area (about 60,000 acre-feet). Because of the extremely arid climate, evaporation of water from the sea is about equivalent to the quantities of inflow water, 1.3 maf. Total volume of water in the sea is estimated at 7.5 maf. The only characteristic that has changed is the elevation of the water surface. At the end of the year 2012, the elevation of the surface was 231.72 feet below sea level, which is a decline of about

2.3 feet since 2008. The decline is the result of decreased flows from Mexico and below average precipitation. Average depth is slightly less than 30 feet, with its deepest spot determined to be 51 feet.

Salinity levels of the sea are critical issues. The inflows from the different sources identified above are contributing as much as 4.5 million tons of salts each year. In 2012, the level of salts was 53 parts per thousand (ppt); the Pacific Ocean's level is 35 ppt. Salinity levels are slightly higher because of the decrease in flows from Mexico and below-average precipitation. In 2017, the end of mitigation deliveries as specified in the 2003 Colorado River Water Delivery Agreement: Federal Quantification Settlement Agreement, Exhibit B, could exacerbate salinity levels. Local fish and invertebrate species will be impacted by the higher levels of salinity, which would then impact migratory and shore-line birds.

Water quality concerns stem from the presence of untreated and partially treated urban wastewater flows from the Mexicali Valley and the presence of pesticides, nutrients, selenium, and silt from the agricultural operations. From the north, the Whitewater River provides agricultural tailwater and tile drainage flows and urban runoff. Salt Creek, which drains portions of the Orocopia and Chuckwalla mountains to the east of the sea, and Whitewater River provide some freshwater inflows to the Salton Sea.

San Felipe Creek, Fish Creek, Vallecito Creek, and Carrizo Creek Watersheds

Watersheds associated with San Felipe, Fish, Vallecito, and Carrizo creeks are within and outside of the Anza-Borrego Desert State Park in eastern San Diego County with portions extending into Imperial County and north into Riverside County. These areas provide natural habitat for migratory birds and other wildlife, including 12 State- or federal-listed rare, threatened, or endangered species. Including land within the State park, the combined watersheds cover over 700,000 acres.

The riparian areas have been identified as key habitat for the birds and other wildlife. These include the natural groves of the California Fan Palms, mesquite woodland, and wet meadows or marshes. Management efforts are under way to preserve and improve the critical habitat areas, which include removal of invasive plant species (e.g., salt cedar) to allow the native plants and animals to redevelop.

In January 2013, the USFWS issued Rule No. FWS-R2-ES-2011-0053 that established the criteria for identifying and maintaining habitat for the Southwestern Willow Flycatcher, which is on the federal Endangered Species Act (ESA) list. Critical habitat for the Flycatcher was identified on segments of San Felipe Creek, a portion of which is located on land of the Iipay Nation of the Santa Ysabel Tribe. The USFWS is working with the tribe on maintenance operations for the habitat.

Other Watersheds

Colorado River, Twentynine Palms-Lanfair, and Chuckwalla PAs all have recognized watersheds. For the Colorado River PA, watersheds include Havasu-Mohave Lakes, Piute Wash, Imperial Reservoir, and the Lower Colorado River. These watersheds extend eastward into Nevada and Arizona. Scattered urban land uses exist in each watershed. Agricultural uses are prominent in the Imperial Reservoir and Lower Colorado River areas. Minor water quality concerns persist in the Havasu-Mohave Lakes and Piute Wash areas.

Southern Mojave watershed is in both the Twentynine Palms-Lanfair and Chuckwalla PAs. Portions of the San Bernardino and San Jacinto mountains and several smaller mountain ranges provide most of the boundaries for this watershed. Much of the watershed is devoid of urban and agricultural land uses. The

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.9 – Imperial County Agricultural Crop and Livestock Report

Imperial Region
2014 IRWM Drought Grant Proposal

IMPERIAL COUNTY

Agricultural Crop & Livestock Report

2012

Connie L. Valenzuela
Agricultural Commissioner
Sealer of Weights and Measures

Linda S. Evans
Assistant Agricultural Commissioner/
Asst. Sealer of Weights and Measures

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October 22, 2013

TO: **Karen Ross, Secretary**
California Department of Food and Agriculture

And

The Honorable Board of Supervisors, County of Imperial
Supervisor, Raymond Castillo, Chairman, District 5
Supervisor John Renison, Vice-Chairman, District 1
Supervisor Jesus "Jack" Terrazas, District 2
Supervisor Michael W. Kelley, District 3
Supervisor Ryan E. Kelley, District 4

In accordance with the requirements of Section 2279 of the California Food and Agricultural Code, I am pleased to submit the 2012 Imperial County Agricultural Crop and Livestock Report. This report summarizes the estimated acreage, yield, and gross value of Imperial County's agricultural production for the year 2012. Also included is a report on sustainable agriculture pursuant to Section 2272 of the California Food and Agricultural Code.

Note that the values presented in the report represent the gross value for products and do not reflect the costs of production, marketing, or transportation. No attempt is made to reflect the net income, profit, or loss to producers.

The 2012 gross production was valued at $1,945,759,000. This is a decrease of $18,328,000 (0.93%) compared to the 2011 gross value of $1,964,087,000, but is still an increase of $347,225,000 (21.72%) over the 2010 gross value of $1,598,534,000. Fruit and Nut Crops showed an overall increase of almost 33% in value compared to 2011, with the largest gain in Dates. Cattle showed a gain of $89,163,000 (27.44%) over 2011, due to an increase in head count and price, and again ranked as our number one commodity. Wheat, with an increase of 59%, rose in rank from ninth (9th) to third (3rd), due to increased acres and price. The overall gain in Field Crops was 13.45%. The biggest losses were to Vegetable & Melon, Seed & Nursery Crops and Apiary Products. Most of the losses are tied to changes in market availability and drop in market prices. Total harvested acreage increased 6.36%, acreage increased in Vegetable and Melon Crop and Field Crop categories, while acreage decreased in the Fruit and Nut Crops and Seed Crop categories.

I would like to express my sincere thanks to all of the growers, processors, industry groups, and agencies who provided the information and statistics for this report. In addition, I would like to express my appreciation to all the members of my staff for their hard work and dedication, and particularly to Phyllis Cason, Special Projects Coordinator, for her hard work in compiling this annual report.

Sincerely,

Connie Valenzuela

Connie L. Valenzuela
Agricultural Commissioner

IMPERIAL COUNTY

2012 Summary

COMMODITY	YEAR	HARVESTED ACREAGE	VALUE
LIVESTOCK	2012		483,833,000
	2011		403,880,000
FIELD CROPS	2012	396,839	587,977,000
	2011	365,015	518,257,000
VEGETABLE & MELON CROPS	2012	118,940	718,219,000
	2011	109,806	903,959,000
FRUIT & NUT CROPS	2012	6,164	85,154,000
	2011	7,629	64,237,000
SEED & NURSERY CROPS	2012	43,429	67,432,000
	2011	49,097	68,877,000
APIARY PRODUCTS	2012		3,144,000
	2011		4,877,000
TOTAL	2012	565,372	1,945,759,000
TOTAL	2011	531,547	1,964,087,000

Total Harvested Acres include multiple cropping on individual fields throughout the year.

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IMPERIAL COUNTY

Livestock

CROP	YEAR	TOTAL HEAD	UNIT GAIN	TOTAL GAIN	UNIT	VALUE PER UNIT	GROSS VALUE
CATTLE (Feedlot)	2012	356,081	9.75	3,471,667	CWT	119.27	414,061,000
	2011	299,637	10.08	3,020,341	CWT	107.57	324,898,000
SHEEP (Feeders)	2012	70,100	0.51	36,055	CWT	103.07	3,716,000
	2011	140,000	0.40	56,000	CWT	143.75	8,050,000
WOOL	2012	70,100	3.50	245,350	LBS	1.00	245,000
	2011	140,000	3.50	490,000	LBS	0.99	485,000
AQUATIC PRODUCTS	2012						11,426,000
(Fish & Algae)	2011						8,142,000
MISC. LIVESTOCK	2012						54,385,000
	2011						62,305,000
TOTAL	2012					**VALUE**	483,833,000
TOTAL	2011					**VALUE**	403,880,000

NUMBERS MAY NOT COMPUTE DUE TO ROUNDING
MISC. LIVESTOCK: Calves, Cattle, Cavies, Dairy Animals, Goats, Lambs, Milk, Poultry, Rabbits & Swine

IMPERIAL COUNTY

Field Crops

CROP	YEAR	ACRES	YIELD PER ACRE	TOTAL UNITS	UNIT	VALUE PER UNIT	GROSS VALUE
ALFALFA HAY (Baled)	2012	132,737	7.46	990,105.17	TON	216.75	214,601,000
	2011	118,419	7.29	863,274.51	TON	220.75	190,568,000
BERMUDAGRASS HAY	2012	46,140	6.25	288,375.00	TON	220.00	63,443,000
	2011	48,267	7.83	377,930.61	TON	189.00	71,429,000
COTTON (Lint)[1]	2012	5,233	4.49	23,520.00	BALE	354.29	8,333,000
	2011	6,791	3.21	21,799.11	BALE	455.00	9,919,000
COTTON (Seed)	2012			8,416.00	TON	250.48	2,108,000
	2011			7,809.00	TON	252.00	1,968,000
KLEINGRASS HAY	2012	14,778	11.92	176,104.50	TON	211.25	37,202,000
	2011	13,614	11.57	157,513.98	TON	160.00	25,202,000
PASTURED CROPS[2]	2012	38,462			ACRE	50.91	1,958,000
	2011	74,068			ACRE	64.30	4,762,000
BALED STRAW	2012			77,430.00	TON	84.50	6,543,000
	2011			53,870.00	TON	62.63	3,374,000
SUDANGRASS HAY	2012	63,765	5.47	348,944.59	TON	185.38	64,686,000
	2011	68,845	4.90	337,340.50	TON	173.00	58,360,000
SUGAR BEETS	2012	25,389	46.50	1,180,588.50	TON	66.30	78,273,000
	2011	25,534	44.62	1,139,327.08	TON	70.34	80,140,000
WHEAT	2012	95,508	3.47	331,346.72	TON	326.74	108,265,000
	2011	74,452	3.40	253,136.80	TON	268.36	67,932,000
MISC. FIELD CROPS	2012	13,289					2,565,000
	2011	9,093					4,603,000
TOTAL 2012	ACRES	396,839				VALUE	587,977,000
TOTAL 2011	ACRES	365,015				VALUE	518,257,000

NUMBERS MAY NOT COMPUTE DUE TO ROUNDING

MISC. FIELD CROPS = Barley, Corn Silage, Field Corn, Flax, Oat Hay, Safflower, Sesbania, Sorghum Grain, Sugarcane

