



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

October 15, 2012

Mr. Steven C. Hvinden
Office Chief
Boulder Canyon Operations Office
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Mr. Hvinden:

Metropolitan's intentionally Created Surplus Certification Report, Calendar Year 2011

Enclosed is The Metropolitan Water District of Southern California's (Metropolitan) calendar year 2011 Certification Report for Extraordinary Conservation Intentionally Created Surplus (ICS) for the Metropolitan funded Palo Verde Irrigation District (Palo Verde) Forbearance and Fallowing Program, and the Metropolitan funded Imperial Irrigation District (Imperial) Water Conservation Program. The Certification Report demonstrates:

- the amount of Extraordinary Conservation ICS created, and
- that the method of creation was consistent with Metropolitan's approved ICS Plan of creation and the requirements outlined in Section 3 of the *Interim Guidelines for the Operation of Lake Powell and Lake Mead* (Guidelines).

The Guidelines require a Contractor to:

- enter into a *Delivery Agreement* with the United States, and Forbearance Agreements necessary to bring the delivery of ICS into compliance with Articles II(B)(2) and II(B)(6) of the Consolidated Decree of the U.S. Supreme Court in *Arizona v. California*, 547 U.S. 150 (2006), and
- submit a plan for the creation of ICS.

Metropolitan entered into a *Delivery Agreement* with the United States, and Forbearance Agreements on December 13, 2007. Metropolitan received approval for its calendar year 2011 Plan of creation in the Bureau of Reclamation's (Reclamation) letter of December 14, 2010.

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Metropolitan sought and received approval for the creation of 200,000 acre-feet of Extraordinary Conservation ICS based on the funding of our Forbearance and Fallowing Program with Palo Verde and the funding of our Water Conservation Program with Imperial. After verification, Reclamation, Palo Verde, and Metropolitan estimated that 122,216 acre-feet of water were developed through extraordinary conservation measures by the Forbearance and Fallowing Program. In accordance with the amended 1988 *Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water* and the amended 1989 *Approval Agreement*, 103,940 acre-feet of water was conserved through extraordinary conservation measures by the Imperial-Metropolitan Water Conservation Program. Of that amount, 4,000 acre-feet was utilized by Coachella Valley Water District. Metropolitan has satisfied the requirement that the ICS be created through extraordinary conservation programs that existed on January 1, 2006. As Metropolitan's consumptive use of Colorado River water included only some of the water developed by the Forbearance and Fallowing Program and conserved by the Water Conservation Program, 120,000 acre-feet and 65,704 acre-feet, respectively, became Extraordinary Conservation ICS in calendar year 2011, prior to the one-time deduction of five percent specified in the Guidelines to result in additional system water in storage in Lake Mead.

Metropolitan looks forward to your review and verification of the information contained in the Certification Report, on behalf of the Secretary of the Interior, and your written decision regarding the amount of Extraordinary Conservation ICS created. Metropolitan understands that its Extraordinary Conservation ICS Balance may be affected by future Reclamation decisions regarding Imperial's release of 46,546 acre-feet of Colorado River water for the Salton Sea in 2010 and the delivery of 16,722 acre-feet of Colorado River water to Metropolitan that was not conserved by Imperial in 2011. Metropolitan requests consultation with Reclamation prior to such decisions being made. Should you have any questions regarding the Certification Report, your staff may contact Mr. Jan Matusak of my staff at (213) 217-6772.

Very truly yours,



Debra C. Man
Assistant General Manager and Chief Operating Officer

JPM:jc

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Enclosure

**Metropolitan Funded
Palo Verde Irrigation District Forbearance and Fallowing Program and
Imperial Irrigation District Water Conservation Program
Intentionally Created Surplus
Certification Report**

Calendar Year 2011

October 2012

**The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153**

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Introduction

The Secretary of the Interior (Secretary) approved a *Record of Decision, Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead*, on December 13, 2007, which established guidelines for the creation and delivery of Intentionally Created Surplus (ICS). One type of ICS is Extraordinary Conservation, which allows a Contractor to utilize extraordinary conservation programs that existed on January 1, 2006 to create ICS.

The *Interim Guidelines for the Operation of Lake Powell and Lake Mead (Interim Guidelines)* contained in the Record of Decision condition the delivery of ICS on the terms of:

- a Delivery Agreement with the United States, and
- Forbearance Agreements necessary to bring the delivery of ICS into compliance with Articles II(B)(2) and II(B)(6) of the Consolidated Decree entered by the U.S. Supreme Court in *Arizona v. California*, 547 U.S. 150 (2006).

The Metropolitan Water District of Southern California (Metropolitan) entered into:

- a *Delivery Agreement* with the United States on December 13, 2007,
- a *Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement* with the State of Arizona, acting through the Arizona Department of Water Resources, Palo Verde Irrigation District (PVID), Imperial Irrigation District (IID), the City of Needles, Coachella Valley Water District (CVWD), Southern Nevada Water Authority, and the Colorado River Commission of Nevada on December 13, 2007, and
- a *California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus* with PVID, IID, CVWD, and the City of Needles on December 13, 2007.

Exhibit G of the *Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement* describes the Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program, an extraordinary conservation program that existed on January 1, 2006. Exhibit H of the *Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement* describes the Metropolitan Funded Imperial Irrigation District Water Conservation Program, an extraordinary conservation program that existed on January 1, 2006. These two programs formed the basis for Metropolitan's creation of Extraordinary Conservation ICS in 2011. A copy of Exhibits G and H are contained in Appendix A. The *Interim Guidelines*, the *Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement*, and the *Delivery Agreement* require a plan for creation of ICS (ICS Plan). A *Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus During Calendar Year 2011* was submitted to the Bureau of Reclamation (Reclamation) on July 30, 2010 for the Secretary of the Interior's approval. Metropolitan received a letter from Reclamation on December 14, 2010 approving Metropolitan's ICS Plan for the creation of up to 200,000 acre-feet of Extraordinary

Conservation ICS for 2011. A copy of the ICS Plan and Reclamation's letter is contained in Appendix B.

This *Certification Report* satisfies the requirements of the *Interim Guidelines* to submit for the Secretary's review and verification, appropriate information, to demonstrate the amount of ICS created and that the method of creation was consistent with Metropolitan's approved ICS Plan, the Forbearance agreements, and the *Delivery Agreement*.

Project Description--Metropolitan Funded PVID Forbearance and Fallowing Program

Under the August 18, 2004, *Forbearance and Fallowing Program Agreement* with PVID and landowner agreements for fallowing in PVID, Metropolitan pays landowners within the Palo Verde Valley to annually fallow a portion of their land, foregoing the planting and irrigation of crops. The agreements allow PVID to forbear use of water on lands that historically were and otherwise would be irrigated, increasing the amount of water available to Metropolitan.

The volume of water that becomes available to Metropolitan is governed by the October 10, 2003, *Quantification Settlement Agreement*¹ and the October 10, 2003, *Colorado River Water Delivery Agreement*.² Under these agreements:

- Metropolitan must reduce its consumptive use of Colorado River water by that volume of consumptive use by PVID and holders of Priority 2³ that is greater than 420,000 acre-feet in a calendar year, or
- Metropolitan may increase its consumptive use of Colorado River water by that volume of consumptive use by PVID and holders of Priority 2 that is less than 420,000 acre-feet in a calendar year.

In both cases, each acre-foot of reduced consumptive use by PVID is an additional acre-foot that becomes available to Metropolitan.

Palo Verde Valley landowners decided whether to participate in the 35-year program and those participating stop irrigating from 9 to 35 percent of their land in any year at Metropolitan's request. Upon one-year notice, Metropolitan has the option to change the percentage of land fallowed, with the change being effective for a two-year period. The land taken out of agricultural production is maintained and rotated once every one to five years. The maximum amount of farmland taken out of production is 25,947 acres; however, fallowing in excess of 23,508 acres is limited to a total of ten years under the 35-year program. The landowner is responsible for payment of taxes, PVID water tolls, vegetation abatement, dust control and all other costs related to the fallowed lands. A history of farming is required for fields to be fallowed. Parcels to be fallowed must be at least 5 acres. Through August 2012, Metropolitan

¹ The parties to the Quantification Settlement Agreement are IID, CVWD, and Metropolitan.

² The parties to the Colorado River Water Delivery Agreement are the United States, IID, CVWD, Metropolitan, and the San Diego County Water Authority (SDCWA).

³ The Yuma Project Reservation Division holds California's Priority 2.

has paid \$197 million in Program costs and another \$0.3 million in Program costs are expected through December 2012.

This activity is separate and distinct from Metropolitan's "Emergency Short-Term Fallowing Program" with PVID under which additional Palo Verde Valley lands were fallowed from April 2009 through July 2010. The Emergency Short-Term Fallowing Program costs incurred in September 2009 were \$21.7 million.

Term of the Activity--Metropolitan Funded PVID Forbearance and Fallowing Program

The *Forbearance and Fallowing Program Agreement* with PVID terminates on July 31, 2040. Metropolitan's "Fallowing Call" in effect for the period commencing August 1, 2010 through July 31, 2012 was for 25,947 acres. However, a number of Program participants requested an opportunity to reduce their fallowed acreage during Program year 2011/12 to take advantage of record high crop prices, mainly cotton and alfalfa. Metropolitan allowed all Program participants to reduce their fallowed acreage by any amount during Program year 2011/12. Twelve participants opted to reduce their fallowed acreage by a total of 5,525 acres during Program year 2011/12 of which 1,276 acres were returned into crop production during calendar year 2011. In September 2011, 25,235 acres were fallowed, in October and November 2011, 25,221 acres were fallowed, and in December 2011, 24,671 acres were fallowed.

Summary of Results for Calendar Year 2011--Metropolitan Funded PVID Forbearance and Fallowing Program

The total volume of Extraordinary Conservation ICS that Metropolitan created in calendar year 2011 from the Metropolitan Funded PVID Forbearance and Fallowing Program under the *Interim Guidelines* was 120,000 acre-feet, prior to the one-time deduction of 5 percent specified in the *Guidelines* to result in additional system water in storage in Lake Mead. This volume, in conjunction with the 65,704 acre-feet of Extraordinary Conservation ICS that Metropolitan created from the Metropolitan Funded Imperial Irrigation District Water Conservation Program, is within the 200,000 acre-feet outlined in the Reclamation approved ICS Plan. An estimated 122,216 acre-feet of water was saved by the Metropolitan Funded PVID Forbearance and Fallowing Program (Program that Existed on January 1, 2006) in calendar year 2011. Detailed data and calculations are described in subsequent sections of this report.

Extraordinary Conservation through a Program that Existed on January 1, 2006--Metropolitan Funded PVID Forbearance and Fallowing Program

By continuing to fund extraordinary conservation through a program that existed on January 1, 2006, Colorado River water was successfully conserved in calendar year 2011 that remained in Lake Mead for Extraordinary Conservation ICS credits. The section below describes the conservation of the water.

Methodology

As indicated in the PVID-Metropolitan-Reclamation *Calendar Year 2011 Fallowed Land Verification Report*, although it is evident that water is saved through fallowing, it is not possible to measure the exact amount because the types and acreage of crops that would have been grown on the fallowed lands absent the fallowing program are unknown. Appendix C contains a copy of the *Calendar Year 2011 Fallowed Land Verification Report* in which the water savings were estimated using two methods. Under the first method—the Historical Use Method, three periods of past years deemed representative of conditions in PVID were selected and irrigation water use rates during each period were calculated and used to estimate water savings from the fallowed lands for calendar year 2011. Under the second method—the Actual Use Method, irrigation water use rates on irrigated lands during calendar year 2011 were calculated and used to estimate water savings from the fallowed fields. The Actual Use Method is deemed the method most reflective of the agronomic, weather, and market conditions prevailing in the Palo Verde Valley during calendar year 2011. As such, the best estimate of the amount of water saved during calendar year 2011 by the Program that Existed on January 1, 2006 is 122,216 acre-feet.

Verification Process of Fallowed Lands

Following the designation of fallowed acreage, a Metropolitan representative visited the field on the date when fallowing was to commence and verified that fallowing conditions had been met. The same procedure was followed when program participants would make changes in the area and/or location of fallowed lands.

In addition to field verification by Metropolitan, Reclamation conducted an independent verification with its own staff during the spring and fall of 2011. Similar to past years' practice, Reclamation selected 5 percent of the acreage fallowed for inspection. On-site inspection was made of 1,297 acres of fallowed fields in April 2011 and 1,256 acres in October 2011 to observe fallowing conditions and take photographs. Reports entitled, *Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program, Spring 2011 Verification Report* and *Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program, Fall 2011 Verification Report* were prepared by Reclamation that confirm extraordinary conservation implementation, and include field observations and relevant photographs of fallowing conditions on the acreage inspected in PVID. A copy of Metropolitan's February and May 2011 verification inspection reports and Reclamation's reports are contained in Appendix D.

Documentation of Conserved Water

Two methods were used to estimate the amount of saved water for calendar year 2011.

Historical Use Method

Three historical periods were selected that were deemed representative of typical conditions in PVID when cropping practices were not influenced by outside factors such as an impending fallowing program or a return to irrigation following a fallowing program. The lengths of the

three periods selected were: 12 years, 5 years, and 3 years; and three separate analyses were conducted.

The first period extended from 1988 through 2002, but excluded 1992, 1993, and 1994 because the August 1992-July 1994 PVID-Metropolitan Test Fallowing Program affected water use and the amount of cropped acreage during those three years. This adjustment left 12 years of data for the analysis. Gross diversions at the Palo Verde Diversion Dam were tabulated by month for each year in the analysis. The 12 data points for each month were averaged, and the resulting averages for each month were summed to determine the annual diversions.

Similarly, data were tabulated for measured and unmeasured return flows and for water delivered to the Mesa portion of PVID. Gross diversions were reduced by measured returns, unmeasured returns, and deliveries to the Mesa to provide an estimate of irrigation use for the Valley lands of PVID. An annual average estimated irrigation use of 400,512 acre-feet was calculated. Over the same 12-year period, the irrigated acreage on Valley lands averaged 88,053 acres. Dividing the average annual estimated irrigation use by the average irrigated acreage results in an average annual estimate of 4.55 acre-feet of water use per irrigated acre of land. The next step is to extrapolate the irrigation use per acre estimate to the fallowed lands in calendar year 2011.

Calculation of the average monthly net irrigation use yields an approximation for consumptive use by month and results in a pattern that is representative of water use throughout a typical year. Incorporation of a representative water use pattern is important in estimating the amount of saved water because a fallowed acre in one month does not yield the same amount of saved water as that of a different month due to changes in crop water requirements and climatic conditions. Average monthly net diversions were converted to percentages of the yearly total net diversions. Applying the resulting monthly percentages to the average annual irrigation use estimate of 4.55 acre-feet per acre, results in an estimate of the monthly quantity of water consumed by each acre of cropped land in PVID. This is called the monthly irrigation use factor and represents crop consumptive use in acre-feet per acre for each month. These monthly irrigation use factors were used to provide an estimate of saved water in PVID during calendar year 2011. The number of fallowed acres during each month in calendar year 2011 was determined from a database. The monthly factors were multiplied by the number of fallowed acres during the corresponding month to estimate the corresponding amount of saved water.

