

**MAIN SAN GABRIEL BASIN WATERMASTER
REPORT ON
PRELIMINARY DETERMINATION OF
OPERATING SAFE YIELD
FOR 2015-16 THROUGH 2019-20**

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April 1, 2015

INTRODUCTION

Operating Safe Yield is the quantity of water which the Main San Gabriel Basin Watermaster (Watermaster) determines may be pumped from the Main San Gabriel Basin (Basin) in a fiscal year, free of Replacement Water assessments. In accordance with Section 43 of the amended Main San Gabriel Basin Judgment¹, Watermaster at its regular meeting in May of each year determines the Operating Safe Yield applicable to the succeeding fiscal year and estimates the Operating Safe Yield for the next succeeding four fiscal years.

A report on the Preliminary Determination of Operating Safe Yield is submitted by its Engineer to Watermaster at its regular meeting in April each year. On acceptance of that report by Watermaster, a copy is distributed to each Pumper and Integrated Producer at least 10 days prior to a hearing, which is held at the regular meeting of Watermaster in May each year. Objections, comments or suggested modifications to the preliminary Operating Safe Yield are considered by Watermaster at that hearing and Watermaster, through vote of its Board members, adopts the final Operating Safe Yield.

BASIN OPERATING CRITERIA

Section 42 of the amended Judgment states in part, "... **Watermaster shall recharge Replacement Water in accordance with the Watermaster Operating Criteria and, insofar as practicable, to maintain the water level at the Key Well above Elevation two hundred (200).**" Replacement Water is defined in Section 10 (cc) of the Judgment as "Water purchased by Watermaster to replace: (1) Production in excess of a Pumper's Share of Operating Safe Yield; (2) The consumptive use portion resulting from the exercise of an Overlying Right; and (3) Production in excess of a Diverter's right to Divert for Direct Use". In addition, Producers and Responsible Agencies may deliver Supplemental Water into their respective Cyclic Storage accounts as a pre-delivery of Replacement Water. Delivery of Supplemental Water is the only mechanism specified in the Judgment for management of groundwater levels. The Operating Safe Yield that is established in May of each year results in a Replacement Water requirement (net of any withdrawals from Producer Cyclic

¹ Upper San Gabriel Valley Municipal Water District vs. City of Alhambra, et al., Case No. 924128, Los Angeles County, as amended June 21, 2012.

Storage accounts) that is delivered (at the earliest) in October of the second fiscal year, a span of about 17 months, and possibly not until the following June, a span of 26 months assuming imported Supplemental Water is available. In that time frame, the actual hydrologic conditions experienced may have significant impacts on the Basin groundwater elevation. Therefore, it is prudent to conservatively manage the Basin and assure that Replacement Water assessment funds are appropriately collected and Supplemental Water is provided for Basin replenishment.

Watermaster evaluates numerous factors when determining the Operating Safe Yield. The most critical factors are the provisions of the Judgment and the current and projected groundwater elevation at the Baldwin Park Key Well (Key Well), which represents the water stored in the Basin. Watermaster also reviews historical and current hydrologic conditions within the Basin, such as rainfall, storage of local runoff in surface reservoirs and conservation of local runoff; the availability of Supplemental Water; the quantity of water in Cyclic Storage; Carry-over Rights; and other information. Presented in Table 1 is the history of the annual Operating Safe Yield, Carry-over Rights, Lost Carry-over Rights, Production Rights, Water Production, and Replacement Water Requirement for each year of Watermaster operations beginning with fiscal year 1973-74.

GROUNDWATER ELEVATIONS

Exhibit H, Section 2 of the amended Judgment states in part “Watermaster in determining Operating Safe Yield and the importation of Replacement Water shall be guided by water level elevations in the Basin.” The following describes the groundwater elevation at the Baldwin Park Key Well and at other “key wells” located throughout the Basin. (It should be noted that under current conditions, even if rainfall conditions provide average precipitation, the Key Well, and Basin storage will likely still decline.)

Baldwin Park Key Well

The Key Well is located in the central portion of the Basin, as shown in Plate 1. Historically, it has been used to represent basin-wide groundwater elevation trends. A one-foot groundwater elevation change at the Key Well is estimated to represent approximately 8,000 acre-feet of water in storage. Figure 1 is a hydrograph showing the groundwater elevation at the Key Well and annual rainfall at San Gabriel Dam since October 1, 1937. Figure 1 shows the measured groundwater elevation at the Key Well and includes Cyclic Storage, which is a pre-delivery of Supplemental Water to be used for future Replacement Water obligations. The operational groundwater elevation at the Key Well excludes the Cyclic Storage water from the measured Key Well elevation and is used throughout this Report to characterize “natural” groundwater elevations for the purposes of establishing an Operating Safe Yield. The highest operational groundwater elevation at the Key Well, since entry of the Judgment, occurred on July 20, 1983 at 294.1 feet at which time 9,900 acre-feet (about one foot) were in Cyclic Storage. On March 6, 2015 the operational

groundwater elevation at the Key Well was 169.7 feet (measured at 179.8 feet, as shown on Figure 2), at which time 81,200 acre-feet (about 10 feet) were in Cyclic Storage and represents a historical low.

Rainfall in the San Gabriel Valley has been below the long-term annual average of about 18 inches since fiscal year 2010-11, a period of four (4) consecutive years. Rainfall at the end of fiscal year 2010-11 was 19.45 inches, as measured at Puddingstone Dam, and the operational groundwater elevation of the Key Well was 227.9 feet (measured at 233.5 feet) as of June 24, 2011, as shown on Figure 2 and on Table 2. The next four consecutive fiscal years (2011-12, 2012-13, 2013-14 and 2014-15) have been below average rainfall years and resulted in rainfall of 12.06 inches, 7.84 inches, 4.77 inches and 6.19 inches (as of February 28th), respectively, as measured at Puddingstone Dam. (The long-term average is 18.1 inches.) As a result of four consecutive years of below average rainfall, the operational groundwater elevation at the Key Well decreased from 227.9 feet (measured at 233.5 feet) on June 24, 2011 to 169.7 feet (measured at 179.8 feet) on March 6, 2015, a decrease of about 58 feet, as shown on Figure 2 and Table 2. This is a loss of about 464,000 acre-feet of water in Basin storage of which about 240,000 acre-feet were withdrawn from storage at a time when the Key Well elevation was below the “low” operating range of 200 feet identified in the Judgment. (One foot of elevation at the Key Well is estimated to represent about 8,000 acre-feet of water in storage). As specified in Section 42 of the amended Judgment, the Watermaster, to the extent practical, shall manage the Basin to maintain the groundwater elevation at the Key Well above 200 feet.

Based on historical trends and assuming the Operating Safe Yield is set at 150,000 AF during FY 2015-16 and supplemental water is available during FY 2015-16, the operational groundwater elevation at the Key Well decreases by about 7 feet during an average year (about 18 inches of rainfall), and about 15 feet during a dry year (less than 12 inches of rainfall). (As a comparison, the operational groundwater elevation at the Key Well decreased by about 17 feet between February 2014 and February 2015, as shown on Table 2.) Thus far during fiscal year 2014-15, rainfall at Puddingstone Dam has been about 6 inches (dry year) which is about 47 percent of average. Based on historical trends, the operational groundwater elevation at the Key Well could decrease an additional 15 feet between March 2015 and Fall 2015, and fall to about 155 feet (measured at about 165 feet), which is 45 feet below the minimum Operating Criteria of 200 feet.