PASTURED CROPS = Alfalfa, Bermudagrass, Permanent Pasture, Ryegrass

[1] Cotton Bales = 500 Pounds

[2] Pastured one time and acres are counted in other crop listings

IMPERIAL COUNTY

Vegetable & Melon Crops

CROP	YEAR	ACRES	YIELD PER ACRE	TOTAL UNITS	UNIT	VALUE PER UNIT	GROSS VALUE
BROCCOLI (Market)	2012	13,861	670	9,287,004	26 LB CTN	8.91	82,747,000
	2011	11,972	675	8,081,100	26 LB CTN	13.85	111,923,000
CABBAGE (Market)	2012	2,108	619	1,304,666	45 LB CTN	8.53	11,129,000
	2011	1,355	780	1,056,900	45 LB CTN	13.76	14,543,000
CARROTS							
Market	2012	3,818	950	3,626,910	50 LB BAG	9.37	34,002,000
	2011	4,773	835	3,985,455	50 LB BAG	14.00	55,796,000
Processing & Other	2012	8,908	32.90	293,079	TON	112.04	32,838,000
	2011	7,159	28.50	204,032	TON	90.00	18,363,000
TOTAL CARROTS	2012	12,726					66,840,000
	2011	11,932					74,159,000
CAULIFLOWER (Market)	2012	4,126	722	2,978,972	23 LB CTN	9.47	28,211,000
	2011	4,130	755	3,118,150	23 LB CTN	14.49	45,182,000
HEAD LETTUCE							
Naked Pack	2012			2,950,651	50 LB CTN	6.55	19,327,000
	2011			867,000	50 LB CTN	12.98	11,254,000
Wrap Pack	2012			6,112,972	40 LB CTN	7.69	47,009,000
	2011			6,478,000	40 LB CTN	14.50	93,931,000
Bulk	2012			6,307,706	50 LB CTN	6.55	41,315,000
	2011			5,171,000	50 LB CTN	5.25	27,148,000
TOTAL HEAD LETTUCE	2012	21,167		15,371,329	CTN	7.00	107,651,000
	2011	18,043		12,516,000	CTN	10.57	132,333,000
LEAF LETTUCE	2012	9,660	950	9,177,000	35 LB CTN	8.81	80,849,000
	2011	13,878	1,023	14,197,194	35 LB CTN	16.66	236,525,000
SALAD PRODUCTS	2012			16,000,000	LB	0.63	10,140,000
	2011			49,981,000	LB	0.39	19,493,000
SPRING MIX	2012	9,235	5,058	46,712,723	LB	0.70	32,699,000
	2011	4,231	7,000	29,617,000	LB	0.85	25,174,000

NUMBERS MAY NOT COMPUTE DUE TO ROUNDING

SPRING MIX = Various Vegetable Leaves, Green, Red, and Baby Leaf Lettuces, Beet Tops, Dandelion Greens, Mizuna, Mustard, Spinach, Swiss Chard

IMPERIAL COUNTY

Vegetable & Melon Crops

CROP	YEAR	ACRES	YIELD PER ACRE	TOTAL UNITS	UNIT	VALUE PER UNIT	GROSS VALUE
ONIONS							
Market	2012	3,790	1,301	4,930,790	50 LB SACK	8.43	41,567,000
	2011	3,312	1,525	5,050,800	50 LB SACK	5.75	29,042,000
Processor	2012	4,713	18.67	87,992	TON	144.52	12,717,000
	2011	4,968	19.00	94,392	TON	100.50	9,486,000
TOTAL ONIONS	2012	8,503					54,284,000
	2011	8,280					38,528,000
POTATOES	2012	2,211	310	685,410	CWT	23.50	16,107,000
	2011	2,297	200	459,400	CWT	30.34	13,938,000
SPINACH	2012	4,106	8,837	36,284,722	LB	0.47	17,054,000
	2011	4,144	10,000	41,440,000	LB	0.35	14,504,000
SWEET CORN	2012	7,629	609	4,646,061	50 LB CTN	10.52	48,877,000
	2011	9,951	415	4,129,665	50 LB CTN	10.75	44,394,000
ROMAINE[1]	2012	7,743	766	5,931,138	35 LB CTN	10.05	59,608,000
MISC. VEGETABLES	2012	8,502					52,454,000
	2011	9,321					70,198,000
CANTALOUPES	2012	5,396	766	4,133,336	40 LB CTN	9.12	37,696,000
	2011	7,512	835	6,272,520	40 LB CTN	7.30	45,789,000
HONEYDEW & MISC. MELONS	2012	1,000	704	704,127	40 LB CTN	7.42	5,225,000
	2011	846	910	769,860	40 LB CTN	7.25	5,581,000
WATERMELONS	2012	967	27.50	26,593	TON	250.00	6,648,000
	2011	1,914	26.00	49,764	TON	235.00	11,695,000
TOTAL 2012	ACRES	118,940				VALUE	718,219,000
TOTAL 2011	ACRES	109,806				VALUE	903,959,000

NUMBERS MAY NOT COMPUTE DUE TO ROUNDING

MISC. VEGETABLES = Arugula, Artichokes, Asparagus, Beans, Beets, Bok Choy, Brussel Sprout, Celery, Chive, Cilantro, Collard, Cucumber, Dill, Eggplant, Endive, Fennel, Gai Lon, Garlic, Herbs Mixed, Kale, Kohlrabi, Leek, Napa Cabbage, Okra, Pepper, Radish, Rapini, Squash, Swiss Chard, Tomato.

[1] Romaine was listed in Misc. Vegetables in 2011

IMPERIAL COUNTY

Fruit & Nut Crops

CROP	YEAR	ACRES	YIELD PER ACRE	TOTAL UNITS	UNIT	VALUE PER UNIT	GROSS VALUE
DATES	2012	1,721	3.00	5,163.00	TON	11,600.04	59,891,000
	2011	1,271	3.58	4,550.18	TON	5,274.70	24,001,000
GRAPEFRUIT	2012	510	11.03	5,622.75	TON	179.45	1,009,000
	2011	930	4.79	4,454.70	TON	518.80	2,311,000
LEMONS	2012	2,240	12.86	28,815.36	TON	603.67	17,395,000
	2011	3,847	10.88	41,855.36	TON	631.50	26,432,000
ORANGES (Valencia)	2012	320	12.52	4,006.25	TON	74.88	300,000
	2011	266	4.49	1,194.34	TON	533.30	637,000
TANGERINES[1]	2012	190	0.00		TON		0
	2011	225	6.41	1,442.25	TON	1,200.00	1,731,000
MISC. CITRUS, FRUIT & NUT CROPS	2012	1,183	2.52	2,979.74	TON	1,533.02	4,568,000
	2011	1,090	5.48	5,973.20	TON	1,221.10	7,294,000
CITRUS BY-PRODUCTS	2012			15,430.13	TON	129.03	1,991,000
	2011			21,367.00	TON	85.70	1,831,000
TOTAL 2012	ACRES	6,164				VALUE	85,154,000
TOTAL 2011	ACRES	7,629				VALUE	64,237,000

NUMBERS MAY NOT COMPUTE DUE TO ROUNDING

MISC. CITRUS, FRUIT & NUT CROPS = Figs, Grapes, Jujube, Mandarins, Mangos, Olives, Tangelos.

[1] No Harvest due to Frost

Apiary Products

CROP	YEAR	TOTAL HIVES	YIELD PER HIVE	TOTAL UNITS	UNIT	VALUE PER UNIT	GROSS VALUE
HONEY	2012	30,684	17.88	548,534.00	LBS	1.80	985,000
	2011	47,950	15.44	740,348.00	LBS	1.40	1,036,000
WAX	2012	21,384	0.22	4,788.00	LBS	2.92	14,000
	2011	23,932	0.44	10,530.08	LBS	2.00	21,000
POLLINATION	2012	43,588			COL	49.20	2,145,000
	2011	77,617			COL	49.21	3,820,000
TOTAL	2012					VALUE	3,144,000
TOTAL	2011					VALUE	4,877,000

NUMBERS MAY NOT COMPUTE DUE TO ROUNDING

IMPERIAL COUNTY

Seed Crops & Nursery Products

CROP	YEAR	ACRES	YIELD PER ACRE	TOTAL UNITS	UNIT	VALUE PER UNIT	GROSS VALUE
NON-CERTIFIED SEED							
ALFALFA SEED	2012	10,722	472	5,062,593	LBS	3.00	15,188,000
	2011	7,026	525	3,688,650	LBS	2.64	9,738,000
BERMUDAGRASS SEED	2012	7,946	387	3,075,102	LBS	3.58	10,998,000
	2011	17,471	357	6,237,147	LBS	2.97	18,524,000
ONION SEED	2012	1,918	200	383,600	LBS	8.00	3,069,000
	2011	1,404	295	414,180	LBS	12.25	5,074,000
MISC. FIELD, VEGETABLE & FLOWER SEED CROPS & NURSERY PRODUCTS	2012	1,363					3,808,000
	2011	3,845					6,796,000
TOTAL NON-CERTIFIED SEED 2012	ACRES	21,949				VALUE	33,063,000
TOTAL NON-CERTIFIED SEED 2011	ACRES	29,746				VALUE	40,132,000
CERTIFIED SEED							
ALFALFA SEED	2012	15,846	446	7,061,519	LBS	3.85	27,187,000
	2011	13,772	550	7,574,600	LBS	3.07	23,254,000
BERMUDAGRASS SEED	2012	3,230	390	1,259,700	LBS	3.45	4,346,000
	2011	3,571	375	1,339,125	LBS	2.91	3,897,000
MISCELLANEOUS CERTIFIED SEED	2012	2,404					2,836,000
	2011	2,008					1,594,000
TOTAL CERTIFIED SEED 2012	ACRES	21,480				VALUE	34,369,000
TOTAL CERTIFIED SEED 2011	ACRES	19,351				VALUE	28,745,000
TOTAL SEED							
TOTAL SEED 2012	ACRES	43,429				VALUE	67,432,000
TOTAL SEED 2011	ACRES	49,097				VALUE	68,877,000

NUMBERS MAY NOT COMPUTE DUE TO ROUNDING

MISC. FIELD, VEGETABLE & FLOWER SEED CROPS & NURSERY PRODUCTS = Broccoli Seed, Flower Seed, Grass Seed, Sudangrass Seed, Sunflower Seed, Vegetable Seed, Wheat Seed, Cut Flowers, Palm Trees, and Vegetable Transplants

MISCELLANEOUS CERTIFIED SEED = Cowpea, Rape, Sudangrass, Sunflower and Wheat

PEST DETECTION PROGRAM

TRAPPING

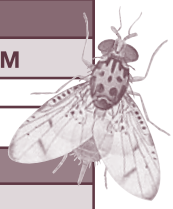
TARGET PEST	PEST DETECTION METHOD	NUMBER OF TRAPS	HOST CROPS
Asian Citrus Psyllid	Yellow Sticky Trap	267	Citrus
Emerald Ash Borer	Pheromone	3	Ash Tree
European Corn Borer	Pheromone	13	Corn & Sorghum
Various Exotic Fruit Flies	Feeding Attractant	97	Fruit Trees & Vegetables
Glassy-winged Sharpshooter	Yellow Sticky Trap	480	Crops & Ornamentals
Gypsy Moth	Pheromone	56	Shade Trees
Japanese Beetle	Pheromone	58	Turf & Flowers
Khapra Beetle	Feeding Attractant	29	Stored Food Products
Mediterranean Fruit Fly	Pheromone	121	Fruit Trees
Melon Fruit Fly	Pheromone	121	Vegetables
Mexican Fruit Fly	Feeding Attractant	121	Fruit Trees
Oriental Fruit Fly	Pheromone	121	Fruit Trees