This procedure was applied to the fallowed acreage for all 12 months during calendar year 2011 and resulted in an estimated 117,425 acre-feet of saved water for the Program that Existed on January 1, 2006. The monthly calculations to arrive at these values are found in Appendix C.

The 5-year historical use was based on PVID data for the period 1998 through 2002. The procedure used to calculate the estimated water saved from fallowing Valley lands during calendar year 2011 was the same as that applied in computing the 12-year historical use estimate. The 5-year historical use method yielded an irrigation use factor of 4.75 acre-feet/acre and 122,586 acre-feet of saved water for the Program that Existed on January 1, 2006 during calendar year 2011.

The 3-year historical use method was based on PVID data for the period 2000 through 2002. Following the same procedure as used for the other historical use methods, computations based on the 3-year historical use resulted in an irrigation use factor of 5.03 acre-feet/acre and 129,838 acre-feet of saved water for the Program that Existed on January 1, 2006 during calendar year 2011.

Actual Use Method

Under the actual use method, water use and acreage data from PVID records for calendar year 2011 were used to estimate the amount of saved water. The amount of water diverted into the PVID system less measured and unmeasured returns and water pumped to the Mesa resulted in the net amount of irrigation water used in the Valley. Monthly irrigation water use was divided by the average number of acres in production for each month during calendar year 2011 and summed for the 12 months, resulting in an average annual irrigation use of 4.73 acre-feet per acre.

The percentage of net diversions by month formed the basis for developing the monthly irrigation use factors. Each monthly factor was multiplied by the number of fallowed acres for each month during calendar year 2011. The actual irrigation water use per acre was extrapolated to the fallowed acres for each month to estimate the annual total of 122,216 acre-feet of saved water for the Program that Existed on January 1, 2006.

Project Description--Metropolitan Funded IID Water Conservation Program

Under the December 22, 1988 *Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water* (Conservation Agreement) as amended and the December 19, 1989 *Approval Agreement* as amended, Metropolitan has funded water efficiency improvements within IID's service area in return for IID's agreement to not use an amount of water equal to the amount conserved by the program.

The program implemented structural and non-structural measures, including the concrete lining of 13 miles of existing main canals and 200 miles of lateral canals, construction of two local reservoirs and three spill-interceptor canals with four reservoirs, installation of 14 non-leak gates, and automation of the distribution system. Other implemented projects include the delivery of water to farmers on a 12-hour basis and improvements in on-farm water management through the installation of drip irrigation systems and tailwater pumpback systems. A copy of the Final Program Construction Report providing details on the implementation of each project is contained in Appendix E.

In 2011, 103,940 acre-feet was conserved and IID reduced its use by that amount. Through September 2012, Metropolitan has paid IID \$270 million for program costs.

Term of the Activity--Metropolitan Funded IID Water Conservation Program

The Conservation Agreement with IID as amended and the *Approval Agreement* with IID, PVID, and CVWD as amended may be terminated by IID, effective December 31, 2041, or 270 days

beyond the termination of the Quantification Settlement Agreement, whichever is later, plus any extensions required pursuant to Section 3.5 of the Conservation Agreement and Section 3.3 of the *Approval Agreement* and continues thereafter until terminated as specified in Section 7.2 or in Article V of the Conservation Agreement.

Summary of Results for Calendar Year 2011--Metropolitan Funded IID Water Conservation Program

The total volume of Extraordinary Conservation ICS that Metropolitan created in calendar year 2011 from the Metropolitan Funded Imperial Irrigation District Water Conservation Program under the *Interim Guidelines* was 65,704 acre-feet, prior to the one-time deduction of 5 percent specified in the *Guidelines* to result in additional system water in storage in Lake Mead. This volume, in conjunction with the 120,000 acre-feet of Extraordinary Conservation ICS that Metropolitan created from the Metropolitan Funded Palo Verde Forbearance and Fallowing Program, is within the 200,000 acre-feet outlined in the Reclamation approved ICS Plan. Of the 103,940 acre-feet of water conserved by the Metropolitan Funded Imperial Irrigation District Water Conservation Program (Program that Existed on January 1, 2006) in calendar year 2011, 4,000 acre-feet was used by CVWD. Detailed data and calculations are described in subsequent sections of this report.

Extraordinary Conservation through a Program that Existed on January 1, 2006--Metropolitan Funded IID Water Conservation Program

By continuing to fund extraordinary conservation through a program that existed on January 1, 2006, Colorado River water was successfully conserved in calendar year 2011 that remained in Lake Mead for Extraordinary Conservation ICS credits. Through 2006, the Conservation Verification Consultants prepared and presented to the Water Conservation Measurement Committee an annual report on the estimated amount of water conserved by the Metropolitan Funded Imperial Irrigation District Water Conservation Program and each project thereof. A Systemwide Monitoring Program was developed to identify and explain trends in IID system performance as a function of the operational environment within which the conservation projects operated. The Systemwide Monitoring Program was designed to function over the life of the Metropolitan Funded Imperial Irrigation District Conservation Program to:

- Identify changes in on-farm irrigation practices.
- Identify changes in main and lateral canal operations and zanjero accounting procedures.
- Provide data support for the five-year verification updates.
- Provide a basis for separating water savings associated with the IID/Metropolitan-sponsored conservation projects from water savings associated with measures implemented by others. In this case, the Systemwide Monitoring Program provides valuable baseline data for separating the effects of a new program from those attributable to the Metropolitan Funded Imperial Irrigation District Water Conservation Program.
- Fulfill the requirement for overall verification specified in the December 19, 1989 Approval Agreement.

Forty sites were selected and developed to provide data required for systemwide monitoring. In order to collect and process the flow data needed in support of the water conservation verification activities for the IID/Metropolitan Water Conservation Agreement projects, an automated data collection, quality control, processing and retrieval system was developed under the Metropolitan Funded Imperial Irrigation District Water Conservation Program. The system was designed to include many of the control sites for the various projects as well as the sites needed for systemwide monitoring. In December 1995, data processing procedures developed by the Conservation Verification Consultants were institutionalized and incorporated into IID's Water Information System.

Since January 1, 1996, conservation verification data have been processed and stored using Water Information System applications and capabilities. IID data collected prior to January 1, 1996, which were processed by the Conservation Verification Consultants for use in determining annual projected water conservation savings over the life of the program, were also stored in the Water Information System. The Water Information System management system has been developed to generate daily, monthly, calendar year, and water year tables, summary tables and bar charts that have been presented in the past in an annual Processed Flow Data document and an annual Projected Water Conservation Savings report.

IID reduces its net diversions at Imperial Dam as specified in the May 14, 2007 second amendment to the Conservation Agreement. IID's reduction in net diversions at Imperial Dam permits the Secretary of the Interior to deliver water made available for Metropolitan and to verify creation of Extraordinary Conservation ICS.

Conclusion--Metropolitan Funded PVID Forbearance and Fallowing Program and Metropolitan Funded IID Water Conservation Program

Appendix C and Metropolitan's ICS Plan of Creation serve as the basis for determining the amount of Extraordinary Conservation ICS that can be created from the Metropolitan Funded PVID Forbearance and Fallowing Program in 2011. The Actual Use Method described in Appendix C is deemed the method most reflective of the agronomic, weather, and market conditions prevailing in the Palo Verde Valley during calendar year 2011. As such, the best estimate of the amount of water saved during calendar year 2011 by the Program that Existed on January 1, 2006 is 122,216 acre-feet. Of that amount, Metropolitan created 120,000 acre-feet of Extraordinary Conservation ICS as shown in Table 1, prior to the one-time deduction of 5 percent specified in the *Interim Guidelines* to result in additional system water in storage in Lake Mead.

The table, "Transfers, Exchanges and Water Made Available by Extraordinary Conservation, State of California, Calendar Year 2011" in Reclamation's *Colorado River Accounting and Water Use Report, Arizona, California, and Nevada, Calendar Year 2011*, and Metropolitan's ICS Plan of Creation serve as the basis for determining the amount of Extraordinary Conservation ICS that can be created from the Metropolitan Funded Imperial Irrigation District Water Conservation Program in 2011. Of the 103,940 acre-feet of water conserved by the Metropolitan Funded Imperial Irrigation District Water Conservation Program in calendar year

2011, 4,000 acre-feet was used by CVWD. Of the remaining amount, Metropolitan created 65,704 acre-feet of Extraordinary Conservation ICS as shown in Table 1, prior to the one-time deduction of 5 percent specified in the *Interim Guidelines* to result in additional system water in storage in Lake Mead.

Table 1	
Metropolitan Creation of Extraordinary Conservation ICS in 2011	
Water Budget Item	Amount (acre-feet)
Priority 4	550,000
IID-Metropolitan Water Conservation Program	99,940
Coachella Canal Lining Project (Metropolitan Exchange with SDCWA)	23,765
Coachella Canal Lining Project (2003 Allocation Agreement)	4,500
All-American Canal Lining Project (Metropolitan Exchange with SDCWA)	56,200
All-American Canal Lining Project (2003 Allocation Agreement)	11,500
IID Transfer to SDCWA (Metropolitan Exchange with SDCWA)	63,278
Shortfall in IID Transfer to SDCWA (The appropriate accounting for the IID Transfer to SDCWA is under review by Reclamation and will be reflected in a future Colorado River Accounting and Water Use Report.)	16,722
Priority 1, 2, and 3b Use Below 420,000 Acre-feet (Amount Influenced by Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program)	47,038
Unused Priority 3a	9,387
Miscellaneous and Indian Present Perfected Rights Use	-1,247
Lower Colorado Water Supply Project	3,611
Total Supply Available for Consumptive Use	884,694
Actual Metropolitan Consumptive Use	-698,990
Creation of Extraordinary Conservation ICS	185,704
Metropolitan Funded PVID Forbearance and Fallowing Program	120,000
Metropolitan Funded IID Water Conservation Program	65,704

The amount of Extraordinary Conservation ICS created in 2011 is less than the annual amount of Extraordinary Conservation ICS that can be created by Metropolitan under the December 13, 2007, *California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus*. The amount of Extraordinary Conservation ICS created in 2011, when added to the amount of Extraordinary Conservation ICS available to Metropolitan as of December 31, 2010, is less than the total amount of Extraordinary Conservation ICS which may be accumulated by Metropolitan under the December 13, 2007, *California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus*.

As limited by Exhibits G and H of the *Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement*, Metropolitan did not consumptively use the 185,704 acre-feet of Extraordinary Conservation ICS created through the Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program and the Metropolitan Funded Imperial Irrigation District Water Conservation Program. Absent the creation of Extraordinary Conservation ICS, the 185,704 acre-feet would have been beneficially used by Metropolitan. The amount of Extraordinary Conservation ICS that Metropolitan created in 2011 was limited to the amount of Colorado River water that, when added to its consumptive use, did not result in an inadvertent overrun pursuant to the October 10, 2003 *Inadvertent Overrun and Payback Policy* as shown in Table 1. The total amount of Extraordinary Conservation ICS created by the Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program and Metropolitan Funded Imperial Irrigation District Water Conservation Program was less than the amount of water that could have been delivered for beneficial use from the Colorado River Aqueduct. The amount of Extraordinary Conservation ICS created by the Metropolitan Funded Imperial Irrigation District Water Conservation Program (65,704 acre-feet) was less than the IID reduction shown in column 4 of Exhibit B to the October 10, 2003 *Colorado River Water Delivery Agreement* (110,000 acre-feet), less the portion of that reduction (4,000 acre-feet) that results in delivery of water to CVWD. Thus, Metropolitan has:

- satisfied all of the conditions to create,
- has demonstrated the creation of 120,000 acre-feet of Extraordinary Conservation ICS through the Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program in 2011,
- has demonstrated the creation of 65,704 acre-feet of Extraordinary Conservation ICS through the Metropolitan Funded Imperial Irrigation District Water Conservation Program in 2011, and
- has demonstrated that the methods of creation are consistent with Metropolitan's approved ICS Plan, Forbearance agreements, and the *Delivery Agreement*.

Appendix A

**Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement
Exhibits G and H**

Exhibit G

Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program

Type: “2.1 D. Extraordinary conservation programs that existed on January 1, 2006.”

Under the August 18, 2004 Forbearance and Fallowing Program Agreement with Palo Verde Irrigation District (PVID) and landowner agreements for fallowing in PVID, The Metropolitan Water District of Southern California (Metropolitan) pays landowners within the Palo Verde Valley to annually fallow a portion of their land, foregoing the planting and irrigation of crops, allowing PVID to forbear use of water, increasing the amount of water available to Metropolitan. The volume of water that becomes available to Metropolitan is governed by the October 10, 2003 Quantification Settlement Agreement¹ and the October 10, 2003 Colorado River Water Delivery Agreement². Under these agreements:

- Metropolitan must reduce its consumptive use of Colorado River water by that volume of consumptive use by PVID and holders of Priority 2 that is greater than 420,000 acre-feet in a calendar year, or
- Metropolitan may increase its consumptive use of Colorado River water by that volume of consumptive use by PVID and holders of Priority 2 that is less than 420,000 acre-feet in a calendar year.

In both cases, each acre-foot of reduced consumptive use by PVID is an additional acre-foot that becomes available to Metropolitan.

Palo Verde Valley landowners decided whether to participate in the 35-year program and those participating stop irrigating from 9 to 35 percent of their land in any year at Metropolitan's request. Upon one-year notice, Metropolitan has the option to change the percentage of land fallowed, with an increase in the percentage effective for a two-year period. The land taken out of agricultural production is maintained and rotated once every one to five years. The maximum amount of farmland taken out of production in any 10 years is 25,947 acres. No more than 23,508 acres is to be fallowed in any 25 years. The landowner is responsible for payment of taxes, PVID water tolls, vegetation abatement, dust control and all other costs related to the fallowed lands. A history of farming is required for fields to be fallowed. Parcels to be fallowed must be at least 5 acres.

Water saved could range from about 29,000 acre-feet per year to about 118,000 acre-feet per year depending on Metropolitan's option on the number of acres fallowed, assuming 4.54 acre-feet is saved per acre fallowed (the estimated average annual Palo Verde Valley irrigation use from 1988-2002 excluding the years of 1992-94 in which fallowing occurred). Through October 2007, Metropolitan has paid \$112.6 million in program costs. Absent the creation of

¹ The parties to the Quantification Settlement Agreement are Imperial Irrigation District (IID), Coachella Valley Water District (CVWD), and Metropolitan.

² The parties to the Colorado River Water Delivery Agreement are the United States, IID, CVWD, Metropolitan, and San Diego County Water Authority.

Extraordinary Conservation Intentionally Created Surplus (EC ICS), such water would have otherwise been beneficially used.

Verification: Upon designation of fallowed acreage, a Metropolitan representative visits the field on the date when fallowing is to commence and verifies that fallowing conditions had been met. The same procedure is followed when program participants make changes in the area and/or location of fallowed lands.