Other “Key Wells”

While the operational groundwater elevation at the Baldwin Park Key Well has decreased by 58 feet from 227.9 feet on June 24, 2011 to 169.7 feet on March 6, 2015, (the measured groundwater elevation has decreased by 54 feet from 233.5 feet in June 24, 2011 to 179.8 feet in March 6, 2014) the change in groundwater elevations in other parts of the Basin has been less significant. A well location map showing other “Key Wells” is included as Plate 1 and hydrographs of groundwater elevations at

five other wells located throughout the Basin (compared to the measured Baldwin Park Key Well groundwater elevation) are included in Appendix A. Two of these wells (San Gabriel County Water District Well 10 and California-American Water Company (CAWC) Blue Ribbon Well 1) are located westerly of the Baldwin Park Key Well, County of Los Angeles Well No. 2947F is located southerly of the Baldwin Park Key Well in the vicinity of Whittier Narrows, Suburban Water Systems Well 155W-2 is located in the vicinity of the Puente Narrows and Valencia Heights Water Company Well No. 5 is located southeasterly of the Baldwin Park Key Well. In general, groundwater elevations at each of the five monitoring wells in the Basin react (both upward and downward) in a comparable but less dramatic manner as the Baldwin Park Key Well. As shown on the hydrographs in Appendix A, the groundwater elevations at these wells generally do not increase as high as the Baldwin Park Key Well during wet periods (with significant groundwater replenishment), but also do not have as significant of a decrease during dry periods with less groundwater replenishment.

RAINFALL

Rainfall in the San Gabriel River watershed provides direct percolation and results in local stormwater runoff which is subsequently percolated in spreading facilities and contributes to Basin replenishment. Precipitation amounts vary throughout the San Gabriel River watershed and typically are highest in the foothills and mountains. Precipitation recorded at San Gabriel Dam, the City of Pasadena and Puddingstone Dam, are described below. The locations of these rainfall stations are shown on Plate 1.

San Gabriel Dam - Station 425B-E

Rainfall at San Gabriel Dam, which is located in the upper watershed and not on the valley floor, was about 12.90 inches for the period July 1, 2014 through February 28, 2015, or about 60 percent of average for that period. Rainfall for the period of July 1, 2014 through March 31, 2015, is estimated to be about 15 inches, or about 57 percent of average. Assuming average rainfall for the remainder of the year, the total annual rainfall could be about 18 inches, or total about 61 percent of average. During fiscal year 2011-12, rainfall was 17.16 inches or about 58 percent of average. During fiscal year 2012-13, rainfall was 12.97 inches or about 44 percent of average. During fiscal year 2013-14, rainfall was 13.71 inches or about 46 percent of average. Figure 3 shows the cumulative rainfall during fiscal years 2011-12, 2012-13, 2013-14 for the period July 2014 through February 2015, and the long-term average rainfall at San Gabriel Dam.

Pasadena City Hall - Station 610B

Rainfall at the Pasadena City Hall was 11.37 inches for the period July 1, 2014 through February 28, 2015, or about 76 percent of average for that period. Rainfall for the period of July 1, 2014 through March 31, 2015, is estimated to be about 13 inches,

or about 72 percent of average. Assuming average rainfall for the remainder of the year, the total annual rainfall would be about 15 inches, or total about 75 percent of average. During fiscal year 2011-12, rainfall was 14.47 inches or about 71 percent of average. During fiscal year 2012-13, rainfall was 9.46 inches or about 47 percent of average. During fiscal year 2013-14, rainfall was 8.64 inches or about 43 percent of average. Figure 4 shows the cumulative rainfall during fiscal years 2011-12, 2012-13, 2013-14 for the period July 2014 through February 2015, and the long-term average rainfall at the Pasadena City Hall.

Puddingstone Dam - Station 96C

Rainfall at Puddingstone Dam was 6.19 inches for the period July 1, 2014 through February 28, 2015, or about 47 percent of average for that period. Rainfall for the period of July 1, 2014 through March 31, 2014, is estimated to be about 7 inches, or about 43 percent of average. Assuming average rainfall for the remainder of the year, the total annual rainfall would be about 9 inches, or total about 50 percent of average. During fiscal year 2011-12, rainfall was 12.06 inches or about 67 percent of average. During fiscal year 2012-13, rainfall was 7.84 inches or about 43 percent of average. During fiscal year 2013-14, rainfall was 4.77 inches or about 26 percent of average. Figure 5 shows the cumulative rainfall during fiscal years 2011-12, 2012-13, 2013-14 for the period July 2014 through February 2015, and the long-term average rainfall at Puddingstone Dam.

Precipitation in the San Gabriel River watershed during fiscal year 2014-15, through the end of February 2015, was about 50 percent of average. Based on precipitation, fiscal year 2014-15 is a below-average year for rainfall. The average annual rainfall at Puddingstone Dam over the past four consecutive years has been about 8.5 inches which is about 45 percent of the long-term average annual rainfall. This represents the fourth consecutive year where the rainfall in the San Gabriel watershed is significantly below the long-term average annual rainfall.

LOCAL WATER IN SURFACE STORAGE RESERVOIRS

Water in surface reservoirs located on streams tributary to the Basin is stored by the Los Angeles County, Department of Public Works (DPW). This local runoff water is later released to the San Gabriel River system either for direct delivery to users or for replenishment of groundwater supplies.

Table 3 shows the maximum reservoir storage capacity and the quantities of water in storage in surface reservoirs tributary to the San Gabriel Valley on March 10, 2014 and on March 16, 2015. Also shown are the current recorded inflow and outflow rates at the reservoirs on March 16, 2015. The total amount of local water stored in surface reservoirs in the San Gabriel Valley as of March 16, 2015, was about 25,200 acre-feet, which is an increase of about 1,900 acre-feet in storage compared to March 10, 2014 (25,200 – 23,300). DPW indicates it maintains a minimum pool in Cogswell, San Gabriel and Morris Reservoirs representing about 10,500 acre-feet. In addition,

water in Puddingstone Reservoir (about 6,600 acre-feet) is maintained for recreational purposes. Consequently, of the 25,200 acre-feet in storage, only about 8,100 acre-feet (25,200 – 10,500 – 6,600) are available for direct use or groundwater replenishment. Consequently, no surface water runoff along the San Gabriel River is being diverted for replenishment at this time for the benefit of the Basin, nor is surface water runoff stored in Cogswell, San Gabriel and Morris Reservoirs expected to be available for Basin replenishment through the end of 2015 as a result of the below average rainfall.

LOCAL AND IMPORTED WATER CONSERVED

The amount of local water conserved, which is typically the primary component of Basin replenishment, is dependent upon the amount of precipitation on the surrounding watershed, resulting runoff, and the subsequent water conservation activities of DPW. Historically, when the Basin experiences average to above-average precipitation, it results in a larger amount of local water available to replenish the Basin and the groundwater elevation increases. Examples of this relationship are shown on Figure 1 (see 1977-78, 1982-83, and 2004-05). The occurrence and duration of annual rainfall is also an important factor. For example, a large amount of rainfall over a short period of time may result in limited replenishment to the Basin due to surface flows exceeding water spreading capabilities and higher flow amounts of local runoff to the ocean. Also, rainfall that follows severe dry periods will often result in lower runoff amounts due to local, dry soil replenishing effects and resulting reduced runoff.

Rainfall during fiscal year 2014-15 has been about 50 percent of average through February 28, 2014. Although DPW replenishment records are incomplete this time of year, preliminary data indicate approximately 1,800 acre-feet (only 2 percent of average) of local runoff was replenished in the Basin between October 1, 2014 and January 31, 2015. The average annual local water Basin replenishment is about 105,000 acre-feet. In addition, about 19,300 acre-feet of untreated imported water (Supplemental Water) was replenished in the Basin for a total Basin replenishment of about 21,100 acre-feet.

Table 4 summarizes the annual rainfall, local and imported water replenished, and measured and operational groundwater elevations at the Key Well since the inception of Watermaster operations.

SUPPLEMENTAL WATER AVAILABILITY

Section 10 of the amended Judgment defines Supplemental Water as “Nontributary water imported through a Responsible Agency.” Upper San Gabriel Valley Municipal Water District (Upper District), Three Valleys Municipal Water District (Three Valleys District) and San Gabriel Valley Municipal Water District (San Gabriel District) are the Responsible Agencies which deliver Supplemental Water to the Basin. Upper District and Three Valleys District are member agencies of Metropolitan Water

District of Southern California (MWD). The San Gabriel District is a State Water Project contractor. The following describes the availability of Supplemental Water from MWD and San Gabriel District.