SURVEY

TARGET PEST	SETTING	SCOPE OF PROGRAM
Asian Citrus Psyllid Survey	Commercial and Residential Citrus	14,330 visual surveys
Citrus Health Survey	Citrus Orchards	1,755 Acres
Noxious Weeds	Agriculture & Urban	11 Positive sites; 59 Miles Surveyed
Karnal Bunt	Wheat	10 Sites
Red Imported Fire Ant	High Risk Sites	110 Sites
Pathogens of Concern for Export of Seed (by application only)	Seed Fields	445 Fields Surveyed
Glassy-winged Sharpshooter	Retail Nursery Stock Shipments	1,807 Shipments Inspected
Glassy-winged Sharpshooter	Bulk Citrus Fruit	143 Shipments Inspected

BIOLOGICAL CONTROL

TARGET PEST	BIOCONTROL AGENT	SCOPE OF PROGRAM
Puncture Vine, Tribulus terrestris	Hand/Mechanical Removal	2 Sites



PEST EXCLUSION PROGRAM

PHYTOSANITARY CERTIFICATE

TYPE OF PHYTOCERTIFICATE	COMMODITY	CERTIFICATES ISSUED	DESTINATION
Domestic	Hay, Produce and Seed	13,460	Japan, Mexico, Republic of Korea, China, Taiwan
Re-Export	Various	1,813	Mexico, Singapore, Sri Lanka, Belize, Plurinational State of Bolivia
Process Product	Animal Feed	15	Mexico

QUARANTINE

TYPE OF CERTIFICATE	COMMODITY	CERTIFICATES ISSUED	DESTINATION
California State Phytos	Hay and Corn	676	Hawaii
Quarantine Compliance	Produce and Nursery Stock	332	California Counties, Arizona, Florida, Nevada and Texas

INSPECTIONS

SEED	NUMBER OF LOTS	POUNDS	DESTINATION
Field Crops	648	20,455,505	US and Other Countries
Vegetable Crops	331	2,519,826	US and Other Countries
Seed Samples for Export Compliance	100		

TYPE OF INSPECTION	NUMBER OF INSPECTIONS	PEST	REJECTIONS
Bees for Pollination	15	Red Imported Fire Ant	None
Outdoor Furniture	1	Gypsy Moth	None

ORGANIC GROWER PROGRAM

COMMODITY	NUMBER OF FARMS	ACREAGE	GROSS SALES
Fruits, Vegetables, Grains, Hay	26	11,989	$36,396,231

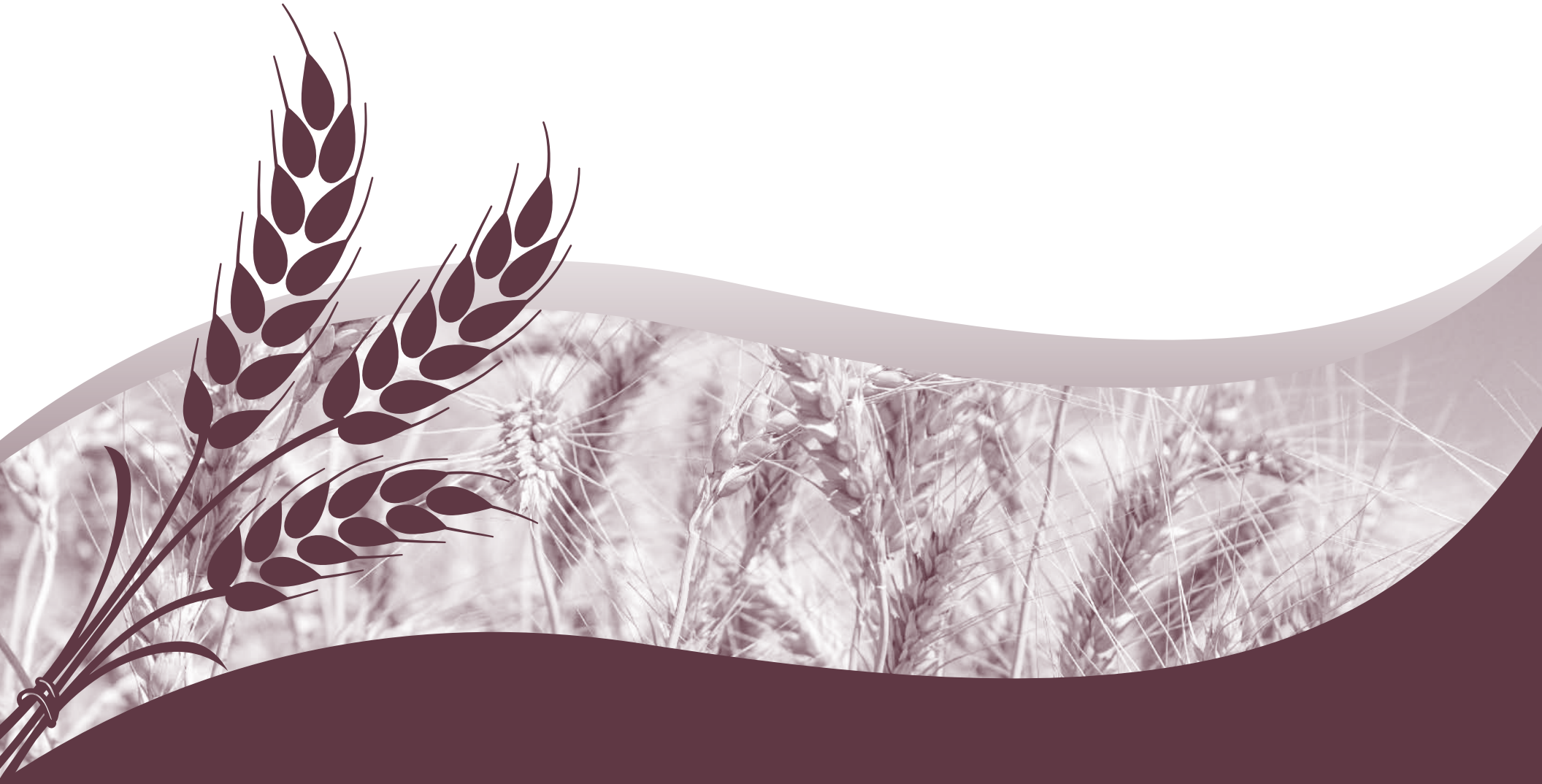
IMPERIAL COUNTY

Top Ten Commodities

2012 RANKING			2011 RANKING
1	CATTLE	$414,061,000	1
2	ALFALFA	214,601,000	3
3	WHEAT	108,265,000	9
4	HEAD LETTUCE	107,651,000	4
5	BROCCOLI	82,747,000	5
6	LEAF LETTUCE	80,849,000	2
7	SUGAR BEETS	78,273,000	6
8	CARROTS	66,840,000	7
9	SUDANGRASS	64,686,000	10
10	BERMUDAGRASS	63,443,000	8

www.co.imperial.ca.us/ag

Connie L. Valenzuela
Office Of Agricultural Commissioner
Sealer Of Weights and Measures
852 Broadway
El Centro, CA 92243-2850



IMPERIAL PRINTERS

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.10 – New York Times Article

The New York Times | http://nyti.ms/19WBIT1

U.S.

Colorado River Drought Forces a Painful Reckoning for States

By MICHAEL WINES JAN. 5, 2014

LAKE MEAD, Nev. — The sinuous Colorado River and its slew of man-made reservoirs from the Rockies to southern Arizona are being sapped by 14 years of drought nearly unrivaled in 1,250 years.

The once broad and blue river has in many places dwindled to a murky brown trickle. Reservoirs have shrunk to less than half their capacities, the canyon walls around them ringed with white mineral deposits where water once lapped. Seeking to stretch their allotments of the river, regional water agencies are recycling sewage effluent, offering rebates to tear up grass lawns and subsidizing less thirsty appliances from dishwashers to shower heads.

But many experts believe the current drought is only the harbinger of a new, drier era in which the Colorado's flow will be substantially and permanently diminished.

Faced with the shortage, federal authorities this year will for the first time decrease the amount of water that flows into Lake Mead, the nation's largest reservoir, from Lake Powell 180 miles upstream. That will reduce even more the level of Lake Mead, a crucial source of water for cities from Las Vegas to Los Angeles and for millions of acres of farmland.

Reclamation officials say there is a 50-50 chance that by 2015, Lake Mead's water will be rationed to states downstream. That, too, has never happened before.

"If Lake Mead goes below elevation 1,000" — 1,000 feet above sea level — "we lose any capacity to pump water to serve the municipal needs of seven in 10 people in the state of Nevada," said John Entsminger, the senior deputy general manager of the Southern Nevada Water Authority.

Since 2008, Mr. Entsminger's agency has been drilling an $817 million tunnel under Lake Mead — a third attempt to capture more water as two higher tunnels have become threatened by the lake's falling level. In September, faced with the prospect that one of the tunnels could run dry before the third one was completed, the authority took emergency measures: still another tunnel, this one to stretch the life of the most threatened intake until construction of the third one is finished.

These new realities are forcing a profound reassessment of how the 1,450-mile Colorado, the Southwest's only major river, can continue to slake the thirst of one of the nation's fastest-growing regions. Agriculture, from California's Imperial Valley to Wyoming's cattle herds, soaks up about three-quarters of its water, and produces 15 percent of the nation's food. But 40 million people also depend on the river and its tributaries, and their numbers are rising rapidly.

The labyrinthine rules by which the seven Colorado states share the river's water are rife with potential points of conflict. And while some states have made huge strides in conserving water — and even reducing the amount they consume — they have yet to chart a united path through shortages that could last years or even decades.

"There is no planning for a continuation of the drought we've had," said one expert on the Colorado's woes, who asked not to be identified to preserve his relationship with state officials. "There's always been within the current planning an embedded hope that somehow, things would return to something more like normal."

Unfortunately, the Colorado during most of Lake Mead's 78-year history was not normal at all.

Studies now show that the 20th century was one of the three wettest of the last 13 centuries in the Colorado basin. On average, the Colorado's

flow over that period was actually 15 percent lower than in the 1900s. And most experts agree that the basin will get even drier: A brace of global-warming studies concludes that rising temperatures will reduce the Colorado's average flow after 2050 by five to 35 percent, even if rainfall remains the same — and most of those studies predict that rains will diminish.

Already, the drought is upending many of the assumptions on which water barons relied when they tamed the Colorado in the 1900s.

The Colorado basin states tried in the 1920s to stave off future fights over water by splitting it, 50-50, between the upper-basin states of Utah, New Mexico, Colorado and Wyoming and the lower-basin states of Arizona, Nevada and California.

In fact, the deal underestimated how much water the fast-growing lower-basin states would need. During most of the wet 20th century, however, the river usually produced more than enough water to offset any shortage.

Now, the gap between need and supply is becoming untenable.

Lake Mead currently stands about 1,106 feet above sea level, and is expected to drop 20 feet in 2014. A continued decline would introduce a new set of problems: At 1,075 feet, rationing begins; at 1,050 feet, a more drastic rationing regime kicks in, and the uppermost water intake for Las Vegas shuts down. At 1,025 feet, rationing grows more draconian; at 1,000 feet, a second Las Vegas intake runs dry.