In addition to field verification by Metropolitan, the Bureau of Reclamation (Reclamation) conducts an independent verification with its own staff, selecting 5 percent of the fallowed land for inspection. An on-site inspection is made of all selected fields to observe fallowing conditions and take photographs. A report is then prepared that contains field observations and relevant photographs of fallowing conditions in PVID.

Total Amount of ICS Credited Annually: The amount of EC ICS that can be created during any Year is limited to the amount of water resulting from the program that Metropolitan does not consumptively use, for example, up to 118,000 acre-feet assuming 4.54 acre-feet is saved per acre fallowed. Annual consumptive use by PVID varies from Year to Year due to a number of factors including weather (temperature and precipitation) and agricultural markets. As consumptive use varies from Year-to-Year, the volume of water saved from not irrigating an acre of land in the Palo Verde Valley also varies from Year-to-Year. Following each Year, PVID, Metropolitan, and the Bureau of Reclamation examine consumptive use on those lands within the Palo Verde Valley that were irrigated and estimate the volume of water saved due to the fallowing of lands pursuant to the program. The agencies issue a joint report documenting the volume of water saved during the Year as a direct result of the program. This annual report would serve as the basis for determining the amount of Extraordinary Conservation ICS that can be created by Metropolitan. The volume of water conserved annually pursuant to this program to be devoted to the creation of EC ICS credits is further limited to the quantities set forth in the following, and the California Agreement for the Creation and Delivery of EC ICS dated December 13, 2007:

Limitations on Creation of EC ICS

- a) The amount of EC ICS that Metropolitan may create in any Year is limited to the amount of Colorado River water that, if added to its consumptive use, would not result in an inadvertent overrun pursuant to the October 10, 2003 Inadvertent Overrun and Payback Policy.
- b) The total amount of annual EC ICS created by this program is limited to the amount of water that could have been delivered for beneficial use from the Colorado River Aqueduct.

In Witness of this Exhibit G to the Forbearance Agreement executed contemporaneously herewith, the Parties affix their official signatures below, acknowledging approval of this document on the 13th day of December, 2007.

Approved as to form:

**THE STATE OF ARIZONA acting
through the ARIZONA
DEPARTMENT OF WATER
RESOURCES**

By: 
W. Patrick Schiffer
Chief Counsel

By: 
Herbert Guenther
Director

Attest:

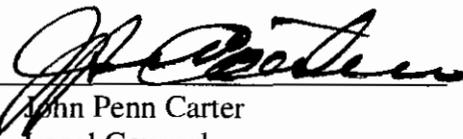
**PALO VERDE IRRIGATION
DISTRICT**

By: 
Edward W. Smith
General Manager

By: 
Charles VanDyke
Chair

Attest and Approved:

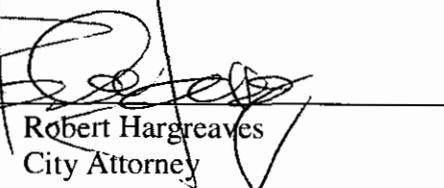
IMPERIAL IRRIGATION DISTRICT

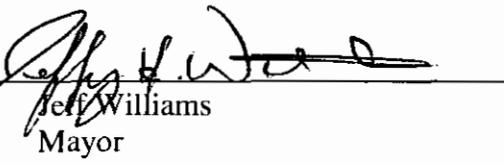
By: 
John Penn Carter
Legal Counsel

By: 
Stella Altamirano-Mendoza
President

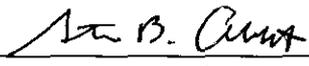
Approved as to form:

THE CITY OF NEEDLES

By: 
Robert Hargreaves
City Attorney

By: 
Jeff Williams
Mayor

Approved as to form:

By: 
Steven B. Abbott
Legal Counsel

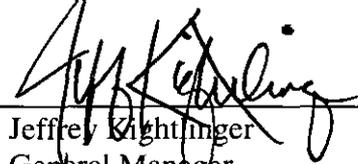
COACHELLA VALLEY WATER DISTRICT

By: 
Steven B. Robbins
General Manager/Chief Engineer

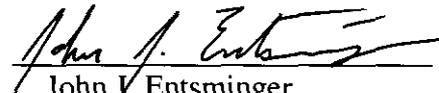
Approved as to form:

By: 
Karen L. Tachiki
General Counsel

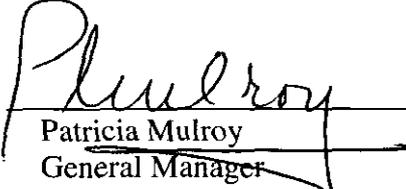
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

By: 
Jeffrey Kightlinger
General Manager

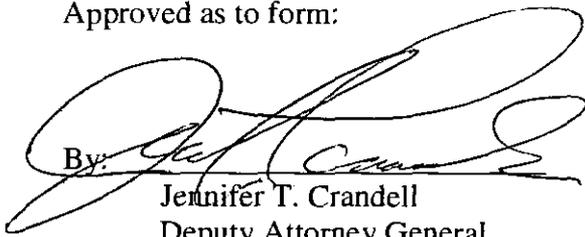
Approved as to form:

By: 
John J. Entsminger
Deputy General Counsel

SOUTHERN NEVADA WATER AUTHORITY

By: 
Patricia Mulroy
General Manager

Approved as to form:

By: 
Jennifer T. Crandell
Deputy Attorney General

COLORADO RIVER COMMISSION OF NEVADA

By: 
George M. Caan
Executive Director

Exhibit H

Metropolitan Funded Imperial Irrigation District Water Conservation Program

Type: “2.1 D. Extraordinary conservation programs that existed on January 1, 2006.”

Under the December 22, 1988 Conservation Agreement as amended and the December 19, 1989 Approval Agreement as amended, The Metropolitan Water District of Southern California (Metropolitan) has funded water efficiency improvements within the Imperial Irrigation District's (IID) service area in return for IID's agreement to not use an amount of water equal to the amount conserved by the program.

The program implemented structural and non-structural measures, including the concrete lining of 13 miles of existing main canals and 200 miles of lateral canals, construction of two local reservoirs and three spill-interceptor canals with four reservoirs, installation of 14 non-leak gates, and automation of the distribution system. Other implemented projects include the delivery of water to farmers on a 12-hour basis and improvements in on-farm water management through the installation of drip irrigation systems and 24 currently operating tailwater pumpback systems.

In 2007, 105,000 acre-feet per Year is being conserved and IID is reducing its use by that amount. Through August 2007, Metropolitan has paid IID \$222 million for program costs. Absent the creation of Extraordinary Conservation Intentionally Created Surplus (ICS), such water would have otherwise been beneficially used.

Verification: Through 2006, the Conservation Verification Consultants prepared and presented to the Water Conservation Measurement Committee an annual report on the estimated amount of water conserved by the program and each project thereof. A Systemwide Monitoring Program was developed to identify and explain trends in IID system performance as a function of the operational environment within which the IID/Metropolitan conservation projects operated. The Systemwide Monitoring Program was designed to function over the life of the IID/Metropolitan program to:

- Identify changes in on-farm irrigation practices.
- Identify changes in main and lateral canal operations and zanjero accounting procedures.
- Provide data support for the five-year verification updates.
- Provide a basis for separating water savings associated with IID/Metropolitan-sponsored conservation projects from water savings associated with measures implemented by others. In this case, the Systemwide Monitoring Program provides valuable baseline data for separating the effects of a new program from those attributable to the IID/Metropolitan program.
- Fulfill the requirement for overall verification specified in the December 19, 1989 Approval Agreement.

Forty sites were selected and developed to provide data required for systemwide monitoring.

In order to collect and process the flow data needed in support of the water conservation verification activities for the IID/Metropolitan Water Conservation Agreement projects, an automated data collection, quality control, processing and retrieval system was developed under the IID/Metropolitan program. The system was designed to include many of the control sites for the various projects as well as the sites needed for systemwide monitoring. In December 1995, data processing procedures developed by the Conservation Verification Consultants were institutionalized and incorporated into IID's Water Information System.

Since January 1, 1996, conservation verification data have been processed and stored using Water Information System applications and capabilities. IID data collected prior to January 1, 1996, which were processed by the Conservation Verification Consultants for use in determining annual projected water conservation savings over the life of the program, were also stored in the Water Information System. The Water Information System management system has been developed to generate daily, monthly, calendar year, and water year tables, summary tables and bar charts that have been presented in an annual Processed Flow Data document and an annual Projected Water Conservation Savings report.

IID reduces its net diversions at Imperial Dam by 105,000 acre-feet annually as specified in the May 14, 2007 second amendment to the Conservation Agreement. IID's reduction in net diversions at Imperial Dam permits the Secretary of the Interior to deliver water made available for Metropolitan.

Total Amount of ICS Credited Annually: The amount of EC ICS that can be created during any Year is limited to the amount of water resulting from the program that Metropolitan does not consumptively use, up to 105,000 acre-feet, plus any reduction in calculated IID conveyance losses as a result of IID conveying less water through its conveyance and distribution system due to the conservation of water from this program. The volume of water conserved annually pursuant to this program to be devoted to the creation of EC ICS credits is further limited to the quantities set forth in the following, and the California Agreement for the Creation and Delivery of EC ICS dated December 13, 2007:

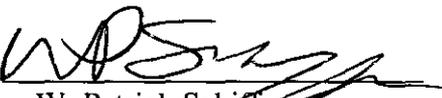
Limitations on Creation of EC ICS

- a) The amount of EC ICS that Metropolitan may create in any Year is limited to the amount of Colorado River water that, if added to its consumptive use, would not result in an inadvertent overrun pursuant to the October 10, 2003 Inadvertent Overrun and Payback Policy.
- b) The total amount of annual EC ICS created by this program is limited to the amount of water that could have been delivered for beneficial use from the Colorado River Aqueduct.
- c) The amount of EC ICS created pursuant to this Exhibit is limited to the IID reduction shown in column 4 of Exhibit B to the October 10, 2003 Colorado River Water Delivery Agreement, less any portion of that reduction that results in delivery of water to Coachella Valley Water District.

In Witness of this Exhibit H to the Forbearance Agreement executed contemporaneously herewith, the Parties affix their official signatures below, acknowledging approval of this document on the 13th day of December, 2007.

Approved as to form:

**THE STATE OF ARIZONA acting
through the ARIZONA
DEPARTMENT OF WATER
RESOURCES**

By: 
W. Patrick Schiffer
Chief Counsel

By: 
Herbert Guenther
Director

Attest:

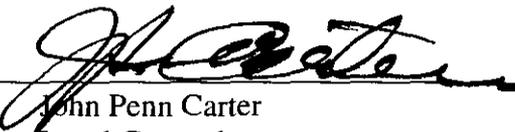
**PALO VERDE IRRIGATION
DISTRICT**

By: 
Edward W. Smith
General Manager

By: 
Charles VanDyke
Chair

Attest and Approved:

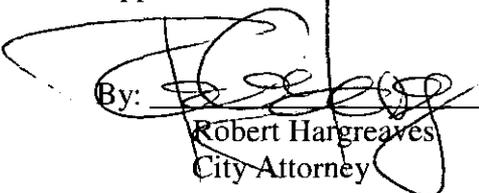
IMPERIAL IRRIGATION DISTRICT

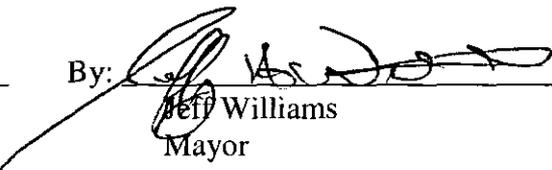
By: 
John Penn Carter
Legal Counsel

By: 
Stella Altamirano-Mendoza
President

Approved as to form:

THE CITY OF NEEDLES

By: 
Robert Hargreaves
City Attorney

By: 
Jeff Williams
Mayor

Approved as to form:

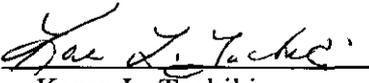
COACHELLA VALLEY WATER DISTRICT

By: 
Steven B. Abbott
Legal Counsel

By: 
Steven B. Robbins
General Manager/Chief Engineer

Approved as to form:

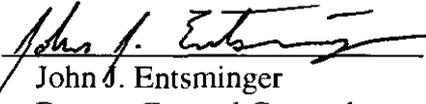
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

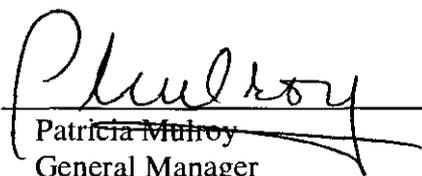
By: 
Karen L. Tachiki
General Counsel

By: 
Jeffrey Kightlinger
General Manager

Approved as to form:

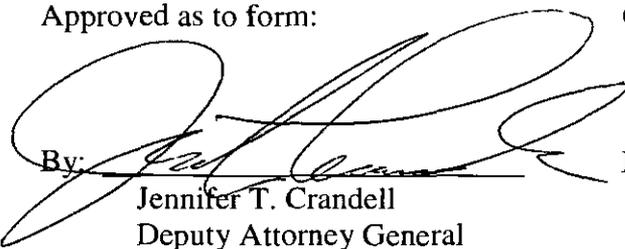
SOUTHERN NEVADA WATER AUTHORITY

By: 
John J. Entsminger
Deputy General Counsel

By: 
Patricia Mulroy
General Manager

Approved as to form:

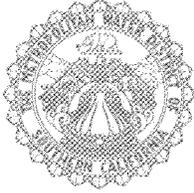
COLORADO RIVER COMMISSION OF NEVADA

By: 
Jennifer T. Crandell
Deputy Attorney General

By: 
George M. Caan
Executive Director

Appendix B

**ICS Plan of Creation Submitted to the U.S. Bureau of Reclamation
with Letter of Acceptance**



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

July 30, 2010

Mr. Steve Hvinden
Area Manager
Boulder Canyon Operations Office
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Mr. Hvinden:

Metropolitan's Plan for the Creation of
Extraordinary Conservation Intentionally Created Surplus During Calendar Year 2011

In accordance with Section 3.B.1. of the Interim Guidelines for the Operation of Lake Powell and Lake Mead, enclosed is The Metropolitan Water District of Southern California's (Metropolitan) Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus During Calendar Year 2011 (Plan). We are seeking approval to create 200,000 acre-feet of Extraordinary Conservation Intentionally Created Surplus for 2011. Metropolitan's Plan demonstrates how all requirements of the Guidelines will be met in the creation of Extraordinary Conservation Intentionally Created Surplus.

Metropolitan looks forward to the Secretary of the Interior's review and approval of the Plan in consultation with the Lower Division States. Should you have any questions regarding our Plan, please contact Bill Hasencamp, Manager, Colorado River Resources at (213) 217-6520.

Very truly yours,

A handwritten signature in cursive script that reads "Roger K. Patterson".