Metropolitan Water District of Southern California

MWD primarily receives its water supply from the State Water Project (SWP) and the Colorado River. Below is a description of the availability of water from MWD.

Availability of Imported Water

An “8-station index” is used by the California Department of Water Resources (DWR) to determine average precipitation in the Sacramento River hydrologic region of northern California, which is the source of much of the imported water supply to the Basin. Through February 28, 2015, the “8-station index” indicated average precipitation of 30.80 inches or about 88 percent of average for that time of year while rainfall in the San Gabriel Valley was about 50 percent of average (through February 28, 2015).

On December 1, 2014, DWR announced the 2015 initial allocation of SWP water was 10 percent of the contractors’ Table A entitlement. As stated in DWR’s Notice to State Water Project Contractors, at that time “DWR considered several factors including California’s persistent drought and resulting low storage in SWP conservation facilities, SWP operational constraints under its water rights permits, the Biological Opinions for Delta Smelt and Salmon, the Longfin Smelt incidental take permit, and the 2015 Contractor demands”. On January 15, 2015, the SWP allocation was increased to 15 percent of the SWP entitlement and was increased to 20 percent of the SWP entitlement on March 2, 2015 “...due primarily to runoff from storms in December and February which was exported and stored in the San Luis Reservoir...” In general, every five percent of SWP allocation equates to about 100,000 acre-feet of supply for MWD, with a 20 percent SWP allocation MWD would receive about 400,000 acre-feet.

Based on the Colorado River Compact, the seven basin states receive allocations to Colorado River water. Based on California’s allocation of Colorado River water, MWD staff has indicated about 930,000 acre-feet of Colorado River water are available to MWD during calendar year 2015. Although Colorado River water may be delivered as Supplemental Water to the Basin, there are issues which must be addressed prior to delivery. Quagga mussels are in Colorado River water and have the potential to grow exponentially unless the Colorado River water is isolated and allowed to dry out, which effectively eliminates the Quagga mussels. The conditions which would allow an area to dry out do not exist on the San Gabriel River when delivering water through USG-3; however, Watermaster is coordinating with Upper District, MWD and DPW to develop a solution to mitigate the Quagga mussel issue in order to deliver Colorado River water through CEN B-48. A second concern is the high Total Dissolved Solids (TDS) concentration in Colorado River water, which would

need to be addressed through Watermaster's "Criteria for Delivery of Supplemental Water".

MWD staff indicates that based upon anticipated demands and available supplies for fiscal year 2015-16, there will be a deficit.

Due to critically dry conditions, MWD has developed a "Water Supply Allocation Plan" (WSAP) whereby available supplies will be equitably allocated to its member agencies. The WSAP establishes ten different shortage levels and a corresponding drought allocation to each member agency. Based on the shortage level established by MWD, the WSAP provides a reduced drought allocation to a member agency for its Municipal and Industrial (M&I) retail demand. The ratio of MWD water supply drought allocation to local water supply will change based on the WSAP stage. In addition, MWD established an allocation specifically for groundwater replenishment based on historic deliveries of groundwater replenishment and cyclic storage. Reduced local demand through conservation, or other means, results in an increased allocation. MWD drought allocation which can be used to make Full Service water deliveries, including replenishment deliveries, at the Tier 1 rate up to a Tier 1 allocation. Any Full Service water delivered in excess of a Tier 1 allocation but below the drought allocation will be charged at the Tier 2 rate. Any Full Service water delivered in excess of a drought allocation is subject to a penalty rate in addition to the normal rate paid for the water. Assuming MWD implements the WSAP at a Level 2 or 3, Upper District may have a WSASP allocation of about 28,000 acre-feet to about 29,000 acre-feet during fiscal year 2015-16. MWD is expected to address the WSAP in April 2015.

All imported untreated water deliveries through MWD are delivered under the Full Service Untreated Water Rate. Both treated and untreated imported water are delivered under the Full Service Tier 1 Allocation and any imported water delivered beyond the Full Service Tier 1 Allocation would be subject to the more expensive Tier 2 rate. Historically, the Full Service Tier 1 Allocation for Upper District was 16,511.6 acre-feet, which limited the amount of untreated imported water available for delivery to the Basin. Commencing 2013, the Full Service Tier 1 Allocation increased to 67,228.0 acre-feet. However, MWD is anticipated to implement its WSAP at a Level 2 or Level 3. Consequently, only about 28,000 to 29,000 acre-feet may be available during fiscal year 2015-16 for the collective Full Service demand (Treated and Untreated). Treated imported water deliveries are expected to be about 7,000 acre-feet leaving about 22,000 (29,000 – 7,000) acre-feet available for groundwater replenishment.

San Gabriel District

San Gabriel District has a contract for State Water Project water (see description of State Water Project availability under MWD). San Gabriel District's current 2015 allocation is 20 percent of its State Water Project entitlement.

Consequently, it is anticipated San Gabriel District will deliver about 5,760 acre-feet to the Basin during calendar year 2015.

Deliveries of Supplemental Water

In addition to replenishment from local sources, the groundwater elevation at the Key Well is impacted by the amount of Supplemental Water delivered for Cyclic Storage accounts and as Replacement Water. A summary of historical Supplemental Water deliveries is shown on Table 5. The following sections describe Supplemental Water deliveries, as 1) Replacement Water for Upper District, San Gabriel District and Three Valleys District; and 2) for Cyclic Storage accounts.

Replacement Water Requirements

Section 42 of the amended Judgment states in part, "... Watermaster shall recharge Replacement Water in accordance with the Watermaster Operating Criteria and, insofar as practicable, to maintain the water level at the Key Well above Elevation two hundred (200)." (As of March 6, 2015 the operational groundwater elevation at the Key Well was 169.7 feet.) Typically, establishing a lower Operating Safe Yield results in decreased water rights, increased Replacement Water obligations and, consequently, increased deliveries of imported water as Replacement Water.

Fiscal Year 2013-14 Replacement Water Requirement

The Operating Safe Yield established for fiscal year 2013-14 was 180,000 acre-feet. Total gross over production in the Basin during fiscal year 2013-14 was about 40,100 acre-feet, as shown in Table 1. Of this amount, about 36,300 acre-feet were deducted from Producers' Cyclic Storage accounts, which reduced the Replacement Water requirement to about 3,800 acre-feet. Below is a breakdown of Replacement Water requirements based on fiscal year 2013-14 production and deliveries by Upper District, San Gabriel District and Three Valleys District during fiscal year 2014-15.

Total over production within Upper District during fiscal year 2013-14 was 1,551.06 acre-feet. However, 16.10 acre-feet were added due to prior year's under-delivery, 751.10 acre-feet were added due to Net Interagency Transfer Adjustment (NITA) and 7.30 acre-feet were added due to an adjustment to fiscal year 2012-13 production for a total of 2,325.56 (1,551.06 + 16.10 + 751.10 + 7.30) acre-feet. Pursuant to the terms of the Cooperative Water Exchange Agreement (CWEA), 3,000 acre-feet should be delivered through USG-5. Consequently, Upper District's Replacement Water obligation was adjusted pursuant to Section 27, paragraph (g) of Watermaster's Rules and Regulations by adding 674.44 acre-feet to 2,325.56 acre-feet for a total of 3,000 acre-feet. (An equal amount was deducted from San Gabriel District's Replacement Water obligation for fiscal year 2013-14). Therefore, Upper District's Replacement Water requirement for fiscal year 2013-14 over production to be delivered during fiscal year 2014-15 through USG-3 was zero. About 3,000 acre-feet is delivered through USG-5.

Total over production within Three Valleys District during fiscal year 2013-14 was 64.11 acre-feet. In addition, 814.66 acre-feet were deducted due to NITA for a total of -750.55 (64.11 - 814.66) acre-feet. Three Valley's District's Replacement Water obligation was adjusted to zero acre-feet pursuant to Section 27, paragraph (g) of Watermaster's Rules and Regulations by adding 750.55 acre-feet. (An equal amount was deducted from San Gabriel District's Replacement Water obligation for fiscal year 2013-14). Therefore, Three Valleys District had no Replacement Water requirement for the Basin for fiscal year 2013-14 over production, to be delivered during fiscal year 2014-15.