Lake Powell is another story. There, a 100-foot drop would shut down generators that supply enough electricity to power 350,000 homes.

The federal Bureau of Reclamation's 24-month forecasts of water levels at Powell and Mead do not contemplate such steep declines. But neither did they foresee the current drought.

"We can't depend on history to project the future anymore," Carly Jerla, a geological hydrologist and the reclamation bureau's Colorado River expert, said in an interview. The drought could end tomorrow, she said — or it could drag on for seven more years.

That raises questions that the states are just beginning to sort out.

The river's upper-basin states are worried that they might have to curb their consumption to meet their obligations downstream. But the thorniest problems are in the lower basin, where a thicket of political and legal deals has left Arizona holding the bag should the Colorado River continue to diminish.

In the 1960s, California's legislators demanded first dibs on lower-basin water as a condition of supporting federal legislation to build the Central Arizona Project, a vast web of canals irrigating that state's farms and cities. Should rationing begin in 2015, Arizona would sacrifice a comparatively small fraction of its Colorado River allotment, while California's supply would remain intact.

Painful as that would be, though, it could get worse: Should Mead continue to fall, Arizona would lose more than half of its Colorado River water before California lost so much as a drop.

That would have a cascading effect. The Central Arizona Project would lose revenue it gets from selling water, which would raise the price of water to remaining customers, leading farmers to return to pumping groundwater for irrigation — exactly what the Central Arizona Project was supposed to prevent.

"By going back to the pumps, you'll have made the decision that agriculture will no longer be an industry in central Arizona," David Modeer, the project's general manager, said in an interview.

Even Californians doubt Arizona would stand for that, but no successor to the 1960s agreement is in place. And California has a vital interest in holding on to its full allotment of water. The Southern California region using Colorado water is expected to add six million people to the existing 19 million in the next 45 years, and its other water source — the Sierra Nevada to the north — is suffering the same drought and climate problems as the Colorado basin.

"The basic blueprint of our plan calls for a reliable foundation that we then build upon, and that reliable foundation is the Colorado River and

Northern California water," said Jeffrey Kightlinger, the general manager of the Metropolitan Water District of Southern California. "To the extent we lose one of those supplies, I don't know that there is enough technology and new supplies to replace them."

There may be ways to live with a permanently drier Colorado, but none of them are easy. Finding more water is possible — San Diego is already building a desalination plant on the Pacific shore — but there are too few sources to make a serious dent in a shortage.

That leaves conservation, a tack the lower-basin states already are pursuing. Arizona farmers reduce runoff, for example, by using laser technology to ensure that their fields are table flat. The state consumes essentially as much water today as in 1955, even as its population has grown nearly twelvefold.

Working to reduce water consumption by 20 percent per person from 2010 to 2020, Southern California's Metropolitan Water District is recycling sewage effluent, giving away high-efficiency water nozzles and subsidizing items like artificial turf and zero-water urinals.

Southern Nevada's water-saving measures are in some ways most impressive of all: Virtually all water used indoors, from home dishwashers to the toilets and bathtubs used by the 40 million tourists who visit Las Vegas each year, is treated and returned to Lake Mead. Officials here boast that everyone could take a 20-minute shower every day without increasing the city's water consumption by a drop.

Moreover, an intensive conservation program slashed the region's water consumption from 2002 to 2012, even as the area added 400,000 residents.

Even after those measures, federal officials say, much greater conservation is possible. Local officials say they have little choice.

"The era of big water transfers is either over, or it's rapidly coming to an end," said Mr. Entsminger, the southern Nevada water official. "It sure looks like in the 21st century, we're all going to have to use less water."

A version of this article appears in print on January 6, 2014, on page A1 of the New York edition

with the headline: Colorado River Drought Forces a Painful Reckoning for States.

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IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.11 – Presentation to IID Water Conservation Advisory Board

Imperial Region
2014 IRWM Drought Grant Proposal

Colorado River Hydrology Update & Summary of *2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead*

September 24, 2013

Tina Anderholt Shields, PE

Colorado River Resources Manager

IID

A century of service.

Colorado River Basin Storage
(as of September 16, 2013)

Current Storage	Percent Full	MAF	Elevation
Lake Powell	45%	10.900	3,590.88
Lake Mead	47%	12.354	1,106.83
Total System Storage*	50%	29.963	N/A

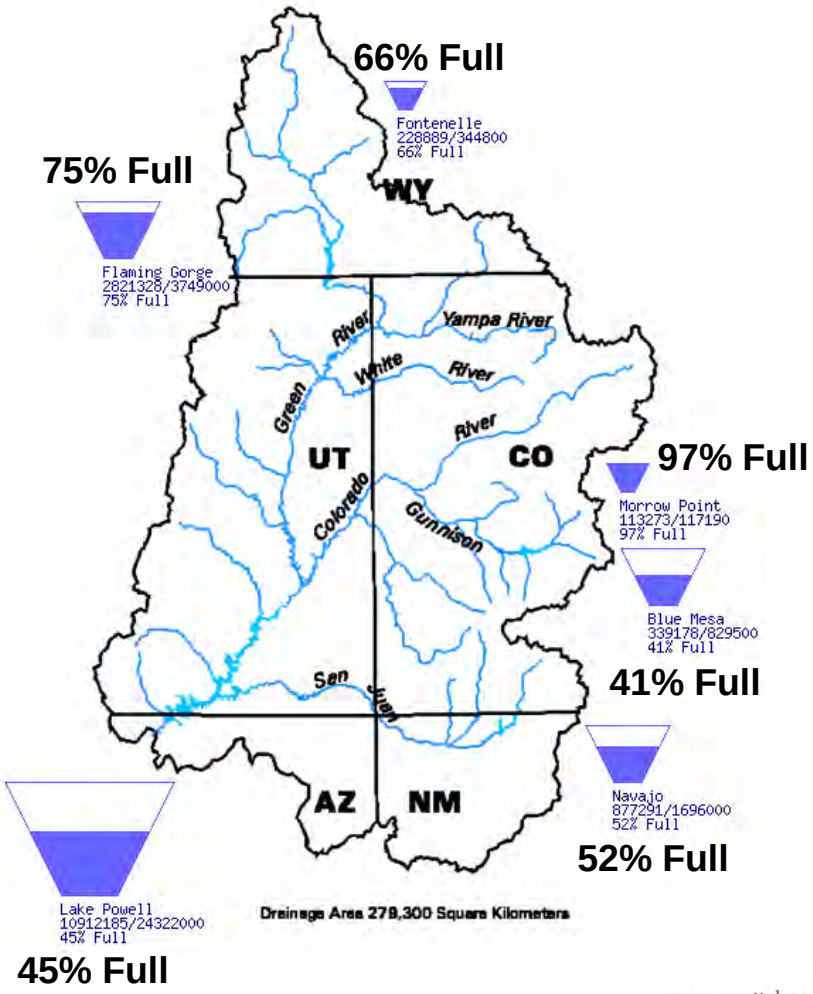
*Total system storage was 34.377 maf or 58% this time last year.

http://www.usbr.gov/lc/region/g4000/weekly.pdf

Upper Colorado River Drainage Basin

Water Year 2013 Projected Unregulated Inflow[1]

Reservoir	Volume (kaf)	Percent of Average[2]
Fontenelle	551	44
Flaming Gorge	621	43
Blue Mesa	519	54
Navajo	384	36
Powell	4328	40



[1] Based on CBRFC forecast issued 8/1/13
[2] Percentage and percent of average based on period of record from 1981-2010

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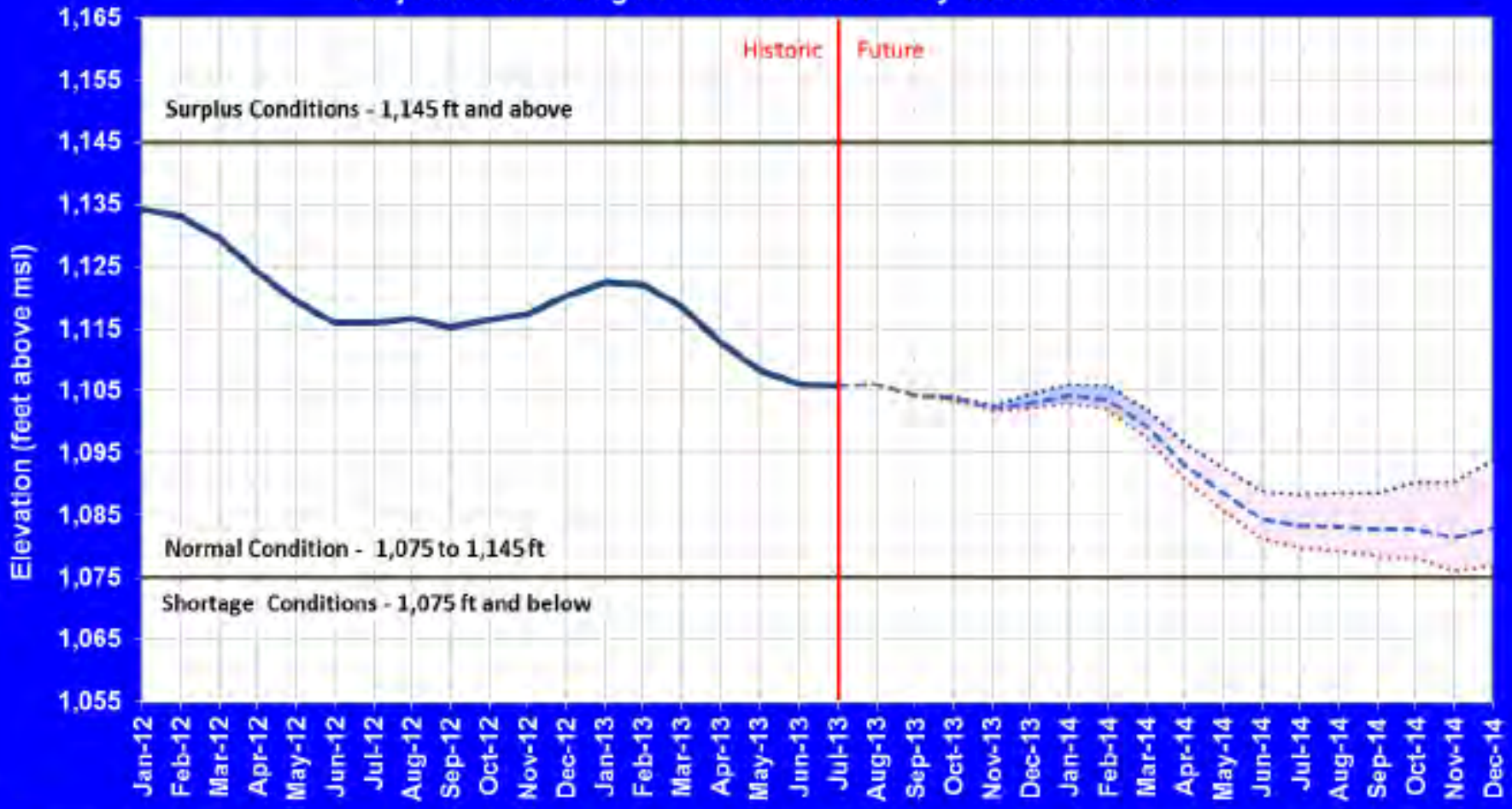
A century of service.