Roger K. Patterson
Assistant General Manager
Strategic Water Initiatives

JPM:tt

o:\a\s\c\2010\JPM_Transmittal of 2011 Plan for Creation of ICS to Reclamation.doc

Enclosure

The Metropolitan Water District of Southern California

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus During Calendar Year 2011

Introduction

This plan for the creation of Extraordinary Conservation Intentionally Created Surplus (ICS) has been prepared pursuant to the specifications outlined in Section 3.B.1 on page 40 of the *Record of Decision: Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead* signed by the Secretary of the Interior (Secretary) on December 13, 2007.

Two separate activities are described in this plan, each of which are incorporated as an exhibit to the December 13, 2007, *Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement* among the Arizona Department of Water Resources, the Palo Verde Irrigation District, the Imperial Irrigation District, the City of Needles, the Coachella Valley Water District, Metropolitan, the Southern Nevada Water Authority, and the Colorado River Commission of Nevada.

The projected yields of these activities for calendar year 2011 are as follows:

	<u>acre-feet</u>
Activity 1: Metropolitan Funded Palo Verde Irrigation District Forbearance and Following Program	120,000
Activity 2: Metropolitan Funded Imperial Irrigation District Water Conservation Program	<u>105,000</u>
Total	225,000

From these yields, Metropolitan plans to create 200,000 acre-feet of Extraordinary Conservation ICS. The amount of Extraordinary Conservation ICS that Metropolitan plans to create is less than the annual amount of Extraordinary Conservation ICS that can be created by Metropolitan under the December 13, 2007, *California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus*. Absent the creation of Extraordinary Conservation ICS, this water would otherwise be beneficially used by Metropolitan through diversion into the Colorado River Aqueduct. The amount of Extraordinary Conservation ICS that Metropolitan would create is limited to the amount of Colorado River water that, if added to its consumptive use, will not result in an inadvertent overrun pursuant to Reclamation's October 10, 2003, Inadvertent Overrun and Payback Policy. The amount of Extraordinary Conservation ICS that Metropolitan plans to create when added to the projected amount of Extraordinary Conservation ICS available to Metropolitan as of January 1, 2011, would be less than the total amount of Extraordinary Conservation ICS which may be accumulated by Metropolitan under the December 13, 2007, *California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus*.

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus
Calendar Year 2011

Activity 1: Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program

Project Description

Under the August 18, 2004, Forbearance and Fallowing Program Agreement with the Palo Verde Irrigation District (PVID) and landowner agreements for fallowing in PVID, Metropolitan pays landowners within the Palo Verde Valley to annually fallow a portion of their land, foregoing the planting and irrigation of crops, allowing PVID to forbear use of water on lands that historically were and otherwise would be irrigated, increasing the amount of water available to Metropolitan.

The volume of water that becomes available to Metropolitan is governed by the October 10, 2003, *Quantification Settlement Agreement*¹ and the October 10, 2003, *Colorado River Water Delivery Agreement*.² Under these agreements:

- Metropolitan must reduce its consumptive use of Colorado River water by that volume of consumptive use by PVID and holders of Priority 2³ that is greater than 420,000 acre-feet in a calendar year, or
- Metropolitan may increase its consumptive use of Colorado River water by that volume of consumptive use by PVID and holders of Priority 2 that is less than 420,000 acre-feet in a calendar year.

In both cases, each acre-foot of reduced consumptive use by PVID is an additional acre-foot that becomes available to Metropolitan.

Palo Verde Valley landowners decided whether to participate in the 35-year program and those participating stop irrigating from 9 to 35 percent of their land in any year at Metropolitan's request. Upon one-year notice, Metropolitan has the option to change the percentage of land fallowed, with an increase in the percentage effective for a two-year period. The land taken out of agricultural production is maintained and rotated once every one to five years. The maximum amount of farmland taken out of production is 25,947 acres; however, fallowing in excess of 23,508 acres is limited to a total of ten years under the 35-year program. The landowner is responsible for payment of taxes, PVID water tolls, vegetation abatement, dust control and all other costs related to the fallowed lands. A history of farming is required for fields to be fallowed. Parcels to be fallowed must be at least 5 acres. Through July 2010, Metropolitan has paid \$151.3 million in Program costs and another \$17.9 million in Program costs will be incurred in September 2010.

¹ The parties to the Quantification Settlement Agreement are Imperial Irrigation District, Coachella Valley Water District, and Metropolitan.

² The parties to the Colorado River Water Delivery Agreement are the United States, Imperial Irrigation District, Coachella Valley Water District, Metropolitan, and the San Diego County Water Authority.

³ The Yuma Project Reservation Division holds California's Priority 2.

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus
 Calendar Year 2011
Activity 1

Term of the Activity

The Forbearance and Fallowing Program Agreement with PVID terminates on July 31, 2040. Metropolitan has issued a Fallowing Call for 25,947 acres for the period commencing August 1, 2010 through July 31, 2012.

Estimate of the Amount of Water that Will be Conserved

The volume of projected savings during calendar year 2011 is 120,247 acre-feet based on the amount of water used for irrigation in the Palo Verde Valley in 2009. The monthly tabulation of this projected savings is as follows:

Month	Monthly Irrigation Use Fraction†	Acres Fallowed	Reduced Consumptive Use (acre-feet)*
January	0.00502082	25,947	604
February	0.02616206	25,947	3,146
March	0.09426892	25,947	11,335
April	0.11607736	25,947	13,958
May	0.15099478	25,947	18,157
June	0.14966707	25,947	17,997
July	0.15922816	25,947	19,147
August	0.14176578	25,947	17,047
September	0.10692863	25,947	12,858
October	0.03931268	25,947	4,727
November	0.00961568	25,947	1,156
December	0.00095807	25,947	115
Total			120,247

†Monthly fraction of annual use of 4.634306 acre-feet per acre.
 *Volumes rounded to the nearest acre-foot.

Proposed Methodology for Verification of the Amount of Water Conserved

Upon designation of fallowed acreage, a Metropolitan representative visits the field on the date when fallowing is to commence and verifies that fallowing conditions have been met. The same procedure is followed when program participants make changes in the area or location of fallowed lands.

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus
Calendar Year 2011

Activity 1

In addition to field verification by Metropolitan, it is proposed that the Bureau of Reclamation (Reclamation) conduct an independent verification with its own staff during the spring of 2011. Similar to past years' practice, it is proposed that Reclamation select 5 percent of the 25,947 acres fallowed for inspection. On-site inspection would be made of all selected fields to observe fallowing conditions and take photographs. A report would be prepared that confirms extraordinary conservation implementation, and includes field observations and relevant photographs of fallowing conditions in PVID. It is proposed that Reclamation conduct another independent verification in the fall of 2011.

A calendar year 2011 Fallowed Land Verification Report will be prepared jointly by PVID, Metropolitan, and Reclamation. The Report will determine the actual amount of water saved in 2011 by the Program.

Documentation Regarding State or Federal Permits or Other Regulatory Approvals

Pursuant to the provisions of the California Environmental Quality Act (CEQA), PVID, certified the "Final Environmental Impact Report for the Proposed Palo Verde Irrigation District Land Management, Crop Rotation and Water Supply Program" and adopted its Findings of Fact on September 18, 2002. Because no significant impacts would result with Program implementation, as determined by PVID, no statement of overriding considerations and no mitigation monitoring or reporting program were required. Metropolitan certified that it reviewed and considered the information in the certified 2002 Final EIR and adopted PVID's findings on October 22, 2002.

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus
Calendar Year 2011

Activity 2: Metropolitan Funded Imperial Irrigation District Water Conservation Program

Project Description

Under the December 22, 1988, *Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water* (1988 Conservation Agreement) as amended and the December 19, 1989, *Approval Agreement* as amended, Metropolitan has funded water efficiency improvements within the Imperial Irrigation District's (IID) service area in return for IID's agreement to not use 105,000 acre-feet of water annually.

The program implemented structural and non-structural measures—extraordinary measures to conserve water—including,

- concrete lining of 13 miles of existing main canals and 200 miles of lateral canals,
- construction of two local reservoirs and three spill-interceptor canals with four reservoirs,
- installation of 14 non-leak gates,
- automation of the distribution system,
- delivery of water to farmers on a 12-hour basis,
- improvements in on-farm water management through the installation of drip irrigation systems, and
- installation of tailwater pumpback systems.

Through July 2010, Metropolitan has paid IID \$244.7 million for program costs.

Term of the Activity

The term of the 1988 Conservation Agreement as amended and the *Approval Agreement* as amended, extends through at least December 31, 2041, or 270 days beyond the termination of the October 10, 2003, *Quantification Settlement Agreement*, whichever is later, with extensions to this term as specified in the agreements.

Estimate of the Amount of Water that Will be Conserved

As specified in the May 14, 2007, second amendment to the 1988 Conservation Agreement, 105,000 acre-feet of water will be made available by the program during calendar year 2011. Of this volume, pursuant to the *Approval Agreement*, Metropolitan would reduce its use of this water by up to 20,000 acre-feet to leave that water available for diversion by the Coachella Valley Water District (CVWD) should CVWD request delivery of this water. Exhibit H to the *Lower Colorado River Basin ICS Forbearance Agreement* provides that:

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus
Calendar Year 2011

Activity 2

“The amount of EC ICS that can be created during any Year is limited to the amount of water resulting from the program that Metropolitan does not consumptively use, up to 105,000 acre-feet, plus any reduction in calculated IID conveyance losses as a result of IID conveying less water through its conveyance and distribution system due to the conservation of water from this program. The volume of water conserved annually pursuant to this program to be devoted to the creation of EC ICS credits is further limited to the quantities set forth in the following...:

Limitations on Creation of EC ICS

- ...
- c) The amount of EC ICS created pursuant to this Exhibit is limited to the IID reduction shown in column 4 of Exhibit B to the October 10, 2003 Colorado River Water Delivery Agreement, less any portion of that reduction that results in delivery of water to Coachella Valley Water District.”

Accordingly, the amount of Extraordinary Conservation ICS that Metropolitan would create is between 90,000 and 110,000 acre-feet, depending upon the amount of water which will be delivered to CVWD and the reduction in calculated IID conveyance losses as a result of IID conveying less water through its conveyance and distribution system due to the conservation of water from this program.

Proposed Methodology for Verification of the Amount of Water Conserved

IID’s reduction in net diversions at Imperial Dam permits the Secretary to deliver water made available for Metropolitan absent the creation of Extraordinary Conservation ICS.

Through 2006, the Conservation Verification Consultants prepared and presented to the Water Conservation Measurement Committee an annual report on the estimated amount of water conserved by the program and each project thereof. A Systemwide Monitoring Program was developed to identify and explain trends in IID system performance as a function of the operational environment within which the IID/Metropolitan conservation projects operated. The Systemwide Monitoring Program was designed to function over the life of the IID/Metropolitan program to:

- Identify changes in on-farm irrigation practices.
- Identify changes in main and lateral canal operations and zanjero accounting procedures.
- Provide data support for the five-year verification updates.
- Provide a basis for separating water savings associated with IID/Metropolitan-sponsored conservation projects from water savings associated with measures implemented by others. In this case, the Systemwide Monitoring Program provides valuable baseline data for separating the effects of a new program from those attributable to the IID/Metropolitan program.

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus
Calendar Year 2011

Activity 2

- Fulfill the requirement for overall verification specified in the *Approval Agreement*. Forty sites were selected and developed to provide data required for systemwide monitoring.

In order to collect and process the flow data needed in support of the water conservation verification activities for the 1988 Conservation Agreement projects, an automated data collection, quality control, processing and retrieval system was developed under the IID/Metropolitan program. The system was designed to include many of the control sites for the various projects as well as the sites needed for systemwide monitoring. In December 1995, data processing procedures developed by the Conservation Verification Consultants were institutionalized and incorporated into IID's Water Information System.

Beginning January 1, 1996, conservation verification data were processed and stored using Water Information System applications and capabilities. IID data collected prior to January 1, 1996, which were processed by the Conservation Verification Consultants for use in determining annual projected water conservation savings over the life of the program, were also stored in the Water Information System. The Water Information System management system was developed to generate daily, monthly, calendar year, and water year tables, summary tables and bar charts that have been presented in an annual Processed Flow Data document and an annual Projected Water Conservation Savings report.

The last published Projected Water Conservation Savings report will be made available to Reclamation upon its request.

Documentation Regarding State or Federal Permits or Other Regulatory Approvals

Metropolitan's Board of Directors certified on December 22, 1988, that it reviewed and considered the environmental information contained in the final program Environmental Impact Report prepared by IID entitled "Proposed Water Conservation Program and Initial Water Transfer". Reclamation complied with the National Environmental Policy Act through execution of Categorical Exclusion No. LC-89-2 on January 6, 1989, for the "Water Conservation Program, Imperial Irrigation District, Imperial County, California".

Project specific documents completed by IID pursuant to the California Environmental Quality Act are described in the table on the following page.

Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus
 Calendar Year 2011
Activity 2

Project Name	California Environmental Quality Act Documentation
Trifolium Reservoir Project	Negative Declaration filed on August 20, 1986
South Alamo Canal Lining Phase I Project	Categorical Exemption filed on September 11, 1987
South Alamo Canal Lining Phase II Project	Categorical Exemption filed on September 6, 1989
"Z" Reservoir	Initial Environmental Study published in May 1989; Negative Declaration published on September 6, 1989; Addendum to the Negative Declaration filed on November 22, 1989
Lateral Concrete Lining Project, 265 Miles	Environmental Assessment and Initial Study published in January 1990; Categorical Exemption filed on January 26, 1990
Rositas Supply Canal Concrete Lining Project	Environmental Assessment and Initial Study published in June 1990; Categorical Exemption filed on August 15, 1990
Vail Supply Canal Lining Project	Categorical Exemption filed on August 15, 1990
Lateral Interceptor Pilot Project	Initial Environmental Study published in April 1990; Negative Declaration published on May 23, 1990; and an Addendum to the Negative Declaration filed on August 15, 1990
Westside Main Canal Concrete Lining Project	Initial Environmental Study published in June 1990; Negative Declaration filed on October 5, 1990
System Automation Project	Categorical Exemption published in July 1990; Categorical Exemption filed on September 11, 1990
Westside Main Canal Concrete Lining Project	Initial Environmental Study published in June 1990; Negative Declaration filed on October 5, 1990
Non-Leak Gates Project	Categorical Exemption published in August 1990 and filed on September 6, 1990
12-Hour Delivery Project	Categorical Exemption filed on December 21, 1990
Irrigation Water Management Project	IID determined Project to be exempt from the California Environmental Quality Act on August 23, 1991
Modified East Lowline and Trifolium Interceptors, and Completion Projects	Final Environmental Impact Report published in May 1994; on June 8, 1994, IID certified the Final Environmental Impact Report, made a Statement of Findings and adopted a Statement of Overriding Considerations

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United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470



IN REPLY REFER TO:
LC-4212
WTR-4.03

DEC 14 2010

CERTIFIED - RETURN RECEIPT REQUESTED

Mr. Roger K. Patterson
Assistant General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Subject: Approval of The Metropolitan Water District of Southern California's (MWD) Plan for the Creation of Extraordinary Conservation Intentionally Created Surplus (ICS) for Calendar Year 2011

Dear Mr. Patterson:

MWD submitted an ICS plan for 2011 by letter dated July 30, 2010. The Bureau of Reclamation has confirmed the ICS plan contains all necessary information required by Section 3.B of the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (Interim Guidelines). Reclamation has also verified the ICS plan submitted by MWD meets the limits established in the California Agreement for the Creation and Delivery of Extraordinary Conservation ICS. Pursuant to Section 7.B.5 of the Interim Guidelines, Reclamation conducted appropriate consultation with the Basin States regarding MWD's proposed ICS plan.