Total over production within San Gabriel District during fiscal year 2013-14 was 2,164.15 acre-feet. In addition, 63.56 acre-feet were added due to NITA for a total of 2,227.71 (2,164.15 + 63.56) acre-feet. As previously discussed, an adjustment of 1,424.99 (674.44 + 750.55) acre-feet was deducted from San Gabriel District's over-production, which will be made up in a future year. Therefore, San Gabriel District's Replacement Water requirement for the Basin for fiscal year 2013-14 over production, to be delivered during fiscal year 2014-15, was 802.72 (2,227.71 - 1,424.99) acre-feet.

The Replacement Water requirements for fiscal year 2013-14 production were calculated in accordance with the Judgment for each of the Responsible Agencies, as shown in the tabulation below.

	<u>UPPER DISTRICT</u>	<u>SAN GABRIEL DISTRICT</u>	<u>THREE VALLEYS DISTRICT</u>	<u>TOTAL</u>
Calculated Replacement Water Requirement for Fiscal Year 2013-14	1,551.06	2,164.15	64.11	3,779.32
Adjusted 2012-13 Production	7.30	0.00	0.00	7.30
Prior Years' Under (Over) Delivered Amount	16.10	0.00	0.00	16.10
NITA 2013-14	751.10	63.56	(814.66)	0.00
Subtotal	2,325.56	2,227.71	(750.55)	3,802.72
CWEA	(3,000.00)	0.00	0.00	(3,000.00)
Subtotal	(674.44)	2,227.71	(750.55)	802.72
Adjustment	<u>674.44</u>	<u>(1,424.99)</u>	<u>750.55</u>	<u>0.00</u>
TOTAL REPLACEMENT WATER REQUIREMENT TO BE DELIVERED DURING 2014-15 1/	0.00	802.72	0.00	802.72
1/ Does not include USG-5 delivery Note: All units are in acre-feet.				

The following discusses Upper District, San Gabriel District and Three Valleys District deliveries during fiscal year 2014-15.

Upper District has no Replacement Water requirement to be delivered during 2014-15 through USG-3 and 3,000 acre-feet through USG-5. As of February 28, 2014, a total of 1,716.40 acre-feet was delivered through USG-5 leaving a Replacement Water balance of 1,283.96 acre-feet to be delivered during 2014-15.

San Gabriel District has a Replacement Water requirement of 802.72 acre-feet to be delivered during 2014-15. As of February 28, 2014, San Gabriel District had not delivered imported water to meet its Replacement Water requirement. However, based on a 20 percent SWP allocation and a Cyclic Storage account balance of about 7,200 acre-feet, it is assumed San Gabriel District will meet its Replacement Water requirement through SWP deliveries and/or a deduction from its Cyclic Storage account.

Estimated 2014-15 Replacement Water Requirement

The estimated fiscal year 2014-15 over production in the Basin is about 61,600 acre-feet. It is assumed much of the over production will be satisfied by a deduction from water in Producers' Cyclic Storage accounts.

It is estimated Upper District Producers over production will be about 45,000 acre-feet. It is assumed about 32,000 acre-feet will be satisfied by a deduction from water in Producers' Cyclic Storage accounts. Therefore, it is anticipated there will be about 13,000 acre-feet of Replacement Water requirement to be delivered during fiscal year 2015-16. However, about 3,000 acre-feet would be delivered through the CWEA USG-5 to satisfy the CWEA, leaving a balance of about 10,000 acre-feet. In addition, it is anticipated Watermaster will have pre-purchased about 11,500 acre-feet which may be used to address Upper District Producers' Replacement Water requirements (about 10,000 acre-feet). Consequently, it is anticipated there will be about 3,000 acre-feet of Replacement Water requirement for Upper District to be delivered through USG-5 in 2015-16.

It is estimated San Gabriel District Producers will have over production of about 10,300 acre-feet. It is assumed about 3,300 acre-feet will be satisfied by a deduction from water in Producers' Cyclic Storage accounts. It is anticipated there will be about 7,000 acre-feet of Replacement Water requirement to be delivered in fiscal year 2015-16.

It is estimated Three Valleys District producers will have over production of about 6,300 acre-feet. It is assumed about 3,000 acre-feet will be satisfied by a deduction from water in Producers' Cyclic Storage accounts. It is anticipated there will be about 3,300 acre-feet of Replacement Water requirement to be delivered in 2015-16.

Cyclic Storage Water

Cyclic Storage water is a pre-delivery of Replacement Water. Under the terms of Cyclic Storage agreements, the Individual Producers may make deliveries to Watermaster out of their Cyclic Storage accounts to satisfy Replacement Water requirements before June 30 of each year. The Responsible Agencies may make deliveries to Watermaster out of their Cyclic Storage accounts to satisfy Replacement Water requirements as of June 30 of each year.

There are Cyclic Storage agreements between Watermaster and each of the Responsible Agencies which provide for the total storage of up to 190,000 acre-feet of Supplemental (Replacement) Water in the Basin. This includes up to 50,000 acre-feet for San Gabriel District, up to 100,000 acre-feet for the MWD and Upper District, and up to 40,000 acre-feet for MWD and Three Valleys District. In addition, there are 21 producer Cyclic Storage agreements in which up to 142,000 acre-feet can be stored. The total amount of water that could be stored in existing Cyclic Storage accounts is

up to 332,000 acre-feet. As of February 28, 2015 there was a total of about 81,200 acre-feet in Basin Cyclic Storage.

Water in Cyclic Storage is available to supply Replacement Water by transfer to Watermaster in-lieu of physically delivering Supplemental Water. This is typically done at the discretion of the storing party. Table 2 is a summary of the monthly Cyclic Storage account balances since July 2010. The storage balance in all of the Basin Cyclic Storage accounts on July 1, 2013, the balance as of February 28, 2015 and the estimated balance as of June 30, 2015, is shown below in acre-feet.

	Cyclic Storage as of July 1, 2014	Estimated Account Balance as of February 28, 2015	Estimated Balance as of June 30, 2015^{1/}
San Gabriel Valley Municipal Water District	6,602	7,160	500
Upper San Gabriel Valley Municipal Water District	5,000	1,000	0
Three Valleys Municipal Water District	14,877	14,877	14,900
Producers in San Gabriel District	4,500	4,500	1,200
Producers in Upper District	22,971	50,261	15,000
Producers in Three Valleys District	<u>2,800</u>	<u>3,388</u>	<u>1,100</u>
	56,750	81,186	19,200

1/ It is assumed Replacement Water requirements will be deducted from Cyclic Storage accounts by the end of fiscal year 2014-15. It is assumed 2015 SWP water allocation is 20 percent.

CARRY-OVER RIGHTS

In accordance with the Judgment Section 49, "...Any Pumper's Share of the Operating Safe Yield and the Production Right of any Integrated Producer, which is not produced in a given fiscal year, may be carried over and accumulated for one fiscal year..." Establishing high operating safe yields will normally result in increased Carry-over Rights. These Carry-over Rights must be used by the Producer in the next year or can be leased to another Producer for use in that year. The first water produced in the succeeding fiscal year is deemed to be the Carry-over water. Leasing of water rights, including Carry-over Rights, also usually results in a reduction of the amount of water subject to Replacement Water assessments and, thus a decrease in delivery of Replacement Water to the Basin.

The amount of Carry-over Rights is considered when recommending the Operating Safe Yield. The Carry-over Rights at the beginning of fiscal year 2013-14 were approximately 42,900 acre-feet and decreased to 36,800 acre-feet at the beginning of fiscal year 2014-15. It is estimated the Carry-over Rights at the beginning of fiscal year 2015-16 will decrease to about 26,700 acre-feet. Historical Carry-over Rights and lost Carry-over Rights are shown on Table 1.