www.iid.com

Graphic courtesy of Reclamation 9/17/13 http://www.usbr.gov/uc/water/basin/tc_cr.html

Lake Mead End of Month Elevations

Projections from August 2013 24-Month Study Inflow Scenarios



- August 2013 Probable Maximum Inflow with Lake Powell Release of 7.48 maf Water Year 2014 and 11.86 maf in Water Year 2015
- August 2013 Most Probable Inflow with Lake Powell Release of 7.48 maf in Water Years 2014 and 2015
- August 2013 Probable Minimum Inflow with Lake Powell Release of 7.48 maf in Water Years 2014 and 2015
- Historical Elevations

RECLAMATION

Projected Lake Powell Operational Tiers

Based on August 2013 24-Month Study Inflow Scenarios

Powell Inflow Scenario	WY 2014 Jan 1, 2014 Projection	WY 2015 Jan 1, 2015 Projections
Probable Minimum	Mid-Elevation Release Tier Elevation 3573.69 ft 7.48 maf release	Mid-Elevation Relase Tier Elevation 3548.01 ft 7.48 maf release
Most Probable		Mid-Elevation Relase Tier Elevation 3573.42 ft 7.48 maf release
Probable Maximum		Upper Elevation Balancing Tier w/ Projected April shift to Equalization Elevation 3636.30 ft 11.86 maf release

RECLAMATION

Projected Lake Mead Operational Tiers

Based on August 2013 24-Month Study Inflow Scenarios

Powell Inflow Scenario	CY 2014 Jan 1, 2014 Projection	CY 2015 Jan 1, 2015 Projections
Probable Minimum	Normal - ICS Surplus Condition Elevation 1,103.08 ft	Normal - ICS Surplus Condition Elevation 1,076.76 ft
Most Probable		Normal - ICS Surplus Condition Elevation 1,082.98 ft
Probable Maximum		Normal - ICS Surplus Condition Elevation 1,093.94 ft

RECLAMATION

2007 Colorado River Interim Guidelines for the Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead

4 key provisions in effect through 2026; collaborative approach to establishing Colorado River operations during drought and low reservoir conditions intended to provide a greater degree of certainty as to the volume of future annual water deliveries to Lower Basin water users.

http://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf

2007 Interim Guidelines

- **Mechanism for storage and delivery of conserved water in Lake Mead:** Intentionally Created Surplus (ICS) mechanism to provide for creation, accounting, and delivery of conserved system and non-system water thereby promoting water conservation in the Lower Basin. Total amount of credits are 2.1 MAF, but this volume can be expanded in future years.
- **Modify and extend elements of the 2001 Interim Surplus Guidelines:** Determine conditions under which surplus water is to be available for use in Lower Division states; eliminate the most liberal surplus conditions, thereby, leaving more water in storage to reduce severity of future shortages.

2007 Interim Guidelines

- **Coordinated operations of Lake Powell and Lake Mead:** Fully coordinates operation of the reservoirs to minimize shortages in the Lower Basin and avoid risk of water use curtailment in the Upper Basin through the balancing of reservoir supplies.
- **Shortage strategy for Lake Mead and Lower Division:** Shortage volumes are linked to Lake Mead elevations to define when, and by how much, water deliveries will be reduced during low reservoir conditions. Reductions of up to ½ MAFY are defined for Lower Division water users. (Minute 319 separately defines Mexico reductions.)

Intentionally Created Surplus (ICS)

- Must be created through four categories of ICS: tributary conservation, imported groundwater, system efficiency (i.e. Brock Reservoir), and extraordinary conservation (i.e., fallowing, canal lining, desalination, etc.).
- 5% “system assessment” in the first year of ICS creation.
- 3% annual evaporation/loss assessment at year-end for every subsequent year of service.
- Stored water counts towards operational triggers, delivery is limited during declared shortages and is lost in a flood control release.
- IID has the ability to create up to 25,000 afy of ICS, with an accumulated volume limited to 50,000 af. Three methods of extraordinary conservation are available to IID: fallowing, tailwater return systems and main canal seepage interception systems.

Lower Basin & Mexico Shortage Triggers

Lower Division States & Mexico Shortage Triggers and Apportionment Volume Reductions (in acre-feet)				
Lake Mead Elevation	CA	AZ	NV	Mexico*
1075'-1050'	0	320,000	13,000	50,000
1050'-1025'	0	400,000	17,000	70,000
Below 1025'	0	480,000	20,000	125,000

* Mexico reductions are a result of Minute 319 and in effect for 2013-2017

2007 Interim Guidelines
Lake Mead Key Operational Elevations

		1220' (95% of capacity)
FLOOD CONTROL OR QUANTIFIED SURPLUS ("70R"); no diversion limits		1200' (88% of capacity)
DOMESTIC SURPLUS; MWD=250 KAF, SNWA=100 KAF CAP=100 KAF		1145' (61% of capacity)
NORMAL OPERATIONS		1075' (36% of capacity)
400 KAF SHORTAGE; U.S. = 333 KAF; Arizona = 320 KAF, Nevada = 13 KAF	*Minimum Power Pool and Bottom of First SNWA Intake*	1050' (29% of capacity)
500 KAF SHORTAGE; U.S. = 417 KAF; Arizona = 400 KAF, Nevada = 17 KAF		1025' (23% of capacity)
600 KAF SHORTAGE U.S. = 500 KAF; Arizona = 480 KAF, Nevada = 20 KAF	*Bottom of Second SNWA Intake*	1000' (17% of capacity)
RECONSULTATION *(No agreement on additional shortages)*	*Minimum Mead Intake Elevation*	915' (2% of capacity)
	Top of Dead Storage	895' (0% of capacity)

IID Shortage Impacts

- Existing operational guidelines do not provide for any shortage reductions to California or IID.
- The 1968 Colorado River Basin Project Act limits the amount of water Arizona can divert for CAP during a drought. In the even of a reduction of Colorado River supplies, California cannot be reduced before CAP as the most junior priority user.
- IID has senior water rights within California as well as 2.6 maf of present perfected rights (PPR).
- Suspension of inadvertent overrun policy (IOPP).

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.12 – Pages from California Water Bulleting 160-98

CALIFORNIA WATER PLAN UPDATE BULLETIN 160-98

Executive Summary

November 1998

Pete Wilson
Governor

Douglas P. Wheeler
Secretary for Resources
The Resources Agency

David N. Kennedy
Director
Department of Water Resources

FIGURE 1-4.

California's Major Water Projects

IMPERIAL IRWMP

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Exhibit 2.13 – IID Personal Communication

Imperial Region
2014 IRWM Drought Grant Proposal

Cansdale, Melissa

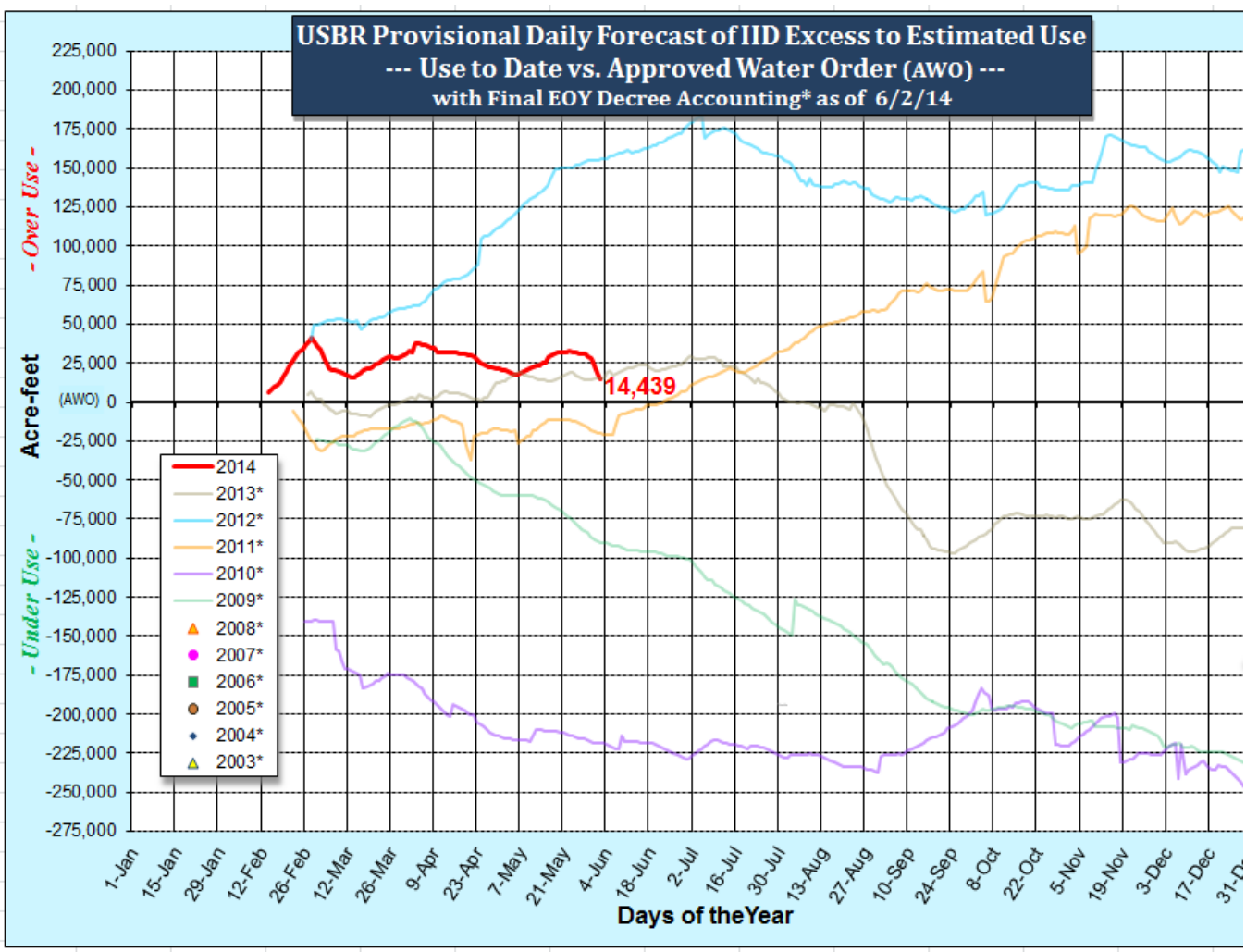
From: Divine, Anisa <AJDivine@IID.com>
Sent: Thursday, June 05, 2014 5:20 PM
To: Goetz, Jonathan
Subject: FW: 6/2/14 water supply reports
Attachments: water supply reports 6.2.14.pdf; IID_Crop Acreage Report_May 2014.pdf; IID May Ditchbank.pdf; CA Water Supply Update 5.27.14.pdf; MWD Water Supply Conditions Report_ 5.20.14.pdf