Based on our review of MWD's proposed ICS plan and the completion of the consultation process, we approve MWD's ICS plan for the creation of up to 200,000 acre-feet of Extraordinary Conservation ICS for 2011.

The Interim Guidelines provide that, subject to approval by Reclamation, contractors may modify their approved plan during the year of creation of ICS. In addition, Section 3.D.1 of the Interim Guidelines requires contractors to submit a certification report to the Regional Director demonstrating the amount of ICS created and that the method of creation was consistent with the approved ICS plan.

If you have questions, please contact Mr. Paul Matuska, Water Accounting and Verification Group Manager, at 702-293-8164.

Sincerely,

Lorri Gray-Lee
Regional Director

cc: See next page.

cc: Mr. Gerald Zimmerman
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Cheyenne, WY 82002-0001

Appendix C

**CALENDAR YEAR 2011
FALLOWED LAND VERIFICATION REPORT**

PVID/MWD Forbearance and Fallowing Program

**Palo Verde Irrigation District,
The Metropolitan Water District of Southern California, and
U.S. Bureau of Reclamation**

**Final Report
May 2, 2012**

**CALENDAR YEAR 2011
FALLOWED LAND VERIFICATION REPORT**

PVID/MWD Forbearance and Fallowing Program

**Palo Verde Irrigation District,
The Metropolitan Water District of Southern California, and
U.S. Bureau of Reclamation**

**Final Report
May 2, 2012**

CALENDAR YEAR 2011 FALLOWED LAND VERIFICATION REPORT

Executive Summary

On January 1, 2005, the Palo Verde Irrigation District (PVID) and The Metropolitan Water District of Southern California (MWD) initiated a 35-year “Forbearance and Fallowing Program” (Program) with landowners within PVID. A total of 25,947 acres were enrolled and fallowing commenced on January 1, 2005 and would extend through July 31, 2040. The water that would have been used to grow crops on the fallowed land is made available to MWD.

Metropolitan’s fallowing call during calendar year (CY) 2011 was for the maximum acreage of 25,947 acres. However, a number of Program participants requested an opportunity to reduce their fallowed acreage during Program year 2011/12 (August 1, 2011 through July 31, 2012) to take advantage of record high crop prices, mainly cotton and alfalfa. Metropolitan allowed all Program participants to reduce their fallowed acreage by any amount during Program year 2011/12. Twelve participants opted to reduce their fallowed acreage by a total of 5,525 acres during Program year 2011/12 of which 1,276 acres were returned to crop production during CY 2011.

Although it is evident that water is saved through fallowing, it is not possible to measure the exact amount because the types and acreage of crops that would have been grown on the fallowed lands absent the Program are unknown. Water savings were estimated using two methods. Under the first method (Historical Use Method), three periods of past years deemed representative of conditions in PVID were selected and irrigation water use rates during each period were calculated and used to estimate water savings from the fallowed lands for CY 2011. Under the second method (Actual Use Method), irrigation water use rates on irrigated lands during CY 2011 were calculated and used to estimate water savings from the fallowed fields. The resulting estimates of saved water by each method are shown in Table E-1.

Table E-1: Estimates of Saved Water by Method – CY 2011

Method	Saved Water (acre-feet)
12-Year Average (1988-2002)*	117,425
5-Year Average (1998-2002)	122,586
3-Year Average (2000-2002)	129,838
Actual Use Method - CY 2011	122,216

*1992, 1993 and 1994 data were not included in the analysis due to the 1992-94 PVID-MWD Test Fallowing Program.

Estimates of water saved by the Program in CY 2011 ranged from 117,425 acre-feet to 129,838 acre-feet. The Actual Use Method is deemed the method most reflective of the agronomic, weather, and market conditions prevailing in the Palo Verde Valley during CY 2011. As such, the best estimate of the amount of water saved during CY 2011 is 122,216 acre-feet.

**CALENDAR YEAR 2011
FALLOWED LAND VERIFICATION REPORT
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**CALENDAR YEAR 2011
FALLOWED LAND VERIFICATION REPORT**

1.0 Program Description

On January 1, 2005, the Palo Verde Irrigation District (PVID) and The Metropolitan Water District of Southern California (MWD) initiated a 35-year “Forbearance and Fallowing Program” (Program) with landowners within PVID that would extend through July 31, 2040. Participation in the Program was voluntary but required participating landowners sign a 35-year participation contract. A total of 25,947 acres were enrolled in the Program. MWD paid participating landowners a one-time signup payment for enrolling their lands in the Program and fallowing lands in response to MWD’s annual fallowing calls. In addition, MWD compensates participating landowners with annual payments for fallowing land within PVID that is served with Priority 1 Colorado River water delivered by PVID. In return for the payments, the water that would have been used to grow crops on the fallowed lands is made available to MWD.

Metropolitan’s fallowing call during calendar year (CY) 2011 was for the maximum acreage of 25,947 acres. However, a number of Program participants requested an opportunity to reduce their fallowed acreage during Program year 2011/12 (August 1, 2011 through July 31, 2012) to take advantage of record high crop prices, mainly cotton and alfalfa. Metropolitan allowed all Program participants to reduce their fallowed acreage by any amount during Program year 2011/12. Twelve participants opted to reduce their fallowed acreage by a total of 5,525 acres during Program year 2011/12 of which 1,276 acres were returned to crop production during CY 2011.

2.0 Palo Verde Irrigation District

The Palo Verde Irrigation District Act was passed by the California Legislature in 1923. PVID was then organized and began functioning in 1925. Governance is provided by a 7-member Board of Trustees. Administration is provided through a General Manager and a staff of currently 68, not counting Board members. Currently, PVID covers about 189 square miles in Riverside and Imperial counties of California. The principal city in PVID’s service area is Blythe that, with its urban fringe, has a population of about 21,800 people. Currently, PVID contains approximately 131,285 acres with 104,485 acres located in the Palo Verde Valley (Valley) portion of PVID and 26,800 acres located on the adjacent Palo Verde Mesa (Mesa). PVID diverts water from the Colorado River, which is regulated by the U.S. Bureau of Reclamation (Reclamation).

The Valley with its long, hot growing season is ideal for agriculture. Crops include vegetables, forage, grains and fibers. Mild winters, with a minimum of frost, permit the growing and harvesting of crops throughout the year.

Climatic data for temperature, precipitation and evapotranspiration (ET_o) in the Valley for the period 1988-2011 are shown in Table 1. The highest maximum annual average

Table 1: Climatic Data, Palo Verde Valley, California – 1988 - 2011

Year	Maximum Annual Average Temperature ¹ (°F)	Minimum Annual Average Temperature ¹ (°F)	Annual Rainfall ² (inches)	ETo Palo Verde ³ (inches)	ETo Blythe NE ⁴ (inches)	ETo Ripley ⁵ (inches)
1988	88.50	57.10	3.53	72.30		
1989	90.10	54.90	1.26	68.99		
1990	88.20	56.30	1.66	73.04		
1991	86.50	55.80	4.32	68.75		
1992	87.50	58.60	6.21	70.47		
1993	88.70	57.20	5.05	77.15		
1994	88.50	57.40	3.40	79.32		
1995	89.20	58.30	2.53	73.55		
1996	90.10	59.60	2.34	73.53		
1997	88.40	58.30	5.79	68.20	69.03	
1998	86.50	56.80	6.49	68.42	66.71	
1999	88.50	56.30	3.20	70.58	72.52	69.67
2000	89.40	58.60	0.72	68.81	69.13	67.22
2001	89.50	56.10	4.78	69.11	67.50	68.81
2002	89.20	57.20	0.76	71.09	72.41	69.34
2003	93.03	60.32	2.68	67.26	68.46	67.15
2004	91.90	59.55	2.57	66.78	66.64	67.69
2005	87.11	55.77	6.39	65.66	67.11	65.13
2006	90.50	57.90	1.57	69.60	75.50	67.90
2007	88.57	59.89	1.93	69.85	73.38	68.27
2008	89.65	57.48	2.41	71.47	73.69	68.18
2009	85.39	52.83	1.31	68.05	70.77	71.42
2010	84.58	54.08	2.56	64.72	72.42	67.02
2011	84.70	52.81	2.41	72.69	68.41	69.51
Average	88.51	57.05	3.16	70.39	70.25	68.25

¹ National Oceanic and Atmospheric Administration (NOAA) data from Blythe Station except for October 1997; August, September, and November 1999; January and December 2000; December 2001; and October 2006 when NOAA values from Blythe Airport Station were used because of missing data. Starting 2009, data are averages of the three California Irrigation Management Information System (CIMIS) stations at Palo Verde, Blythe, and Ripley.

² Data through 2008 from NOAA Blythe Station, and starting 2009, data is averaged from the three CIMIS stations at Palo Verde, Blythe, and Ripley.

³ Data from Palo Verde CIMIS station #72 for 1988-2000; and from Palo Verde II CIMIS station #175 for 2001 onward.

⁴ Data from Blythe Northeast CIMIS station #135.

⁵ Data from Ripley CIMIS station #151.

temperature was 93.03° Fahrenheit (F) in 2003; and the lowest minimum annual average temperature was 52.81° F in 2011. Annual rainfall ranged between a low of 0.72 inches in 2000 to a high of 6.49 inches in 1998. Annual ETo varied between a low of 65.13 inches in 2005 at Ripley to a high of 79.32 inches in 1994 at Palo Verde.

3.0 The Metropolitan Water District of Southern California

MWD was incorporated in 1928 and currently has 26 member agencies. Governance is provided by a 37-member Board of Directors with each member agency entitled to be represented by one director with representation by additional directors being based on assessed valuation. Administration is provided through a General Manager and a staff of currently 1,806 employees.

MWD provides supplemental water supplies to its service area from two sources: 1) MWD's Colorado River Aqueduct; and 2) the Department of Water Resources' State Water Project/California Aqueduct. Water is provided to approximately 19 million people located in a service area of approximately 5,200 square miles in portions of Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura counties of California. MWD has increased its ability to supply water, particularly in dry years, through the implementation of storage, conservation, and transfer programs.

On October 10, 2003, the United States, Imperial Irrigation District, Coachella Valley Water District, MWD, and San Diego County Water Authority executed the "Colorado River Water Delivery Agreement: Federal Quantification Settlement Agreement for purposes of Section 5(B) of the Interim Surplus Guidelines" (Delivery Agreement). Under the Delivery Agreement, MWD agreed that if consumptive use of Colorado River water in accordance with Priorities 1 and 2 of the contracts for delivery of Colorado River water in California, together with the use of Colorado River water on PVID Mesa lands in accordance with Priority 3(b), exceeds 420,000 acre-feet in a calendar year, the Secretary of the Interior (Secretary) will reduce the amount of water otherwise available to MWD, by the amount that such use exceeds 420,000 acre-feet. To the extent that the amount of water used in accordance with Priorities 1, 2, and 3(b) is less than 420,000 acre-feet in a year, the Secretary will deliver to MWD the difference. For the purposes of the Delivery Agreement, consumptive use means diversions from the Colorado River less such measured and unmeasured return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation.

4.0 Program Implementation

Under the Program, MWD issues a yearly following call to participating landowners a year in advance of the following start date of August 1. Each following call is for a two-year period and once issued, may not be rescinded or diminished. The following call for the period August 1, 2010 through July 31, 2012 was for 100% of the landowners' maximum following commitments. However, a number of Program participants requested an opportunity to reduce their fallowed acreage during Program year 2011/12

to take advantage of record high crop prices, mainly cotton and alfalfa. Metropolitan allowed all Program participants to reduce their fallowed acreage by any amount during Program year 2011/12. Twelve participants opted to reduce their fallowed acreage by a total of 5,525 acres during Program year 2011/12 of which 1,276 acres were returned into crop production during CY 2011. Table 2 shows the fallowed acreage per month. Attachment 1 shows the fallowed fields on January 1, 2011 and Attachment 2 shows the fallowed fields on August 1, 2011.

All fallowed acres designated by the participants were qualified by PVID for fallowing eligibility, i.e. entitled to receive Priority 1 water and had been irrigated and a crop harvested at least once during the past five years. Following the designation of fallowed acreage, a MWD representative visited the field on the date when fallowing was to commence and verified that fallowing conditions had been met and took photographs as needed to document the fallow status of fields. The same procedure was followed when participants would make changes in the area and/or location of fallowed lands at various points in time during the year thus ensuring that only qualified land is being fallowed. In addition, Reclamation staff conducted two field inspections, one in April and one in October 2011, to verify the fallow status of fallowed fields under the Program. In each field inspection, about five percent of the total fallowed acreage was randomly selected and inspected and the fallow status documented. Copies of the verification reports are available upon request from Reclamation staff, Boulder City, Nevada.

Table 2: Fallowed Valley Lands – CY 2011

Month	Fallowed Lands (water toll acres)
Jan	25,947
Feb	25,947
Mar	25,947
Apr	25,947
May	25,947
Jun	25,947
Jul	25,947
Aug	25,947
Sep	25,235
Oct	25,221
Nov	25,221
Dec	24,671
Yearly Average	25,660

5.0 Saved Water

The purpose of the Program is to save water that would have been otherwise used for agricultural production in PVID. In order to estimate the amount of water saved, it is

necessary to estimate the amount of water that would have been consumed on the fallowed lands had crops been produced. Although it is evident that water is saved, it is not possible to estimate the exact amount because the types and acreage of crops that would have been grown on the fallowed lands absent the Program are unknown. Therefore, it is necessary to develop acceptable procedures to estimate the amount of saved water to the degree of accuracy allowed by available data.

Two methods were used to estimate the amount of saved water for CY 2011. Under the first method (Historical Use Method), three periods of past years deemed representative of conditions in PVID were selected and estimated irrigation water use rates during each period were calculated and used to estimate water savings from the fallowed lands during CY 2011. Under the second method (Actual Use Method), estimated irrigation water use rates on irrigated lands during CY 2011 were calculated and used to estimate water savings from the fallowed fields during CY 2011.

6.0 Historical Use Method

Three historical periods were selected that were deemed representative of typical conditions in PVID when cropping practices were not influenced by outside factors such as an impending fallowing program or a return to irrigation following a fallowing program. Three periods were selected: 12 years, 5 years, and 3 years; and three separate analyses were conducted.