ESTIMATED WATER PRODUCTION DURING 2014-15

Historical water production under the Judgment since July 1, 1973, has been reported and recorded on a quarterly basis, as shown in Table 6. The preliminary total water production for the first two quarters of fiscal year 2014-15 was about 117,000 acre-feet. Figure 6 shows quarterly production in the Basin for the past 10 years (fiscal years 2004-05 through 2013-14) and current fiscal year 2014-15. Anticipated groundwater production for fiscal year 2014-15 has been estimated below.

The reported production for the first two quarters of fiscal year 2014-15 was about 117,000 acre-feet. It was assumed production for the last two quarters of fiscal year 2014-15 will be similar to the production for the last two quarters of fiscal year 2013-14, which was about 113,000 acre-feet. Applying the production for the last two quarters of fiscal year 2013-14 to fiscal year 2014-15 would be 230,000 acre-feet ($117,000 + 113,000$). However, during fiscal year 2014-15 SWS will take about 3,500 acre-feet from USG-4 in-lieu of producing groundwater from January to June 2015. Deducting 3,500 acre-feet results in about 226,500 acre-feet ($230,000 - 3,500$). Based on the above calculations, it is anticipated groundwater production during fiscal year 2014-15 will be about 225,000 acre-feet, this represents a significant reduction from fiscal year 2013-14 production of 243,000 acre-feet, however direct treated water deliveries have increased, as described below. Figure 6 shows the estimated groundwater production for fiscal year 2014-15.

The historical total demand in the Basin is met by local water production and direct treated imported water deliveries. During fiscal year 2013-14, direct treated imported water sales were about 22,000 acre-feet, as shown on Table 7. It is anticipated an additional 3,500 acre-feet will be delivered as direct treated imported water as part of an in-lieu program. Consequently, the total amount of direct treated imported water sales are estimated to be about 25,300 ($22,000 + 3,500$) acre-feet during fiscal year 2014-15. Total demand during fiscal year 2014-15 is estimated to be about 250,500 acre-feet ($225,000 + 25,500$) and is about 3,500 acre-feet below the 5-year average total water demand of 254,000 acre-feet, as shown on Table 7.

FISCAL YEAR 2014-15 OPERATING SAFE YIELD DETERMINATION

On May 7, 2014, Watermaster considered the Engineer's recommended Preliminary Operating Safe Yield of 150,000 acre-feet for fiscal year 2014-15. At that time, the total rainfall in the Basin from July 1, 2013 to April 30, 2014, as represented by the Puddingstone Dam station, was 4.77 inches or 27 percent of long-term average for that period. (The total annual rainfall at the Puddingstone Dam station for the fiscal year 2013-14 was 4.77 inches, representing about 26 percent of average.) The operational groundwater elevation at the Key Well at the time of the May 2014 Watermaster meeting was at 184 feet (measured at 192 feet) and decreasing at the rate of about 0.5 feet per week. Total water in local storage reservoirs was 24,600 acre-feet of which about 7,200 acre-feet were available for groundwater storage and/or for delivery to surface water treatment plants.

At its May 7, 2014 meeting, Watermaster established the Operating Safe Yield at 150,000 acre-feet for fiscal year 2014-15 and an estimated Operating Safe Yield of 130,000 acre-feet for fiscal years 2015-16, 2016-17, 2017-18, and 2018-19.

LOCAL HYDROLOGY AND OPERATING SAFE YIELD

An extensive evaluation of different criteria for establishing the annual Operating Safe Yield was conducted by the Watermaster Basin Water Management Committee during calendar year 2011. The evaluation examined the impacts to the groundwater elevation at the Key Well assuming the Operating Safe Yield was established at a narrower range around the long-term average of 200,000 acre-feet and to implement modifications to the annual Operating Safe Yield gradually. Since that time the operational elevation at the Key Well (as of April 30) has severely fallen to 213.4 feet (April 2012), 198.3 feet (April 2013), and 184.5 feet (April 2014). Over those three years Watermaster established the Operating Safe Yield at 200,000 acre-feet, 180,000 acre-feet, and 150,000 acre-feet for fiscal years 2012-13, 2013-14, and 2014-15, respectively. The decrease in the Operational elevation at the Key Well may have warranted lower Operating Safe Yields, but the Engineer's recommendation was influenced by the direction to moderate annual changes.

This is the fourth consecutive year of below average rainfall. As a result, the operational groundwater elevation at the Key Well dropped from 227.9 feet on June 24, 2011 to 169.7 feet (measured at 179.8 feet) on March 6, 2015, a decrease of about 58 feet, resulting in the loss of 464,000 acre-feet in Basin storage.

CONCLUSIONS

During fiscal year 2013-14, rainfall was 4.77 inches (26 percent of average), replenishment of local runoff was about 21,900 acre-feet (18 percent of average), imported water deliveries were 36,700 acre-feet and groundwater production was 243,500 acre-feet. These factors brought the operational groundwater elevation at the Key Well to 180.7 feet (measured at about 188 feet) by the end of fiscal year 2013-14.

As of March 31, 2015, rainfall in the San Gabriel River watershed has been about 50 percent of average. Local runoff was about 2 percent (about 1,800 acre-feet) of the 42-year average, as shown on Table 4.

Fiscal year 2014-15 is the fourth consecutive year of below average rainfall. The operational groundwater elevation at the Key Well was about 169.7 feet (measured at 179.8 feet) as of March 6, 2015. Based on normal seasonal trends, the operational groundwater elevation at the Key Well may decrease an additional 15 feet, and fall to about 155 feet (measured at about 165 feet) by the Fall of 2015, which is 45 feet below the minimum operating range of 200 feet at the Key Well.

During fiscal year 2014-15, there have been deliveries to Producers' Cyclic Storage accounts which will reduce future "wet" Replacement Water deliveries.

Untreated imported water in Cyclic Storage is a pre-delivery to be used for future Replacement Water obligations. (These Cyclic Storage deliveries raise the measured groundwater elevation at the Key Well, but not the operational elevation.) The SWP allocation is 20 percent of entitlement as of March 2, 2015. MWD is considering implementation of a WSAP allocation for fiscal year 2015-16. Consequently the allocation for Full Service deliveries to Upper District is expected be about 28,000 to 29,000 acre-feet.

However, it is recognized Watermaster performed considerable review of various alternative approaches to setting the Operating Safe Yield, which essentially resulted in a consensus to moderate the year-to-year changes in Operating Safe Yield. In addition, a significant shift from groundwater production to direct imported water deliveries has been observed for fiscal year 2013-14 and is expected to continue in fiscal year 2014-15.

Based on the evaluation presented in this Report, the Engineer's recommended Operating Safe Yield should be maintained from fiscal year 2014-15 for fiscal year 2015-16 at 150,000 acre-feet. The Watermaster established the Operating Safe Yield for fiscal year 2014-15 at 150,000 acre-feet. Water supplies and hydrologic conditions have not improved over the past year and warrant establishing a lower Operating Safe Yield. Furthermore, the Engineer recommends the Watermaster should consider maintaining the Operating Safe Yield at no more than 150,000 acre-feet until such time the operational elevation at the Key Well is significantly above elevation 200 feet.

The Judgment requires that on or before the first meeting in April each year, Watermaster makes a Preliminary Determination of the Operating Safe Yield for the Basin for each of the succeeding five fiscal years. Watermaster's Engineer recommends the following quantities as Operating Safe Yield for consideration by the Watermaster Board members.

<u>Fiscal Year</u>	<u>Operating Safe Yield (Acre-feet)</u>
2015-16	150,000
2016-17	130,000
2017-18	130,000
2018-19	130,000
2019-20	130,000

Attached, as Appendix "B", is a tabulation showing each Pumper's Share in percent and the number of acre-feet each Producer can produce from the Basin free of Replacement Water assessments for quantities of Operating Safe Yield 130,000 acre-feet per year to 160,000 acre-feet per year. Those producers shown to have a share less than five acre-feet are Minimal Producers and are allowed to produce up to five acre-feet free of Replacement Water assessments.