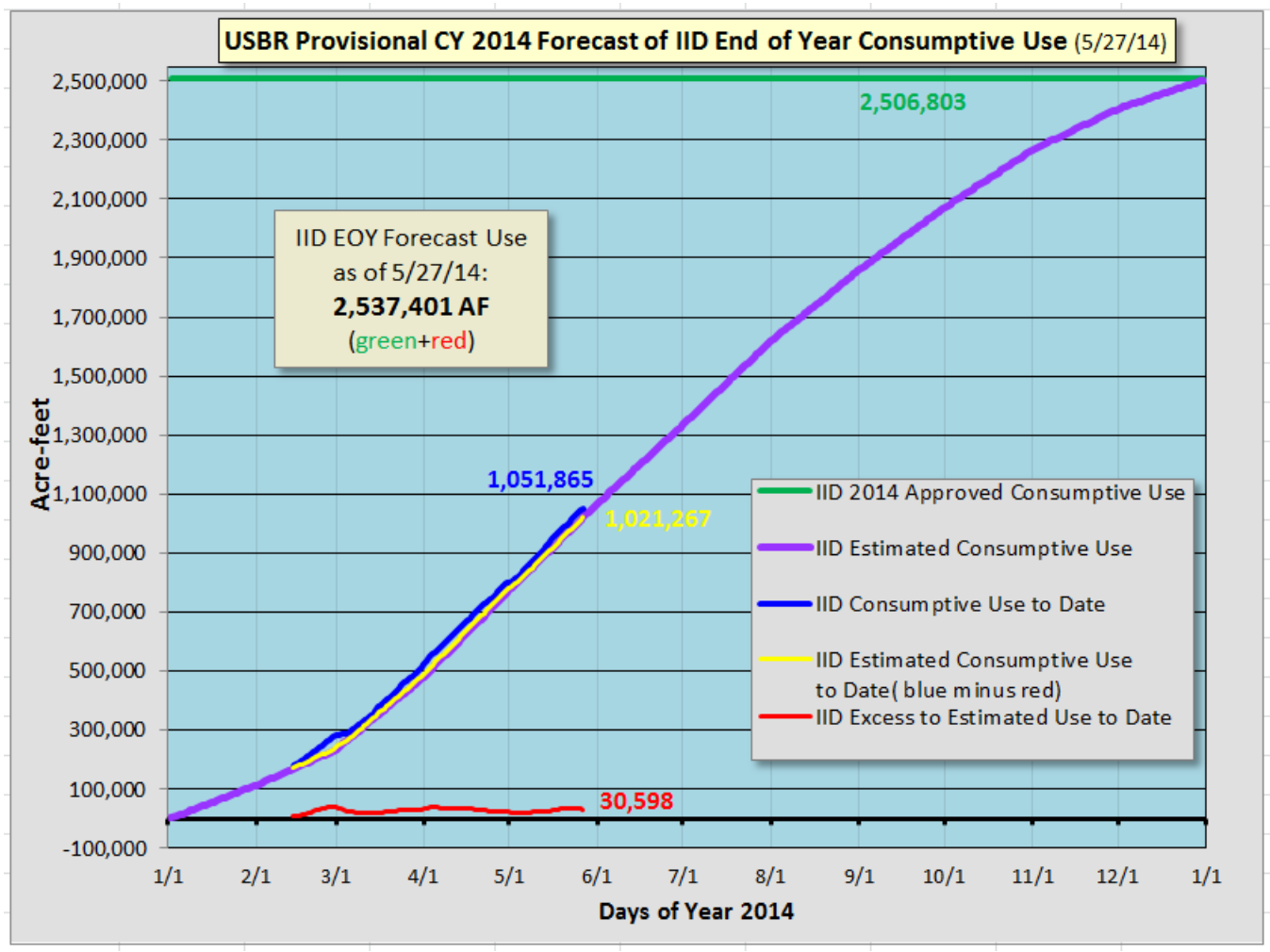
Anisa Divine, Ph.D., Senior Planner
Planning and Technical Services
IMPERIAL IRRIGATION DISTRICT
333 E. Barioni Blvd. (P.O. Box 937)
Imperial, CA 92251
phone: 760-339-9036
fax: 760-339-9009
email: ajdivine@iid.com

From: Currie, Dean M
Sent: Monday, June 02, 2014 4:00 PM
To: Bradshaw, David; Villalon, Carlos; Sidhu, Charles; Shields, Tina L; Smith, Joanna; Divine, Anisa; Plourd, Autumn; Pacheco, Mike; Dollente, Henry; Vanbebber, Brian; Hale, Kirk; Kidwell, Merlon; Fillmore, Darren; Casarez, Lupe; Champion, Marion J; Schettler, Robert D; Brock, Benjamin W; Pacheco, Cindy; Gomez, Ismael
Subject: Re: 6/2/14 water supply reports

Attached are:

- The 10 reports and charts pasted below as a pdf document (in case they are not viewable below)
- IID Crop Acreage Report dated 5/13/14
- May 2014 issue of Ditchbank (IID Ag customer newsletter: http://www.iid.com/index.aspx?page=491)
- CA Water Supply Update dated May 27, 2014
- The latest MWD Water Supply Conditions Report dated 5/20/14 (http://www.mwdh2o.com/mwdh2o/pages/yourwater/ywater01.html)


USBR Provisional Daily Forecast of IID Excess to Estimated Use
--- Use to Date vs. Approved Water Order (AWO) ---
with Final EOY Decree Accounting* as of 6/2/14
- Over Use -
- Under Use -
Acre-feet
(AWO)
14,439
2014
2013*
2012*
2011*
2010*
2009*
2008*
2007*
2006*
2005*
2004*
2003*
Days of theYear



http://www.usbr.gov/lc/region/g4000/hourly/forecast14.pdf (page 2)

06/02/14

U.S. BUREAU OF RECLAMATION
LOWER COLORADO REGION
PROVISIONAL CY2014

NOTE:
- Diversions and uses that are pending approval are noted in *red ital*
- Water users with a consumptive use entitlement - **Excess to Estim** column indicates overrun/underrun of entitlement. Dash in this colum water user has a diversion entitlement.
- Water user with a diversion entitlement - **Excess to Approved Div** column indicates overrun/underrun of entitlement. Dash in this colum water user has a consumptive use entitlement.

CALIFORNIA WATER USERS
FORECAST OF END OF YEAR CONSUMPTIVE USE
FORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS
California Schedules and Approvals
Historic Use Records (Water Accounting Reports)

WATER USER	Use To Date CY2014	Forecast Use CY2014	Estimated Use CY2014	Excess to Estimated Use CY2014	Diversion To Date CY2014	Forecast Diversion CY2014	Approved Diversion CY2014
CALIFORNIA PUMPERS	871	1,958	1,958	---	1,557	3,500	3,500
FORT MOJAVE INDIAN RESERVATION, CA	3,720	8,001	8,996	---	6,917	14,870	16,720
CITY OF NEEDLES (includes LCWSP use)	859	1,931	1,931	0	1,210	2,720	2,720
METROPOLITAN WATER DISTRICT	453,254	676,752	546,660	---	454,512	680,093	549,763
COLORADO RIVER INDIAN RESERVATION, CA	1,533	3,444	3,444	---	2,629	5,909	5,909
PALO VERDE IRRIGATION DISTRICT	178,699	447,796	454,108	---	392,246	994,796	994,500
YUMA PROJECT RESERVATION DIVISION	29,173	50,657	47,886	---	45,209	98,364	102,700
YUMA PROJECT RESERVATION DIVISION - INDIAN UNIT	---	---	---	---	21,848	47,263	49,100
YUMA PROJECT RESERVATION DIVISION - BARD UNIT	---	---	---	---	23,361	51,104	53,600
YUMA ISLAND PUMPERS	2,213	4,974	4,974	---	4,005	9,001	9,001
FORT YUMA INDIAN RESERVATION - RANCH 5	300	674	675	---	543	1,221	1,221
IMPERIAL IRRIGATION DISTRICT	1,092,333	2,521,242	2,506,803	**14,439**	1,094,536	2,588,709	2,607,017
SALTON SEA SALINITY MANAGEMENT	32,996	94,552	90,000	**4,552**	34,371	98,285	93,451
COACHELLA VALLEY WATER DISTRICT	137,655	348,455	352,000	-3,545	142,940	363,523	366,370
OTHER LCWSP CONTRACTORS	289	650	650	---	452	1,016	1,016
CITY OF WINTERHAVEN	31	69	69	---	46	104	104
CHEMEHUEVI INDIAN RESERVATION	57	128	6,101	---	5,046	11,340	11,340
TOTAL CALIFORNIA	1,933,983	4,161,284			2,186,219	4,873,451	4,765,332
FORT YUMA INDIAN RESERVATION /1	---	---	---	---	23,933	51,984	53,821

CALIFORNIA ADJUSTED APPORTIONMENT CALCULATION

California Basic Apportionment	4,400,000
Payback of IOPP Overrun (IID)	-154,738
Intentionally Created Surplus Water (IID)	-25,000
Creation of Extraordinary Conservation ICS (MWD)	-200,000
Total State Adjusted Apportionment	4,020,262
Excess to Total State Adjusted Apportionment	141,022

http://www.usbr.gov/lc/region/g4000/weekly.pdf

Jun 02, 2014

LOWER COLORADO WATER SUPPLY REPORT

River Operations

Bureau of Reclamation

Questions: BCOOWaterops@usbr.gov
(702)293-8373
http://www.usbr.gov/lc/region/g4000/weekly.pdf

CURRENT STORAGE	PERCENT FULL	Content 1000 ac-ft (kaf)	Elev. (Feet above mean sea level)	7-Day Release (CFS)
LAKE POWELL	45%	10,850	3590.33	7,900
* LAKE MEAD	41%	10,627	1087.32	18,300
LAKE MOHAVE	95%	1,722	643.84	16,000
LAKE HAVASU	95%	591	448.56	10,800
TOTAL SYSTEM CONTENTS **	49%	29,140		
As of 06/01/2014				
SYSTEM CONTENT LAST YEAR	52%	31,215		

∴ - 2,075,000 AF

* Percent based on capacity of 26,120 kaf or elevation 1219.6 feet.