6.1 12-Year Average: 1988 – 2002 (Excluding 1992-94)

The first period extended from 1988 through 2002, but excluded 1992, 1993, and 1994 because the August 1992-July 1994 PVID-MWD Test Fallowing Program affected water use and the amount of cropped acreage during those three years. This adjustment left 12 years of data for the analysis. Diversions at the Palo Verde Diversion Dam were tabulated by month for each year in the analysis. The 12 data points for each month were averaged, and the resulting averages for each month were summed to determine the average annual diversion.

Similarly, water deliveries to the PVID Mesa were tabulated by month. Diversions at the Palo Verde Diversion Dam were then reduced by measured returns, unmeasured returns, and deliveries to the Mesa and were used to estimate the amount of irrigation water used by the Valley lands of PVID. Since water diverted by PVID is delivered to farmland only for irrigation purposes, it is assumed that the estimated amount of irrigation water used by the Valley lands is a good estimate of the amount of water used by crops on the Valley lands. Diversions and cropped acreage for lands upstream of the Palo Verde Diversion Dam were not included in the analysis. Table 3 shows the tabulation for each month, which when summed, results in an estimated average annual crop water use of 400,512 acre-feet.

Over the same 12-year period of data, the irrigated acreage on Valley lands averaged 88,053 water toll acres (Table 4). Dividing the estimated average annual irrigation water

use of 400,512 acre-feet by 88,053 water toll acres resulted in an estimated average annual irrigation water use of 4.55 acre-feet per water toll acre. The next step is to extrapolate the irrigation water use per acre estimate to the fallowed lands in CY 2011.

Table 3: Estimated Irrigation Water Use on Valley Lands – 1988 – 2002¹

Month	Diversions	Measured & Unmeasured Return Flows	Deliveries to Mesa	Estimated Irrigation Water Use on Valley Lands
(acre-feet)				
Jan	31,460	30,191	210	1,059
Feb	52,419	32,927	403	19,089
Mar	71,357	38,837	639	31,881
Apr	87,610	41,522	948	45,140
May	102,507	46,644	1,169	54,694
Jun	109,957	48,197	1,273	60,487
Jul	116,762	50,094	1,371	65,297
Aug	108,093	52,536	1,385	54,172
Sep	79,391	48,362	987	30,042
Oct	65,820	45,938	787	19,095
Nov	49,483	40,725	528	8,230
Dec	51,782	39,908	548	11,326
Annual	926,641	515,881	10,248	400,512

¹ 1992, 1993 and 1994 data were not included due to the 1992 – 94 PVID-MWD Test Following Program. This reduced the data series to 12 years. Source of Gross Diversions, Measured and Unmeasured Return Flows data is Reclamation Records. Source of Deliveries to Mesa data is PVID Records.

Table 4: Farmed Acreage in Valley Portion of PVID – 1988 - 1991 and 1995 - 2002¹

Year	Cropped Land (water toll acres)	Year	Cropped Land (water toll acres)	Year	Cropped Land (water toll acres)
1988	87,086	1995	88,243	1999	88,910
1989	86,701	1996	88,721	2000	88,709
1990	86,561	1997	88,645	2001	88,901
1991	86,601	1998	88,921	2002	88,633
				Average	88,053

¹ 1992, 1993, and 1994 farmed acreages are not included due to the 1992-94 PVID-MWD Test Following Program; 2003 farmed acreage is not included due to the Coachella Valley Water District Following Program; and 2004 - 2008 farmed acreages are not included due to the current PVID-MWD Following Program. Source: PVID records.

The estimated values of monthly irrigation water use on Valley lands shown in Table 3 were converted to percentages of the yearly total as shown in Table 5. Applying the resulting monthly percentages to the average annual irrigation use estimate of 4.55 acre-feet per water toll acre resulted in an estimate of the monthly irrigation water use factors on Valley lands. These estimated monthly irrigation water use factors on Valley lands were used to provide a reasonable estimate of saved water by fallowed fields in PVID during CY 2011.

Table 5: Estimated Irrigation Water Use Factors on Valley Lands – 1988-2002¹

Month	Estimated Irrigation Water Use on Valley Lands (acre-feet)	Percent of Yearly Total (%)	Estimated Irrigation Water Use Factors on Valley Lands (acre-feet/acre)
Jan	1,059	0.264412	0.012031
Feb	19,089	4.766149	0.216860
Mar	31,881	7.960061	0.362183
Apr	45,140	11.270574	0.512811
May	54,694	13.656020	0.621349
Jun	60,487	15.102419	0.687160
Jul	65,297	16.303382	0.741804
Aug	54,172	13.525687	0.615419
Sep	30,042	7.500899	0.341291
Oct	19,095	4.767647	0.216928
Nov	8,230	2.054870	0.093497
Dec	11,326	2.827880	0.128669
Total	400,512	100	4.55

¹ Data for 1992, 1993 and 1994 were not included due to the PVID-MWD Test Fallowing Program. This reduced the data series to 12 years.

Landowners provided PVID/MWD with the location of the fields that they were going to fallow and the date when fallowing would begin. PVID/MWD recorded the information from each landowner into a database, located the fallowed land on maps, and inspected the land to verify that the land was fallowed on the date indicated by the landowner. Through this procedure, it was possible to determine and verify the number of fallowed acres.

The number of fallowed acres during each month in CY 2011 was determined from the database, resulting in 12 separate time periods during the year (Table 6). The monthly factors, as discussed above, were multiplied by the number of fallowed acres during the corresponding time period to estimate the corresponding amount of saved water.

For example, for the month of January, 25,947 water toll acres were verified to be fallowed under the Program. Based on the 12 years of historical data, 0.264412% of the total annual irrigation water use on Valley lands occurred in January. Multiplying 0.264412% by 4.55 acre-feet/acre resulted in 0.012031 acre-feet/acre, the average quantity of irrigation water used by each water toll acre during January. Multiplying the average quantity of irrigation water used by each water toll acre in January by the 25,947 water toll acres of fallowed land in January resulted in an estimated water savings for January of 312 acre-feet. This same procedure was applied to the fallowed acreage for all 12 months during CY 2011 and resulted in an estimated 117,425 acre-feet of saved water.

Table 6: Estimated Saved Water Using the 12-Year Average Method – CY 2011

Month	Estimated Irrigation Water Use Factors on Valley Lands (acre-feet/acre)	Fallowed Lands (water toll acres)	Saved Water (acre-feet)
Jan	0.012031	25,947	312
Feb	0.216860	25,947	5,627
Mar	0.362183	25,947	9,398
Apr	0.512811	25,947	13,306
May	0.621349	25,947	16,122
Jun	0.687160	25,947	17,830
Jul	0.741804	25,947	19,248
Aug	0.615419	25,947	15,968
Sep	0.341291	25,235	8,612
Oct	0.216928	25,221	5,471
Nov	0.093497	25,221	2,358
Dec	0.128669	24,671	3,173
Total for Year	4.55		117,425

6.2 5-Year Average: 1998 - 2002

The 5-year historical use was based on PVID data for the period 1998 through 2002. The procedure used to calculate the estimated water saved from fallowing Valley lands during CY 2011 was the same as that applied in computing the 12-year historical use estimates. The 5-year historical use method yielded an estimated irrigation water use of 4.75 acre-feet/acre and 122,586 acre-feet of saved water during CY 2011.

6.3 3-Year Average: 2000 - 2002

The 3-year historical use method was based on PVID data for the period 2000 through 2002. Following the same procedure as used for the other historical use methods, computations based on the 3-year historical use resulted in an estimated irrigation water use of 5.03 acre-feet/acre and 129,838 acre-feet of saved water during CY 2011.

7.0 Actual Use Method – CY 2011

Under the actual use method, irrigation water use and acreage data from PVID and Reclamation records for CY 2011 were used to estimate the amount of saved water. Diversions at the Palo Verde Diversion Dam were reduced by measured returns, unmeasured returns, and deliveries to the Mesa and were used to estimate the amount of irrigation water used by the Valley lands. The PVID 2011 Crop Report shows a total of 89,803 water toll acres in the Valley portion of PVID that could have received water. Estimated monthly irrigation water use on Valley lands were divided by the average number of water toll acres in production for each month and summed for the 12 months, resulting in an estimated annual irrigation use of 4.73 acre-feet per acre (Table 7).

Table 7: Estimated Irrigation Water Use Factors on Valley Lands – CY 2011

Month	Diversions Less Measured and Unmeasured Returns (acre-feet)	Deliveries to Mesa (acre-feet)	Estimated Irrigation Water Use on Valley Lands (acre-feet)	Irrigated Valley Lands (water toll acres)	Estimated Irrigation Water Use Factors on Valley Lands (acre-feet/acre)
Jan	1,483	839	644	63,856	0.010085
Feb	10,929	1,126	9,803	63,856	0.153517
Mar	25,417	1,256	24,161	63,856	0.378367
Apr	34,965	1,195	33,770	63,856	0.528846
May	40,760	1,502	39,258	63,856	0.614790
Jun	47,861	1,628	46,233	63,856	0.724020
Jul	46,990	1,958	45,032	63,856	0.705212
Aug	56,493	2,085	54,408	63,856	0.852042
Sep	40,693	2,056	38,637	64,568	0.598392
Oct	16,325	1,553	14,772	64,582	0.228732
Nov	412	1,065	(653)	64,582	-0.010111
Dec	(2,240)	1,260	(3,500)	65,132	-0.053737
Total	320,088	17,523	302,565		
Average				64,143	4.730155

Source: PVID and Reclamation records.

The same procedure used in Table 6 was followed to develop Table 8. Estimated monthly irrigation water use factor were multiplied by the fallowed acres for each month to estimate the monthly water savings resulting a total of 122,216 acre-feet of water saved during CY 2011.

Table 8: Estimated Saved Water Using the Actual Use Method – CY 2011

Month	Estimated Irrigation Water Use Factors on Valley Lands (acre-feet/acre)	Fallowed Lands (water toll acres)	Saved Water (acre-feet)
Jan	0.010085	25,947	262
Feb	0.153517	25,947	3,983
Mar	0.378367	25,947	9,817
Apr	0.528846	25,947	13,722
May	0.614790	25,947	15,952
Jun	0.724020	25,947	18,786
Jul	0.705212	25,947	18,298
Aug	0.852042	25,947	22,108
Sep	0.598392	25,235	15,100
Oct	0.228732	25,221	5,769
Nov	-0.010111	25,221	(255)
Dec	-0.053737	24,671	(1,326)
Total for Year	4.730155		122,216

8.0 Conclusions

Two methods were used to estimate the amount of saved water during CY 2011: a historical use method and an actual use method. Three historical periods were used covering 12-year, 5-year and 3-year periods. The 12-year historical use method estimated a yearly irrigation water use of 4.55 acre-feet/acre, the 5-year historical use method estimated a yearly irrigation water use of 4.75 acre-feet/acre, and the 3-year historical use method estimated a yearly irrigation water use of 5.03 acre-feet/acre. Compilation of crop and irrigation water use data for CY 2011 in PVID resulted in an estimated irrigation use of 4.73 acre-feet/acre. Estimates of saved water for CY 2011 are shown in Table 9 and ranged from 117,425 acre-feet to 129,838 acre-feet.

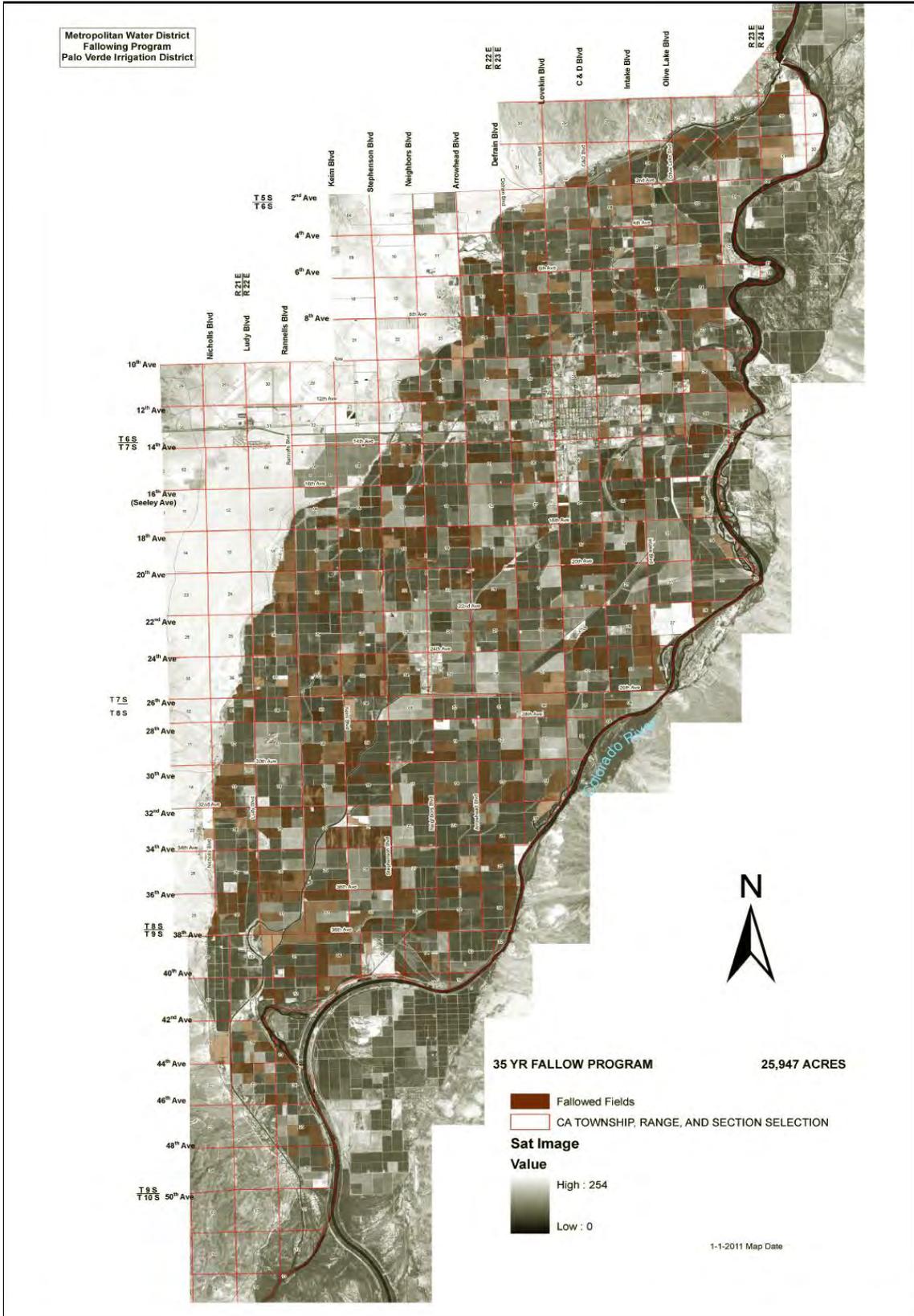
Table 9: Estimates of Saved Water by Method – CY 2011

Method	Saved Water (acre-feet)
12-Year Average (1988-2002)*	117,425
5-Year Average (1998-2002)	122,586
3-Year Average (2000-2002)	129,838
Actual Use Method CY 2011	122,216

*1992, 1993 and 1994 data not included in analysis due to the 1992-94 PVID-MWD Test Following Program.