TABLE 1

**ANNUAL OPERATING SAFE YIELD,
PRODUCTION RIGHTS, WATER PRODUCTION
AND REPLACEMENT WATER REQUIREMENTS
(ACRE-FEET)**

FISCAL YEAR	RAINFALL AT PUDDINGSTONE STA. NO. 96C-E (INCHES) 1/	MEASURED KEY WELL ELEVATION (FEET) 2/	OPERATING SAFE YIELD	CARRY OVER RIGHTS FROM PREVIOUS YEAR	LOST CARRY OVER RIGHTS	PRODUCTION RIGHTS	WATER PRODUCTION	BASIN OVER PRODUCTION		
								REPLACEMENT WATER REQUIREMENT	PRODUCER CYCLIC STORAGE	TOTAL
1973-74	15.05	238.4	226,800	--	--	238,132.94	235,460.40	14,518.98	0.00	14,518.98
1974-75	14.57	234.8	210,000	17,191.52	203.36	237,913.46	225,221.86	8,421.93	0.00	8,421.93
1975-76	7.77	221.1	200,000	20,908.91	131.06	231,391.95	242,246.36	24,744.88	0.00	24,744.88
1976-77	15.72	211.4	150,000	13,759.41	861.12	174,193.45	212,995.30	48,650.71	0.00	48,650.71
1977-78	40.08	270.4	150,000	9,980.67	1,198.54	170,473.30	198,257.23	36,818.25	0.00	36,818.25
1978-79	24.88	266.6	170,000	8,950.43	78.11	189,439.67	218,405.64	34,404.83	0.00	34,404.83
1979-80	33.76	282.4	220,000	6,745.88	81.54	237,226.13	226,279.89	9,896.39	0.00	9,896.39
1980-81	9.74	252.4	230,000	21,960.87	202.89	262,445.19	233,963.01	5,477.08	0.00	5,477.08
1981-82	19.94	245.5	210,000	35,642.01	380.30	255,281.37	223,245.24	10,582.35	0.00	10,582.35
1982-83	37.80	292.7	200,000	43,261.87	304.02	253,049.93	212,205.73	3,293.23	0.00	3,293.23
1983-84	12.09	267.1	230,000	45,378.26	80.10	287,394.98	238,586.29	2,151.85	1,573.60	3,725.45
1984-85	14.42	245.8	210,000	51,594.26	344.48	272,050.11	244,835.13	12,475.69	0.00	12,475.69
1985-86	23.33	250.8	190,000	40,395.40	198.50	240,319.81	248,824.38	33,774.82	0.00	34,774.82
1986-87	9.61	236.5	200,000	25,403.49	106.93	235,923.93	256,117.22	41,828.86	0.00	41,828.86
1987-88	16.79	224.0	190,000	22,457.73	143.63	222,985.31	251,852.84	51,989.89	0.00	51,989.89
1988-89	14.00	219.8	180,000	21,710.19	61.61	214,810.57	257,421.07	59,384.99	0.00	59,384.99
1989-90	12.11	206.5	180,000	19,741.33	282.28	210,268.35	253,851.86	62,582.49	0.00	62,582.49
1990-91	18.29	200.3	170,000	17,837.99	387.33	199,467.55	234,825.54	41,232.39	13,112.70	54,345.09
1991-92	23.93	236.9	140,000	18,796.02	345.83	169,575.74	223,690.83	31,214.19	35,916.90	67,131.09
1992-93	40.44	267.8	180,000	13,478.79	189.05	204,009.40	239,155.14	15,858.66	50,031.39	65,890.05
1993-94	12.44	248.8	220,000	31,718.29	462.81	262,029.85	246,830.55	8,915.59	25,422.42	34,338.01
1994-95	29.38	269.0	200,000	50,290.41	1,065.79	260,802.71	246,657.49	30,194.77	0.00	30,194.77
1995-96	15.92	248.9	220,000	44,262.41	737.28	274,608.47	272,100.40	32,526.05	0.00	32,526.05
1996-97	18.47	241.3	210,000	35,484.68	863.84	256,011.19	282,785.85	55,236.24	0.00	55,236.24
1997-98	35.84	267.8	220,000	28,965.55	704.70	263,725.27	257,431.98	26,362.42	4,331.64	30,694.06
1998-99	7.93	244.8	230,000	34,016.10	124.28	277,282.73	268,505.37	30,499.32	2,859.66	33,358.98
1999-00	14.65	228.5	220,000	40,633.83	592.51	274,824.14	282,195.44	39,749.83	3,663.84	43,625.83
2000-01	17.04	220.1	220,000	33,774.80	570.83	267,126.29	274,204.43	38,317.35	2,825.02	41,142.37
2001-02	6.41	208.7	210,000	32,015.15	532.59	258,992.70	267,767.07	40,773.50	6,450.10	47,223.60
2002-03	19.99	204.1	190,000	32,833.12	159.50	240,450.90	240,509.16	38,519.29	5,948.75	44,468.04
2003-04	12.77	204.2	170,000	38,370.38	79.24	224,691.75	255,869.80	51,416.73	8,870.23	60,286.96
2004-05	44.08	248.4	170,000	24,549.23	53.76	219,049.64	250,185.00	41,043.83	18,736.93	59,780.76
2005-06	16.82	249.7	240,000	17,402.45	156.28	268,418.02	262,623.02	12,065.12	6,908.92	18,974.04
2006-07	4.55	220.5	240,000	27,862.73	90.80	278,386.20	287,293.69	20,048.99	7,309.89	27,356.53
2007-08	16.17	202.7	210,000	29,374.42	182.17	249,433.95	261,194.03	28,777.98	9,157.53	37,935.51
2008-09	14.59	195.6	180,000	33,902.42	778.21	224,028.56	253,167.52	26,473.24	30,239.02	56,712.26
2009-10	20.04	204.2	170,000	28,729.17	236.31	210,117.25	240,270.06	35,129.38	14,929.92	50,059.30
2010-11	19.45	233.5	170,000	20,695.69	167.70	201,220.31	228,779.73	33,084.38	15,382.66	48,467.04
2011-12	12.06	226.4	210,000	21,657.47	166.96	242,181.86	239,388.04	19,685.04	20,704.45	40,389.49
2012-13	7.84	202.8	200,000	44,143.15	268.13	254,314.47	245,582.04	5,972.15	23,673.25	29,645.40
2013-14	4.77	187.8	180,000	42,864.86	377.39	233,389.45	243,536.31	3,779.32	36,325.98	40,105.30
2014-15	6.04	3/ 179.8	4/ 150,000	36,753.33	--	197,300	5/ 225,000	6/ --	--	--
4-YEAR AVERAGE:	7.68	--	185,000	--	--	--	238,376.60	--	--	--
10-YEAR AVERAGE:	15.74	--	197,000	29,118.16	247.77	238,053.97	251,201.94	22,605.94	18,336.86	40,942.56
41-YEAR AVERAGE:	18.43	--	197,971	28,718.53	348.79	237,742.41	245,958.97	28,484.71	8,399.39	36,913.60