** TOTAL SYSTEM CONTENTS includes Upper & Lower Colorado River Reservoirs, less Lake Mead exclusive flood control space.

DELIVERY TO MEXICO - 2014 (Mexico Scheduled Delivery + Preliminary Yearly Excess[1])	1,570

OTHER SIGNIFICANT INFORMATION

UNREGULATED INFLOW INTO LAKE POWELL - MAY MID-MONTH FORECAST DATED 05/19/2014

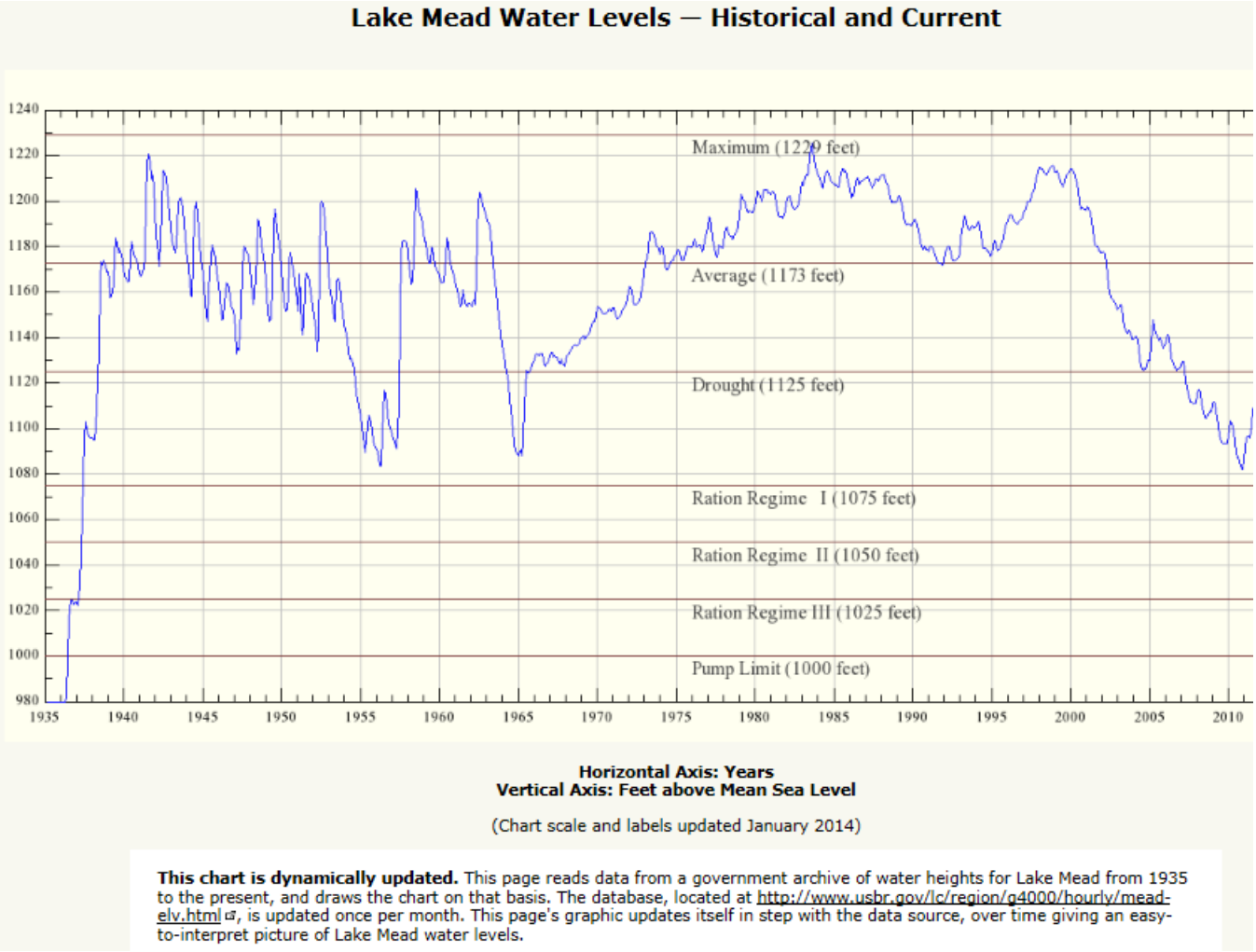
	MILLION ACRE-FEET	% of Normal
FORECASTED WATER YEAR 2014	10.833	100%
FORECASTED APRIL-JULY 2014	7.550	105%
APRIL OBSERVED INFLOW	0.964	91%
MAY INFLOW FORECAST	2.400	102%

	Upper Colorado Basin	Salt/Verde Basin
WATER YEAR 2014 PRECIP TO DATE	100% (23.6")	52% (9.7")
CURRENT BASIN SNOWPACK[2]	158% (3.3")	NA (NA)

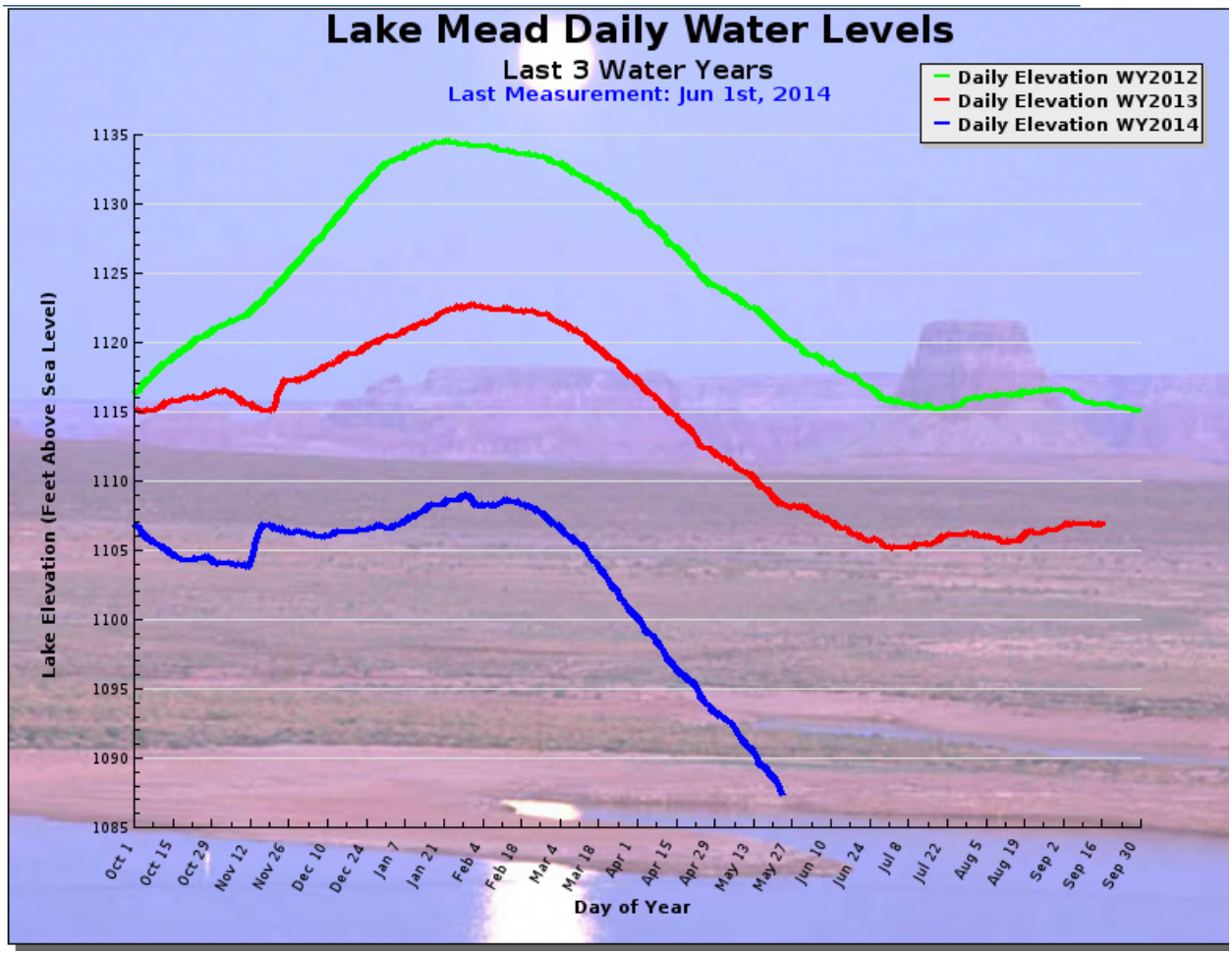
[1] Delivery to Mexico forecasted yearly excess calculated using year-to-date observed and projected excess.

[2] This late in the water year, snowpack values may not provide a valid measure of conditions.

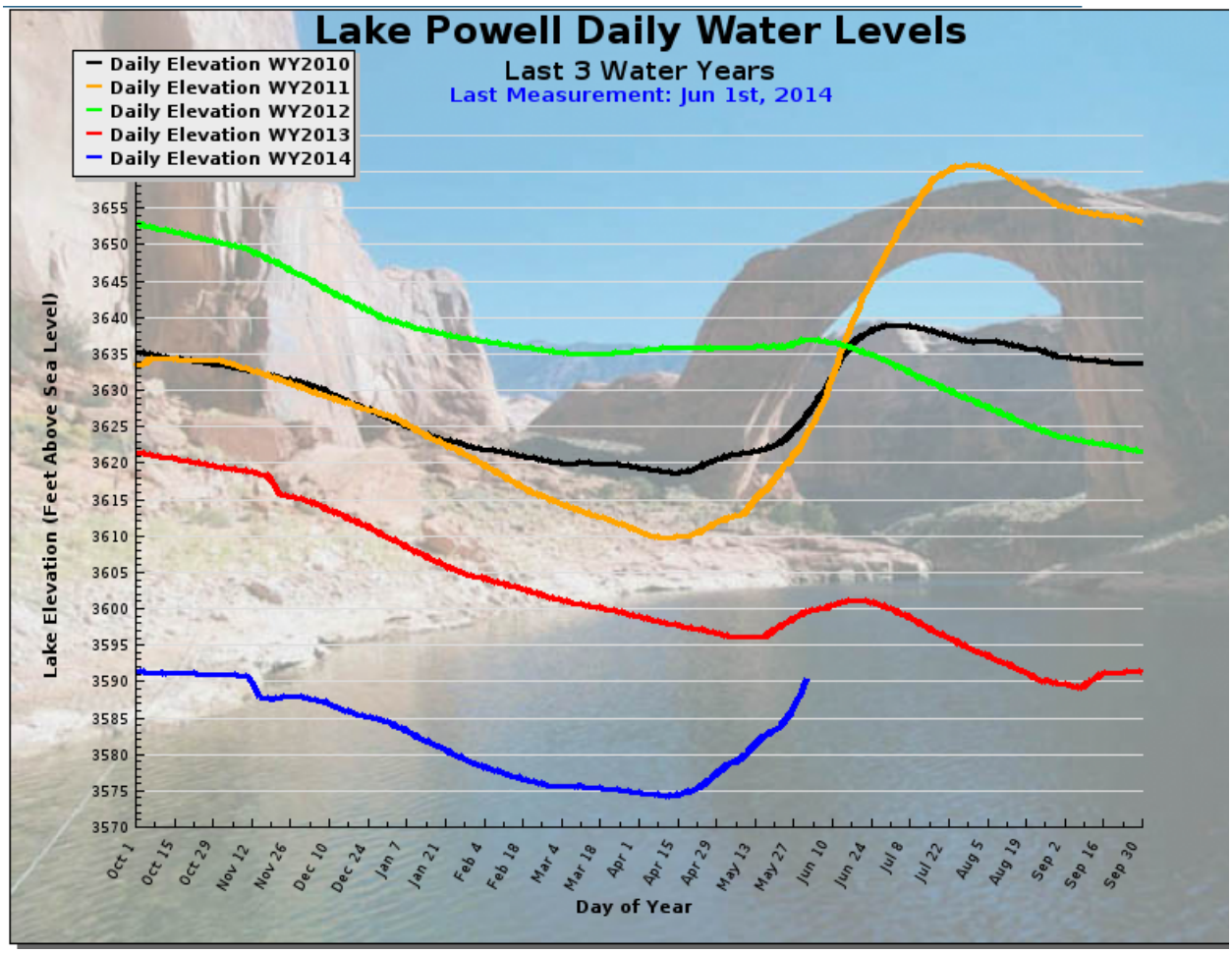
http://www.arachnoid.com/NaturalResources/