The Actual Use Method is deemed the method most reflective of the agronomic, weather, and market conditions prevailing in the Palo Verde Valley during CY 2011. As such, the best estimate of the amount of water saved during CY 2011 by the Program is 122,216 acre-feet.

Attachment 1 – Fallowed Fields under the Program on 1/1/2011



Appendix D

**Metropolitan's February and May 2011 Verification Inspection Reports and
U.S. Bureau of Reclamation's
Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program,
Verification Reports, Spring and Fall 2011**

PVID Verification Inspection, February 2011

Stats:

Inspection date: February 24, 2011

32 fields were inspected.

695 fallowed acres were inspected.

Results:

All inspected fields were in compliance with the program.



Program Field # 65031-008

Acres 20

Comments



Program Field # 65370-002
Acres 13
Comments



Program Field # 65370-005
Acres 4
Comments



Program Field # 63913-018
Acres 32
Comments



Program Field # 65364-020
Acres 36
Comments



Program Field # 63923-002
Acres 9
Comments



Program Field # 63901-004
Acres 31
Comments



Program Field # 65388-998
Acres 21
Comments



Program Field # 63945-027
Acres 32
Comments



Program Field # 63941-003
Acres 5
Comments



Program Field # 63907-317
Acres 4
Comments



Program Field # 63954-008
Acres 38
Comments



Program Field # 63897-003
Acres 14
Comments



Program Field # 65358-006
Acres 26
Comments



Program Field # 63907-213
Acres 40
Comments



Program Field # 63907-168
Acres 28
Comments



Program Field # 63898-015
Acres 39
Comments



Program Field # 63953-024

Acres 17

Comments



Program Field # 63938-001
Acres 12
Comments



Program Field # 63940-108
Acres 13, 9 and 13
Comments This photo captures three fallowed fields.



Program Field # 63903-027
Acres 18
Comments



Program Field # 63947-007

Acres 28

Comments



Program Field # 63899-005

Acres 4

Comments



Program Field # 63940-130
Acres 9
Comments



Program Field # MET-007
Acres 35
Comments



Program Field # MET-008
Acres 36
Comments



Program Field # MET-009
Acres 37
Comments



Program Field # 63955-002

Acres 23

Comments



Program Field # 63928-007
Acres 33
Comments



Program Field # 65363-987
Acres 6
Comments



Program Field # 65382-002
Acres 7
Comments



Program Field # 63907-197
Acres 3
Comments

PVID Field Inspection, May 2011

Stats:

Inspection date: May 11, 2011

7 fields were inspected.

210 fallowed acres were inspected.

Results:

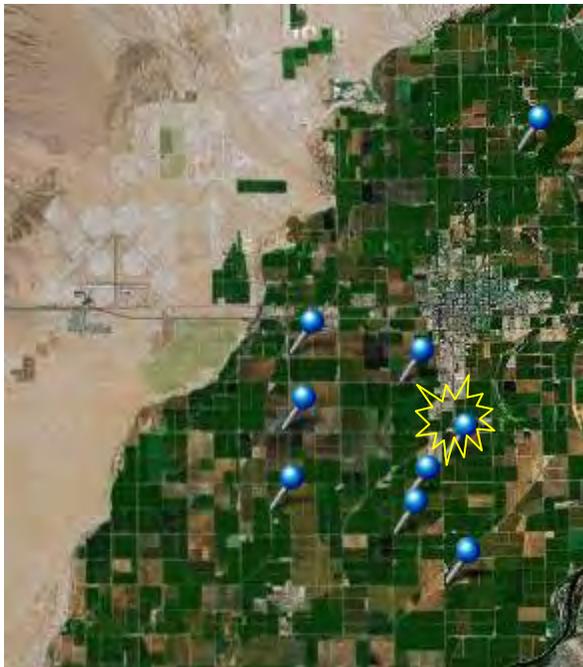
All inspected fields were in compliance with the program.

Location Overview



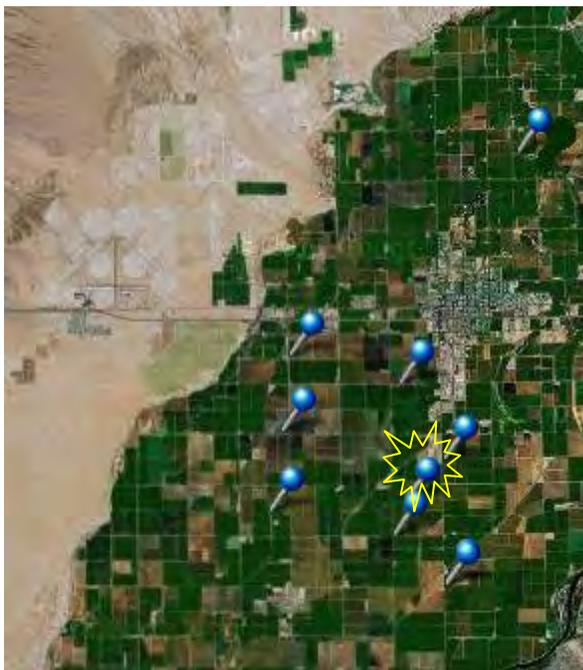


Program Field # 63904-001
Acres 8
Comments



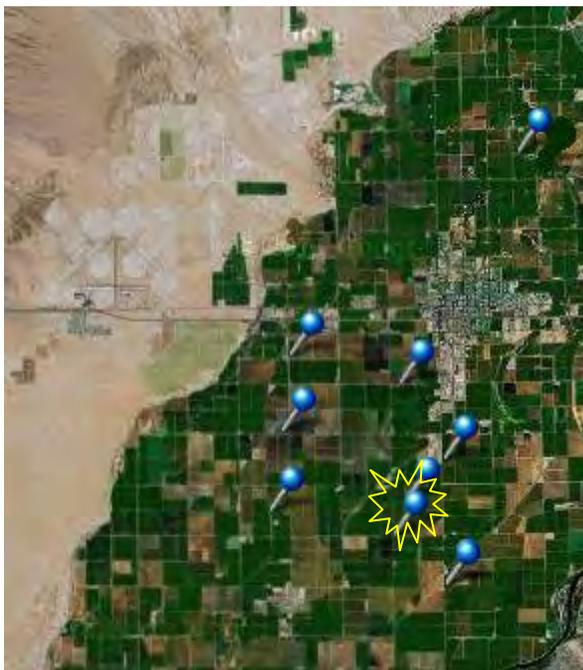


Program Field # 63907-008
Acres 24
Comments



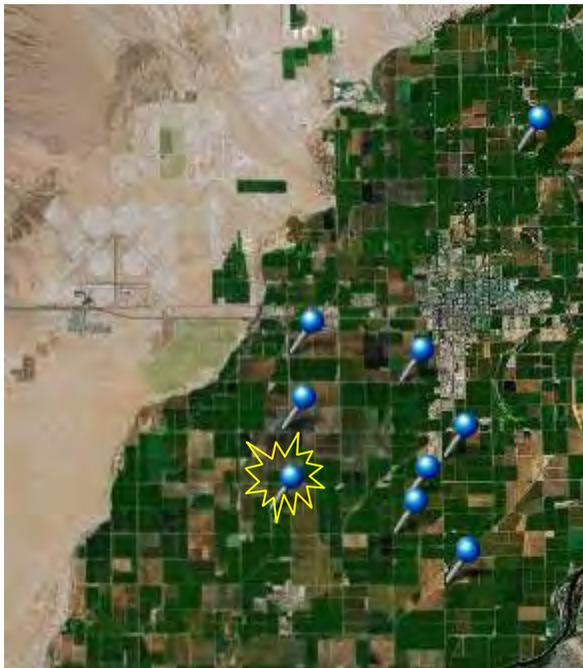


Program Field # 63953-012
Acres 28
Comments



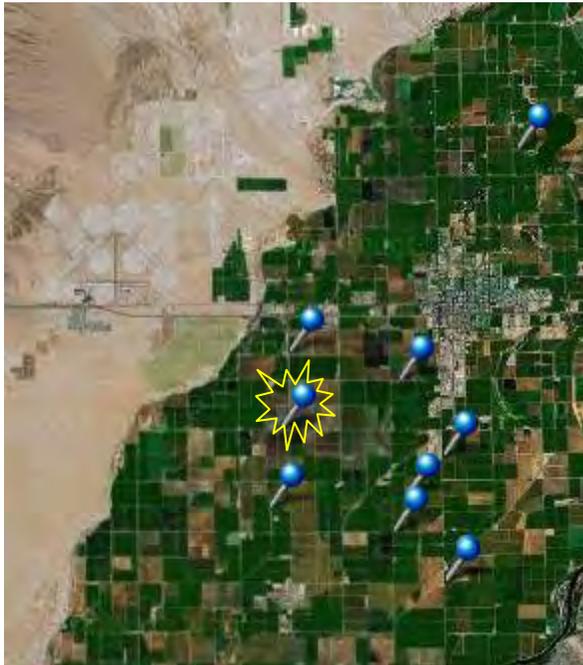


Program Field # 63953-025
Acres 47
Comments



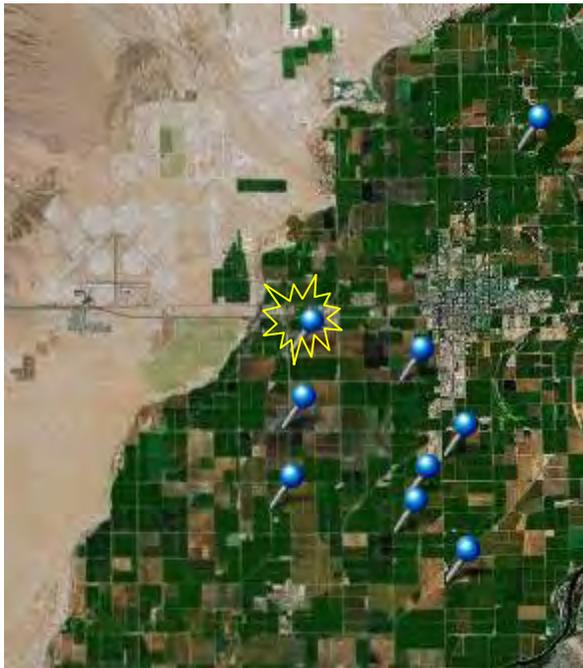


Program Field # 63940-231
Acres 37
Comments



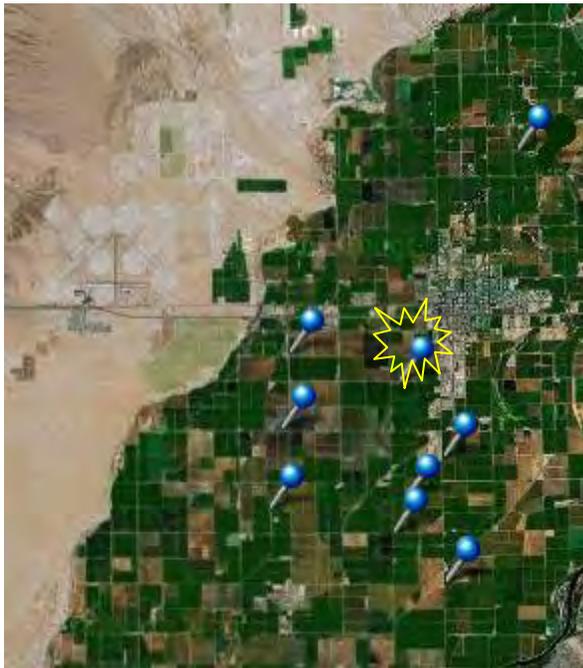


Program Field # 63895-006
Acres 32
Comments





Program Field # 65031-002
Acres 34
Comments



Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program

Spring 2011 Verification Report

In accordance with its approved plan for the creation of Extraordinary Conservation Intentionally Created Surplus (ICS), the Metropolitan Water District of Southern California (MWD) is funding a Forbearance and Fallowing Program (Program) with the Palo Verde Irrigation District (PVID) to create Extraordinary Conservation ICS during calendar year 2011. To ensure the fallowing program is being implemented, Reclamation conducts semi-annual verification inspections on randomly selected fields accounting for five percent of the total acreage enrolled in the Program. The first of these inspections occurred on April 7, 2011; the findings are documented in this verification report.

A: Forbearance and Fallowing Program Verification

Five percent of the 25,947 acres in the PVID fallowing program was checked during the field verification inspection. Twenty two fields totaling 1,297 acres were inspected.

Observation: Green growth was viewed on some fields, which was attributed to localized rainfall (thunderstorms). PVID staff indicated that Fallowing Program participants, in accordance with environmental mitigation requirements for potential air quality impacts, were required to implement dust control Best Management Practices (BMPs) when necessary. These BMPs include (but are not limited to) leaving vegetation residue on the field or seeding a cover crop prior to the fallowing start date.



Fallowing Program Field No. 63907-152. S5-T7S-R23E. Acres: 36.0. Canal & Gate No. D-15-2S. Comments: Photo No. 1, April 7, 2011. Fallow with green and senescent weeds. Soils: Sandy loam. Calendar year 2011 water use to date verified from PVID records.



Following Program Field No. 65033-009. S34-T6S-R23E. Acres: 77.0. Canal & Gate No. D10-24W. Comments: Photo No. 2, April 7, 2011. Fallow with green and senescent weeds, and <1% alfalfa volunteers. Soils: Sandy clay. Calendar year 2011 water use to date verified from PVID records.



Following Program Field No. 63907-278. S26-T6S-R23E. Acres: 46.0. Canal & Gate No. D10-13-21E. Comments: Photo No. 3, April 7, 2011. Fallow (disked, clean, level). Soils: Sandy clay. Calendar year 2011 water use to date verified from PVID records.



Following Program Field No. 63907-275. S21-T6S-R23E. Acres: 39.0. Canal & Gate No. D18-2E. Comments: Photo No. 4, April 7, 2011. Fallow (disked, clean, level), laser leveling. Soils: Sandy clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63902-006. S15-T6S-R23E. Acres: 77.0. Canal & Gate No. D29-1-1-2S. Comments: Photo No. 5, April 7, 2011. Fallow with green and senescent weeds, and <1% alfalfa volunteers. Soils: Sandy clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63907-135. S11-T6S-R23E. Acres: 79.0. Canal & Gate No. D29-17E. Comments: Photo No. 6, April 7, 2011. Fallow with green and senescent weeds; ripped. Soils: Sandy clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63941-004. S36-T5S-R23E. Acres: 78.0. Canal & Gate No. K-7W. Comments: Photo No. 7, April 7, 2010. Fallow with up to 36" tall green and senescent weeds. Soils: Sandy loam. Calendar year 2011 water use to date verified from PVID records.



Following Program Field No. 63907-322. S30-T5S-R24E. Acres: 45.0. Canal & Gate No. J02-3W. Comments: Photo No. 8, April 7, 2011. Fallow (disked, clean, level). Soils: Sandy loam. Calendar year 2011 water use to date verified from PVID records.