1/ Water Year

2/ End of Fiscal Year, July to June

3/ As of February 28, 2015

4/ As of March 6, 2015

5/ Estimated value including Carry-over Rights and Diversion Rights

6/ Estimated value

TABLE 2

**MONTHLY CYCLIC STORAGE ACCOUNTS
AND EFFECT ON KEY WELL**

END OF MONTH	ACCUMULATED CYCLIC STORAGE ACCOUNTS (acre-feet)					ESTIMATED KEY WELL ELEVATION INCREASE DUE TO CYCLIC STORAGE (FT) 1/	OPERATIONAL KEY WELL ELEVATION (WITHOUT CYCLIC STORAGE) (FT)	MEASURED KEY WELL ELEVATION (FT)
	MWD/UD	SGVMWD	MWD/TV	PRODUCER	TOTAL			
Jul-10	0	25,005.23	5,562.9	14,899.25	45,467.4	5.68	201.5	207.2
Aug-10	0	28,137.89	5,562.9	14,899.25	48,600.0	6.08	200.1	206.2
Sep-10	0	31,206.17	5,505.3	14,899.25	51,610.7	6.45	197.8	204.3
Oct-10	0	33,691.50	5,505.3	15,351.45	54,548.3	6.82	200.2	207.0
Nov-10	0	34,947.71	5,505.3	16,430.55	56,883.6	7.11	201.2	208.3
Dec-10	0	35,890.61	3,705.3	22,028.95	61,624.9	7.70	204.5	212.2
Jan-11	0	35,849.47	3,705.3	24,274.05	63,828.8	7.98	215.6	223.6
Feb-11	0	21,116.68	3,705.3	28,598.15	53,420.1	6.68	218.7	225.4
Mar-11	0	21,050.37	3,705.3	28,598.15	53,353.8	6.67	220.6	227.3
Apr-11	0	20,967.68	3,705.3	28,598.15	53,271.1	6.66	225.5	232.1
May-11	0	16,542.55	3,959.7	36,098.15	56,600.4	7.08	224.4	231.5
Jun-11	0	19,754.25	1,978.1	22,866.09	44,598.4	5.57	227.9	233.5
Jul-11	0	23,038.22	1,978.1	22,964.89	47,981.2	6.00	228.1	234.1
Aug-11	0	26,351.61	1,978.1	22,979.99	51,309.7	6.41	227.0	233.4
Sep-11	0	29,517.40	1,978.1	23,035.59	54,531.1	6.82	227.4	234.2
Oct-11	0	32,870.77	1,978.1	23,289.29	58,138.2	7.27	228.2	235.5
Nov-11	0	35,864.96	4,981.2	24,815.49	65,661.7	8.21	228.3	236.5
Dec-11	0	36,260.75	10,900.0	54,631.09	101,791.8	12.72	222.6	235.3
Jan-12	0	36,170.24	10,900.0	54,631.09	101,701.3	12.71	220.4	233.1
Feb-12	0	36,091.66	10,900.0	54,631.09	101,622.8	12.70	218.2	230.9
Mar-12	0	36,001.41	10,900.0	54,735.59	101,637.0	12.70	215.6	228.3
Apr-12	0	36,091.14	10,900.0	56,631.19	103,622.3	12.95	213.4	226.4
May-12	0	14,768.19	10,900.0	56,631.19	82,299.4	10.29	213.5	223.8
Jun-12	0	17,544.27	8,600.3	56,631.19	82,775.8	10.35	210.0	220.3
Jul-12	0	20,356.14	8,600.3	35,926.74	64,883.2	8.11	209.6	217.7
Aug-12	0	23,164.06	8,600.3	35,926.74	67,691.1	8.46	206.0	214.5
Sep-12	0	25,908.32	8,600.3	35,926.74	70,435.4	8.80	203.6	212.4
Oct-12	0	29,265.59	8,716.3	45,495.74	83,477.6	10.43	200.7	211.1
Nov-12	0	7,641.19	11,371.2	55,495.74	74,508.1	9.31	204.1	213.4
Dec-12	0	9,273.89	13,348.6	55,495.74	78,118.2	9.76	203.8	213.6
Jan-13	0	11,303.77	13,348.6	55,495.74	80,148.1	10.02	203.0	213.0
Feb-13	0	11,226.13	13,348.6	55,495.74	80,070.5	10.01	201.9	211.9
Mar-13	0	11,143.18	13,828.5	55,495.74	80,467.4	10.06	200.1	210.2
Apr-13	0	11,064.94	13,411.50	55,495.74	79,972.18	10.00	198.3	208.3
May-13	0	13,399.46	13,545.80	55,495.74	82,441.00	10.31	194.9	205.2
Jun-13	0	15,683.07	13,545.80	55,495.74	84,724.61	10.59	192.2	202.8
Jul-13	0	17,890.48	13,655.80	31,464.49	63,010.77	7.88	192.4	200.3
Aug-13	0	17,801.32	14,491.60	31,464.49	63,757.41	7.97	189.4	197.4
Sep-13	0	17,714.22	14,189.60	32,464.49	64,368.31	8.05	188.0	196.0
Oct-13	0	17,622.55	14,147.40	44,821.46	76,591.41	9.57	185.3	194.9
Nov-13	0	14,984.50	14,391.40	48,454.61	77,830.51	9.73	187.4	197.1
Dec-13	0	14,903.04	14,546.40	49,206.58	78,656.02	9.83	187.7	197.5
Jan-14	0	14,817.43	14,807.70	45,169.74	74,794.87	9.35	187.6	196.9
Feb-14	0	14,744.65	14,820.90	43,448.81	73,014.36	9.13	186.6	195.7
Mar-14	0	14,659.90	14,876.90	42,132.17	71,668.97	8.96	185.3	194.3
Apr-14	5,000	6,811.13	14,876.90	38,344.74	65,032.77	8.13	184.5	192.6
May-14	5,000	6,719.84	14,876.90	34,307.90	60,904.64	7.61	182.3	189.9
Jun-14	5,000	6,601.88	14,876.90	30,271.07	56,749.85	7.09	180.7	187.8
Jul-14	5,000	6,513.62	14,876.90	30,724.60	57,115.12	7.14	178.8	185.9
Aug-14	5,000	6,720.99	14,876.90	32,229.60	58,827.49	7.35	176.8	184.2
Sep-14	5,000	7,550.15	14,876.90	33,734.60	61,161.65	7.65	174.6	182.3
Oct-14	0	7,469.52	14,876.90	40,738.30	63,084.72	7.89	173.0	180.9
Nov-14	1,000	7,394.79	14,876.90	45,467.20	68,738.89	8.59	171.4	180.0
Dec-14	1,000	7,314.16	14,876.90	48,678.80	71,869.86	8.98	171.1	180.1
Jan-15	1,000	7,232.81	14,876.90	52,562.20	75,671.91	9.46	170.7	180.2
Feb-15	2/ 1,000	7,159.95	14,876.90	58,167.20	81,204.05	10.15	169.7	179.8

1/ ASSUMES 8,000 ACRE-FEET OF CYCLIC STORAGE EQUALS 1 VERTICAL FOOT AT THE BALDWIN PARK KEY WELL.

2/ ESTIMATED CYCLIC STORAGE AND KEY WELL ELEVATION AS OF FEBRUARY 28, 2015.

TABLE 3

**LOCAL WATER IN STORAGE
IN SURFACE RESERVOIRS**

<u>RESERVOIR</u>	<u>March 10, 2014</u>	<u>March 16, 2015</u>				
	<u>STORAGE (ACRE-FEET)</u>	<u>STORAGE (ACRE-FEET)</u>	<u>INFLOW (CFS)</u>	<u>OUTFLOW (CFS)</u>	<u>RESERVOIR CAPACITY (ACRE-FEET)</u>	<u>RESERVOIR STORAGE IN PERCENT</u>
Cogswell Dam	1,216	1,309	9	2	11,136	12%
San Gabriel Dam	7,426	8,628	55	0	43,646	20%
Morris Dam	7,911	8,431	8	0	28,696	29%
Sub-Total:	16,553	18,368			83,478	22%
Santa Fe Dam ^{1/}	0	0	--	--	--	--
Big Dalton Dam	0	0	0	0	--	--
San Dimas Dam	223	214	1	0	--	--
Puddingstone Dam ^{2/}	6,545	6,593	39	0	--	--
TOTALS:	23,321	25,175				

1/ Storage is typically zero. Reservoir used for Flood Control purposes only, not storage for water conservation purposes.

2/ Storage is typically about 6,600 acre-feet. Used for recreational purposes, not water conservation purposes.