http://graphs.water-data.com/lakemead/



http://graphs.water-data.com/lakepowell/

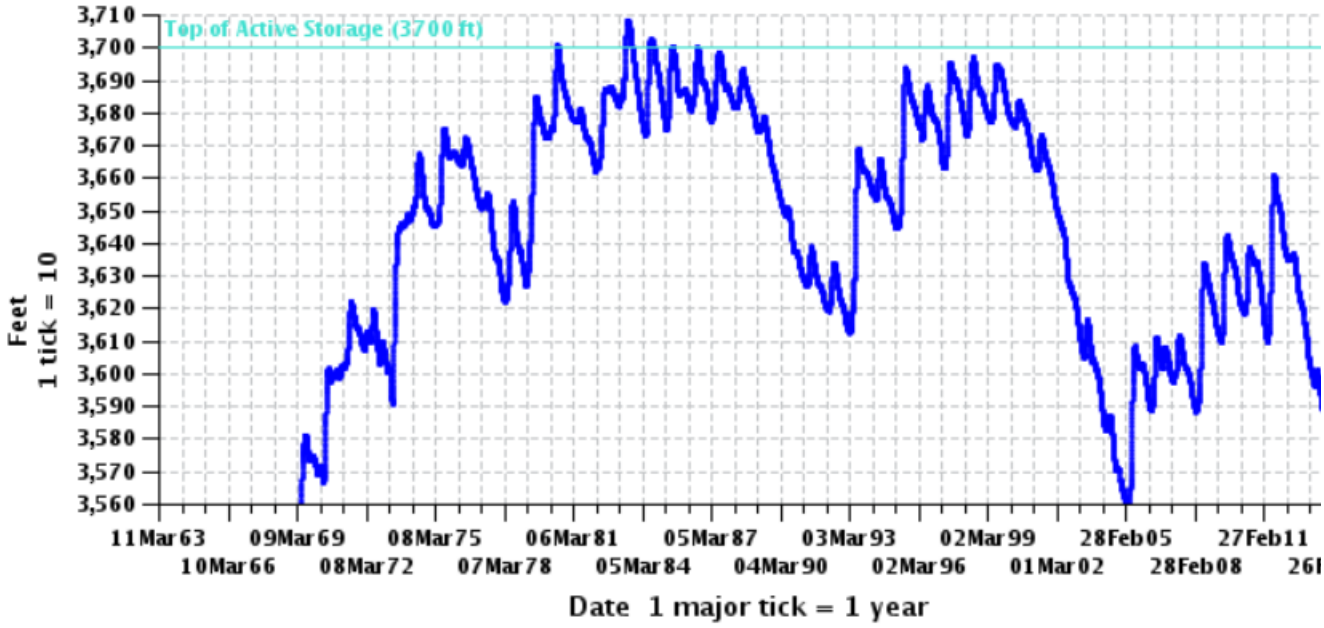


http://www.usbr.gov/uc/crsp/GetSiteInfo

Upper Colorado Region Reservoir Operations

Lake Powell

Inflow | Unregulated Inflow | Power Release | Release | Pool Elevation



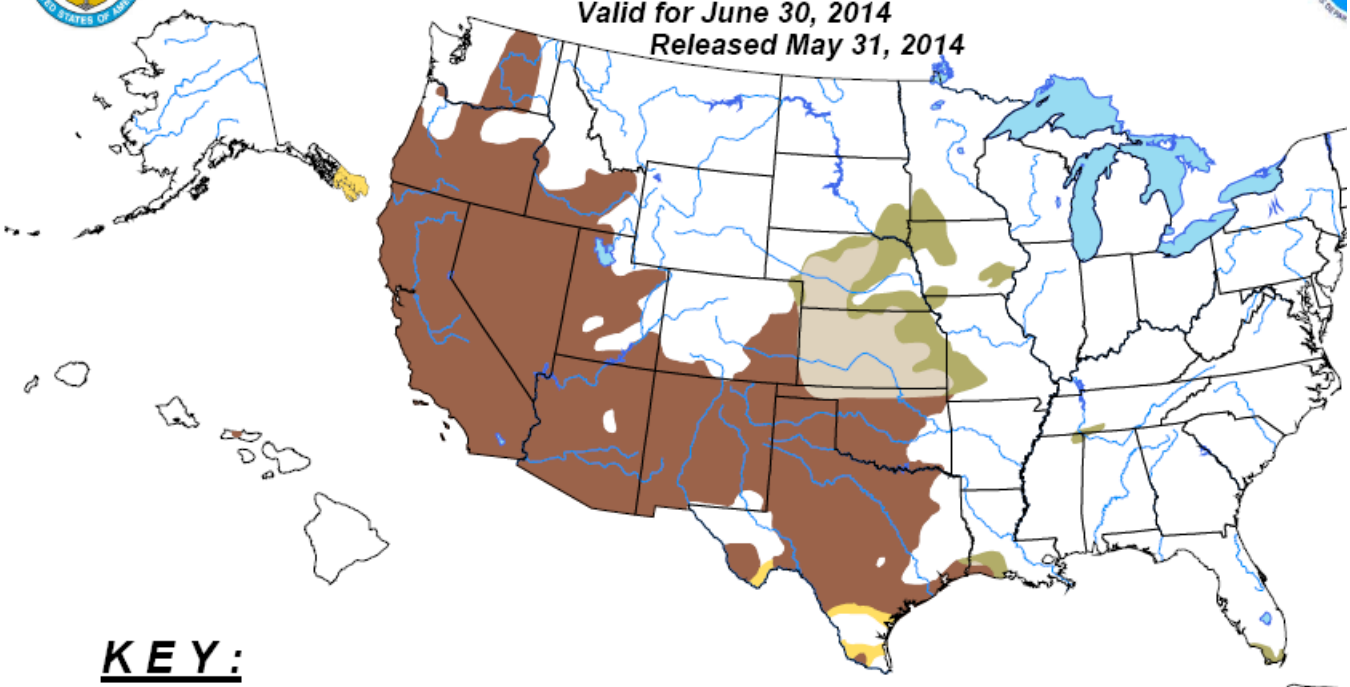
http://www.cpc.ncep.noaa.gov/products/Drought/

U.S. Monthly Drought Outlook

Drought Tendency During the Valid Period

Valid for June 30, 2014

Released May 31, 2014



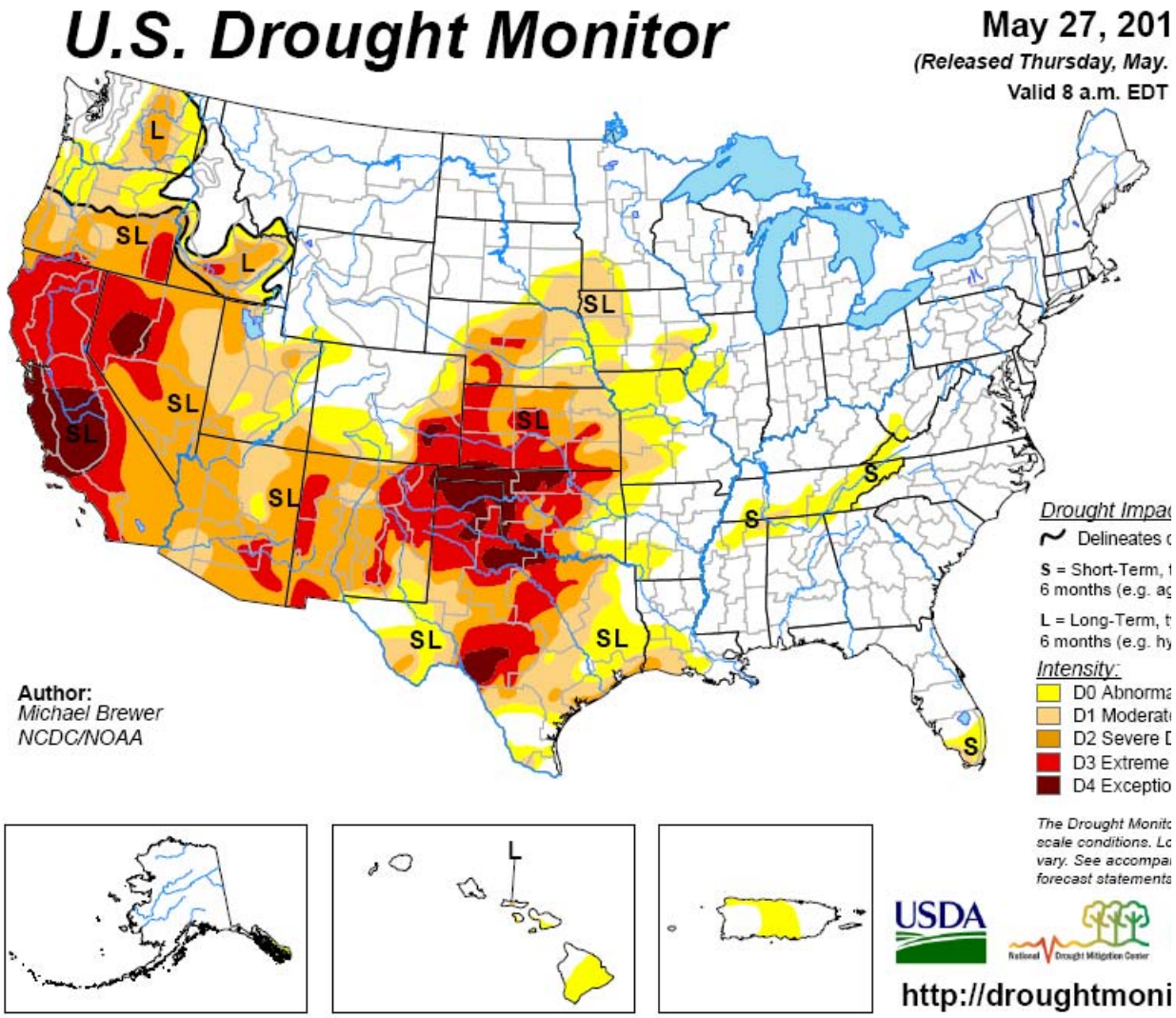
KEY:

- Drought persists or intensifies
- Drought remains but improves
- Drought removal likely
- Drought development likely

Author: Rich Tinker, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The green areas imply drought removal by the end of the period (D0 or none)

http://droughtmonitor.unl.edu/


U.S. Drought Monitor
May 27, 201
(Released Thursday, May.
Valid 8 a.m. EDT
Author:
Michael Brewer
NCDC/NOAA
Drought Impac
Delineates c
S = Short-Term, t
6 months (e.g. ag
L = Long-Term, t
6 months (e.g. hy
Intensity:
D0 Abnorma
D1 Moderat
D2 Severe D
D3 Extreme
D4 Exceptio
The Drought Monito
scale conditions. Lo
vary. See accompan
forecast statements
USDA
http://droughtmoni