Following Program Field No. 63907-327. S33-T5S-R23E. Acres: 78.0. Canal & Gate No. D02-5N. Comments: Photo No. 9, April 7, 2011. Fallow (disked, clean, level); <1% alfalfa volunteers. Soils: Sandy clay. Calendar year 2011 water use to date verified from PVID records.



Following Program Field No. 63907-122. S4-T6S-R23E. Acres: 58.0. Canal & Gate No. D02-5S. Comments: Photo No. 10, April 7, 2011. Fallow (disked, clean, level). Soils: Sandy clay. Water use history checked from PVID records.



Fallowing Program Field No. 63913-008. S23-T6S-R22E. Acres: 48.0. Canal & Gate No. B-35S. Comments: Photo No. 11, April 7, 2011. Fallow (disked, clean, level); <1% alfalfa volunteers. Soils: Sandy clay. Water use history checked from PVID records.



Fallowing Program Field No. 65367-002. S3-T7S-R22E. Acres: 38.0. Canal & Gate No. C03-13-2N. Comments: Photo No. 12, April 7, 2011. Fallow (ripped) with senescent alfalfa. Soils: Clay loam. Water use history checked from PVID records.



Fallowing Program Field No. 63945-021. S9-T7S-R22E. Acres: 36.0. Canal & Gate No. C03-16-3N. Comments: Photo No. 13, April 7, 2011. Senescent Bermuda. Soils: Sandy loam. Water use history checked from PVID records.



Following Program Field No. 63940-078. S16-T7S-R22E. Acres: 71.0. Canal & Gate No. C03-P62S. Comments: Photo No. 14, April 7, 2011. Fallow (disked, clean, level). Soils: Sandy loam. Water use history checked from PVID records.



Following Program Field No. 63953-007. S19-T7S-R22E. Acres: 159.0. Canal & Gate No. C03-11-4-8N. Comments: Photo No. 15, April 7, 2011. Fallow (disked, clean, level), ripped, with <1% green weeds. Soils: Clay loam. Water use history checked from PVID records.



Following Program Field No. 63945-032. S33-T7S-R22E. Acres: 37.0. Canal & Gate No. C03-18-2W. Comments: Photo No. 16, April 7, 2011. Fallow with <1% bermuda and alfalfa volunteers. Soils: Clay loam. Water use history checked from PVID records.



Fallowing Program Field No. 63907-164. S32-T7S-R22E. Acres: 110.0. Canal & Gate No. C03-99W. Comments: Photo No. 17, April 7, 2011. Fallow (disked, clean, level) with <1% green weeds. Soils: Sandy clay. Water use history checked from PVID records.



Fallowing Program Field No. 63903-005. S24-T8S-R21E. Acres: 35.0. Canal & Gate No. C03-142E. Comments: Photo No. 18, April 7, 2011. Fallow with senescent sudan stubble. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 63940-042. S31-T7S-R23E. Acres: 40.0. Canal & Gate No. D23-24W. Comments: Photo No. 19, April 7, 2011. Fallow with <1% green weeds. Soils: Clay loam. Water use history checked from PVID records.



Following Program Field No. 63907-114. S24-T7S-R22E. Acres: 40.0. Canal & Gate No. C-75W. Comments: Photo No. 20, April 7, 2011. Fallow with <1% alfalfa volunteers and green weeds. Soils: Sandy clay. Water use history checked from PVID records.



Following Program Field No. 63907-059. S17-T7S-R23E. Acres: 34.0. Canal & Gate No. D19-1-4W. Comments: Photo No. 21, April 7, 2011. Fallow with <1% alfalfa volunteers. Soils: Sandy clay. Water use history checked from PVID records.



Following Program Field No. 63900-002. S11-T7S-R23E. Acres: 36.0. Canal & Gate No. D10-13-47E. Comments: Photo No. 22, April 7, 2011. Fallow with senescent wheat stubble. Soils: Sandy clay. Water use history checked from PVID records.

Based on the information collected during the field verification inspection and documented in this report, it is determined that extraordinary conservation implementation for this period is:

confirmed unconfirmed

David B. Chell
Inspector

04/20/11
Date

Paul [Signature]
Group Manager

4/20/2011
Date

Metropolitan Funded Palo Verde Irrigation District Forbearance and Fallowing Program Fall 2011 Verification Report

In accordance with its approved plan for the creation of Extraordinary Conservation Intentionally Created Surplus (ICS), the Metropolitan Water District of Southern California (MWD) is funding a Forbearance and Fallowing Program (Program) with the Palo Verde Irrigation District (PVID) to create Extraordinary Conservation ICS during calendar year 2011. In accordance with MWD's approved ICS Plan, and to ensure the Program is being implemented, Reclamation conducts semi-annual verification inspections on randomly selected fields accounting for five percent of the total acreage enrolled in the Program. The second of these inspections occurred on October 20, 2011; the findings are documented in this verification report.

A: Forbearance and Fallowing Program Verification

Five percent of the 25,221 acres in the PVID fallowing program was checked during the field verification inspection. Thirty-two fields totaling 1,256 acres were inspected.

Observation: Green growth was viewed on some fields, which was attributed to localized rainfall (thunderstorms). PVID staff indicated that Fallowing Program participants, in accordance with environmental mitigation requirements for potential air quality impacts, were required to implement dust control Best Management Practices (BMPs) when necessary. These BMPs include (but are not limited to) leaving vegetation residue on the field or seeding a cover crop prior to the fallowing start date.



Fallowing Program Field No. 63907-206. S2-T7S-R22E. Acres: 78.0. Canal & Gate No. C-05-23W. Date Fallowing Commenced: August 1, 2011. Comments: Photo No. 1, October 20, 2011. Fallow (disked and clean). Soils: Silty clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63895-003. S10-T7S-R22E. Acres: 46.0. Canal & Gate No. C05-3-12W. Date Fallowing Commenced: January 1, 2011. Comments: Photo No. 2, October 20, 2011. Fallow with <1% alfalfa volunteers. Soils: Silty clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63940-091. S15-T7S-R22E. Acres: 34.0. Canal & Gate No. WC-26N. Date Fallowing Commenced: West 17 acres: August 1, 2007; East 17 acres: December 19, 2009. Comments: Photo No. 3, October 20, 2011. Fallow (trenched). Soils: Silty clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 65373-001. S21-T7S-R22E. Acres: 22.0. Canal & Gate No. C03-76W. Date Fallowing Commenced: January 10, 2011. Comments: Photo No. 4, October 20, 2011. Fallow with cotton residue. Soils: Clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63940-102. S30-T7S-R22E. Acres: 38.0. Canal & Gate No. C03-11-1-5N. Date Fallowing Commenced: August 1, 2008. Comments: Photo No. 5, October 20, 2011. Fallow with <1% senescent weeds. Soils: Silty clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63938-01. S33-T7S-R22E. Acres: 19.0. Canal & Gate No. C03-89W. Date Fallowing Commenced: November 6, 2010. Comments: Photo No. 6, October 20, 2011. Fallow (disked, clean, level); ripped. Soils: Clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. 63940-123. S9-T8S-R22E. Acres: 28.0. Canal & Gate No. C03-18-9S. Date Fallowing Commenced: August 1, 2007. Comments: Photo No. 7, October 20, 2010. Fallow with wheat residue. Soils: Silty clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. MET-080. S18-T8S-R22E. Acres: 40.0. Canal & Gate No. C03-126S. Date Fallowing Commenced: August 1, 2011. Comments: Photo No. 8, October 20, 2011. Fallow with sudan residue and volunteers. Soils: Silty clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. MET-048. S13-T8S-R21E. Acres: 38.0. Canal & Gate No. C03-138E. Date Fallowing Commenced: March 20, 2011. Comments: Photo No. 9, October 20, 2011. Fallow with sudan stubble. Soils: Silty clay. Calendar year 2011 water use to date verified from PVID records.



Fallowing Program Field No. MET-123. S30-T8S-R22E. Acres: 40.0. Canal & Gate No. C03-10-20W. Date Fallowing Commenced: August 1, 2008. Comments: Photo No. 10, October 20, 2011. Fallow (disked, clean, level). Soils: Silty clay loam. Water use history checked from PVID records.



Fallowing Program Field No. 65386-018. S3-T9S-R21E. Acres: 21.0. Canal & Gate No. C03-171W. Date Fallowing Commenced: August 1, 2011. Comments: Photo No. 11, October 20, 2011. Fallow (disked, clean, level). Soils: Silty clay loam. Water use history checked from PVID records.



Fallowing Program Field No. MET-184. S23-T9S-R21E. Acres: 39.0. Canal & Gate No. C28-57W. Date Fallowing Commenced: August 1, 2008. Comments: Photo No. 12, October 20, 2011. Fallow with <1% green weeds. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 63907-256. S6-T9S-R22E. Acres: 41.0. Canal & Gate No. C28-27N. Date Fallowing Commenced: August 1, 2010. Comments: Photo No. 13, October 20, 2011. Fallow with 5% green and senescent weeds. Soils: Clay. Water use history checked from PVID records.



Fallowing Program Field No. 63903-031. S35-T8S-R22E. Acres: 35.0. Canal & Gate No. C27-10W. Date Fallowing Commenced: August 1, 2009. Comments: Photo No. 14, October 20, 2011. Fallow (disked, clean, level). Soils: Loamy clay. Water use history checked from PVID records.



Fallowing Program Field No. 63900-036. S25-T8S-R22E. Acres: 40.0. Canal & Gate No. D23-1-30E. Date Fallowing Commenced: August 1, 2008. Comments: Photo No. 15, October 20, 2011. Fallow with <1% senescent weeds. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 65028-002. S14-T8S-R22E. Acres: 38.0. Canal & Gate No. C17-6W. Date Fallowing Commenced: August 1, 2011. Comments: Photo No. 16, October 20, 2011. Disked with 1% alfalfa volunteers. Soils: Loamy clay. Water use history checked from PVID records.



Fallowing Program Field No. 63940-143. S21-T8S-R22E. Acres: 37.0. Canal & Gate No. C18-12W. Date Fallowing Commenced: February 19, 2011. Comments: Photo No. 17, October 20, 2011. Disked with broccoli residue. Soils: Loamy clay. Water use history checked from PVID records.



Fallowing Program Field No. 65364-014. S2-T8S-R22E. Acres: 39.0. Canal & Gate No. C14-P4S. Date Fallowing Commenced: August 1, 2011. Comments: Photo No. 18, October 20, 2011. Fallow with senescent alfalfa and bermuda; recently sprayed with Round-Up. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 65385-011. S35-T7S-R22E. Acres: 15.0. Canal & Gate No. C13-25S. Date Fallowing Commenced: August 1, 2009. Comments: Photo No. 19, October 20, 2011. Fallow (disked, clean, level). Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 63953-016. S25-T7S-R22E. Acres: 39.0. Canal & Gate No. C-83W. Date Fallowing Commenced: October 16, 2010. Comments: Photo No. 20, October 20, 2011. Fallow (disked, clean, level). Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 63898-030. S28-T7S-R23E. Acres: 111.0. Canal & Gate No. D10-11-34E. Date Fallowing Commenced: November 5, 2009. Comments: Photo No. 21, October 20, 2011. Fallow with wheat residue. Soils: Silty clay. Water use history checked from PVID records.



Following Program Field No. 63898-059. S17-T7S-R23E. Acres: 87.0. Canal & Gate No. C32-12S. Date Following Commenced: August 1, 2011. Comments: Photo No. 22, October 20, 2011. Fallow; ripped; wheat residue. Soils: Clay. Water use history checked from PVID records.



Following Program Field No. 65029-004. S7-T7S-R23E. Acres: 39.0. Canal & Gate No. C-15W. Date Following Commenced: August 1, 2011. Comments: Photo No. 23, October 20, 2011. Disked with alfalfa and bermuda residue. Soils: Loamy clay. Water use history checked from PVID records.



Following Program Field No. 63900-010. S10-T7S-R23E. Acres: 21.0. Canal & Gate No. D10-13-48W. Date Following Commenced: August 1, 2011. Comments: Photo No. 24, October 20, 2011. Fallow with senescent wheat stubble. Soils: Loamy clay. Water use history checked from PVID records.



Following Program Field No. 65026-001. S35-T6S-R22E. Acres: 32.0. Canal & Gate No. C03-P23S. Date Following Commenced: January 17, 2011. Comments: Photo No. 25, October 20, 2011. Fallow (disked, clean, level) with cotton residue. Soils: Loamy clay. Water use history checked from PVID records.



Fallowing Program Field No. 63946-005. S30-T6S-R23E. Acres: 18.0. Canal & Gate No. C10-4N. Date Fallowing Commenced: August 1, 2009. Comments: Photo No. 26, October 20, 2011. Disked; <1% green and senescent weeds. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 63946-015. S19-T6S-R23E. Acres: 45.0. Canal & Gate No. C02-0N. Date Fallowing Commenced: October 10, 2011. Comments: Photo No. 27, October 20, 2011. Disked with alfalfa and bermuda residue. Soils: Sandy clay. Water use history checked from PVID records. Note: Field fallowed 10/01/11.



Fallowing Program Field No. 65355-010. S13-T6S-R22E. Acres: 38.0. Canal & Gate No. A-35E. Date Fallowing Commenced: January 20, 2007. Comments: Photo No. 28, October 20, 2011. Disked; level; alfalfa residue. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 63894-006. S7-T6S-R23E. Acres: 36.0. Canal & Gate No. A01-8S. Date Fallowing Commenced: August 1, 2008. Comments: Photo No. 29, October 20, 2011. Furrowed; 5% green weeds. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 63941-004. S36-T5S-R23E. Acres: 48.0. Canal & Gate No. K-7W. Date Fallowing Commenced: August 1, 2010. Comments: Photo No. 30, October 20, 2011. Fallow with dead standing alfalfa. Soils: Sandy. Water use history checked from PVID records.



Fallowing Program Field No. 63902-037. S15-T6S-R23E. Acres: 29.0. Canal & Gate No. D29-1-1-4S. Date Fallowing Commenced: August 1, 2009. Comments: Photo No. 31, October 20, 2011. Disked with <1% senescent weeds. Soils: Silty clay. Water use history checked from PVID records.



Fallowing Program Field No. 65358-002. S25-T6S-R23E. Acres: 25.0. Canal & Gate No. D10-13-13E. Date Fallowing Commenced: February 18, 2011. Comments: Photo No. 32, October 20, 2011. Senescent wheat stubble. Soils: Sandy. Water use history checked from PVID records.

Based on the information collected during the field verification inspection and documented in this report, it is determined that extraordinary conservation implementation for this period is:

confirmed unconfirmed

David B. Chitt
Inspector

01/09/12
Date

Paul Matten
Group Manager

1/9/12
Date

Appendix E

**Imperial Irrigation District
And
Metropolitan Water District of Southern California
Water Conservation Program**

Final Program Construction Report

**IID Water Resources Unit
April 2000**