TABLE 4

RAINFALL AND WATER REPLENISHMENT OF MAIN SAN GABRIEL BASIN

WATER YEAR 1/	RAINFALL AT PUDDINGSTONE STA. NO. 96C-E (INCHES)	WATER REPLENISHED IN THE MAIN SAN GABRIEL BASIN			MEASURED BALDWIN PARK KEY WELL ELEV. AT END OF WATER YEAR (FT)	OPERATIONAL BALDWIN PARK KEY WELL ELEV. AT END OF WATER YEAR (FT)
		LOCAL RUNOFF (AF)	IMPORTED (AF) 2/	TOTAL (AF)		
1973-74	15.05	92,000	8,835	100,835	234	234
1974-75	14.57	62,000	14,564	76,564	226	226
1975-76	7.77	22,400	28,018	50,418	214	212
1976-77	15.72	21,000	18,335	39,335	206	203
1977-78	40.08	262,400	20,549	282,949	259	258
1978-79	24.88	160,000	30,968	190,968	254	253
1979-80	33.76	227,700	5,805	233,505	269	268
1980-81	9.74	49,100	0	49,100	243	242
1981-82	19.94	92,200	42,623	134,823	240	239
1982-83	37.80	298,800	28,345	327,145	284	283
1983-84	12.09	70,000	3,326	73,326	256	255
1984-85	14.42	32,700	66	32,766	240	239
1985-86	23.33	70,200	55,862	126,062	241	234
1986-87	9.61	26,700	55,943	82,643	238	228
1987-88	16.79	48,500	43,989	92,489	218	208
1988-89	14.00	33,000	45,925	78,925	211	201
1989-90	12.11	37,700	47,504	85,204	201	193
1990-91	18.29	95,500	54,153	149,653	205	199
1991-92	23.93	222,100	68,304	290,404	237	230
1992-93	40.44	220,000	62,632	282,632	268	265
1993-94	12.44	43,000	38,296	81,296	250	247
1994-95	29.38	210,500	22,354	232,854	266	261
1995-96	15.92	105,900	32,480	138,380	248	238
1996-97	18.47	34,700	55,075	89,775	239	228
1997-98	35.84	171,600	62,887	234,487	264	255
1998-99	7.93	48,200	13,346	61,546	239	230
1999-00	14.65	66,500	59,559	126,059	226	214
2000-01	17.04	84,900	34,998	119,898	217	206
2001-02	6.41	55,900	60,543	116,443	205	194
2002-03	19.99	55,200	63,508	118,708	203	189
2003-04	12.77	45,600	67,533	113,133	197	180
2004-05	44.08	398,000	19,921	417,921	248	237
2005-06	16.82	138,600	88,014	226,614	240	225
2006-07	4.50	47,800	24,780	72,580	213	199
2007-08	16.25	85,400	7,727	93,127	203	191
2008-09	14.82	73,800	6,607	80,407	191	185
2009-10	20.04	157,400	32,708	190,108	204	198
2010-11	19.45	241,500	68,424	309,924	234	227
2011-12	12.06	39,100	57,846	96,946	212	203
2012-13	7.84	24,600	44,678	69,278	196	188
2013-14	4.77	21,900	36,717	58,617	182	174
2014-15	6.19	3/ 1,800	4/ 19,333	5/ 21,133	180	6/ 170
4-Year Average	7.72	21,850	39,644	61,494	192	184
10-Year Average	16.06	122,810	38,742	161,552	--	--
42-Year Average	18.43	104,734	37,408	142,143	--	--

1/ October 1 to September 30

2/ July 1 to June 30

3/ As of February 28, 2015.

4/ Preliminary data as of January 31, 2015.

5/ As of February 28, 2015. Excludes deliveries through USG-5.

6/ As of March 6, 2015.

TABLE 5

**SUPPLEMENTAL WATER DELIVERIES
TO THE MAIN SAN GABRIEL BASIN
FOR GROUNDWATER REPLENISHMENT
(ACRE-FEET)**

FISCAL YEAR	UPPER DISTRICT				THREE VALLEYS DISTRICT			SAN GABRIEL DISTRICT			TOTALS
	REPLACEMENT WATER		CYCLIC STORAGE	PRODUCER CYCLIC STORAGE	REPLACEMENT WATER	CYCLIC STORAGE	PRODUCER CYCLIC STORAGE	REPLACEMENT WATER	USG-5	CYCLIC STORAGE	
	USG-3	USG-5 2/							EXCHANGE REPLACEMENT		
1974-75	13,731.90	--	--	--	--	--	--	787.10	--	44.90	14,563.90
1975-76	7,121.40	--	12,621.10	--	--	--	--	1,302.90	--	6,972.10	28,017.50
1976-77	10,752.60	2,654.90	52.40	--	--	--	--	3,814.95	992.93	2,722.12	20,989.90
1977-78	14,962.50	2,981.70	0.00	--	--	--	--	4,470.85	1,115.15	0.00	23,530.20
1978-79	24,000.00	3,486.10	0.00	--	--	--	--	4,112.25	1,303.79	1,551.96	34,454.10
1979-80	4,740.60	3,191.00	0.00	--	--	--	--	0.00	1,064.00	0.00	8,995.60
1980-81	0.00	3,130.70	0.00	--	--	--	--	0.00	0.00	0.00	3,130.70
1981-82	40,824.70	2,853.70	0.00	--	--	--	--	81.84	1,067.28	648.88	45,476.40
1982-83	22,934.40	2,256.30	3,189.30	--	--	--	--	0.00	843.87	1,377.13	30,601.00
1983-84	0.00	1,907.10	3,246.70	0.00	--	--	--	0.00	79.00	0.00	5,232.80
1984-85	0.00	2,395.50	0.00	0.00	--	--	--	0.00	66.00	0.00	2,461.50
1985-86	3,000.00	2,600.80	47,405.40	0.00	--	--	--	4,484.30	972.70	0.00	58,463.20
1986-87	19,354.30	2,484.20	23,991.10	0.00	--	--	--	4,368.59	929.09	7,300.32	58,427.60
1987-88	28,187.30	3,751.30	5,975.00	0.00	--	--	--	7,763.11	1,402.99	660.90	47,740.60
1988-89	39,100.00	3,726.60	110.70	0.00	--	--	--	5,320.25	1,393.75	0.00	49,651.30
1989-90	32,740.20	1,716.10	0.00	0.00	--	--	--	11,296.63	641.82	2,825.55	49,220.30
1990-91	16,078.60	2,734.10	14,453.50	13,112.70	--	--	--	9,485.43	1,022.57	0.00	56,886.90
1991-92	7,491.90	2,214.00	23,525.90	3,305.90	0.00	25,077.10	--	8,074.96	828.04	0.00	70,517.80
1992-93	16,077.97	2,478.10	10,214.60	18,916.73	0.00	3,737.50	--	11,418.17	1,202.03	1,064.80	65,109.90
1993-94	0.00	3,214.00	0.00	23,050.80	0.00	0.00	--	8,620.14	1,205.80	5,419.06	41,509.80
1994-95	0.00	3,178.10	6,177.10	0.00	0.00	5,738.60	--	5,691.49	1,188.61	3,557.90	25,531.80
1995-96	15,467.80	3,149.90	85.20	0.00	0.00	3,832.00	--	8,484.59	1,178.05	3,432.36	35,629.90
1996-97	3,934.10	3,304.50	32,229.90	0.00	0.00	1,451.10	--	14,525.94	1,235.89	1,698.17	58,379.60
1997-98	21,409.60	3,392.70	24,870.20	0.00	0.00	953.10	--	14,061.60	1,268.85	323.55	66,279.60
1998-99	0.00	3,353.40	0.00	0.00	3,311.70	0.00	--	6,158.61	1,254.19	2,621.20	16,699.10
1999-00	13,645.60	3,508.30	24,416.20	0.00	4,418.60	0.00	--	9,286.01	1,312.09	8,605.90	65,192.70
2000-01	10,412.80	3,285.30	14,624.30	0.00	5,583.70	675.20	--	10,464.30	1,228.70	0.00	46,274.30
2001-02	25,246.02	3,438.90	1,944.90	0.00	4,944.10	570.20	--	10,929.17	1,286.13	1,172.70	49,532.12
2002-03	33,551.42	3,018.30	0.00	0.00	2,791.00	0.00	--	3,938.39	1,128.84	15,027.77	59,455.72
2003-04	14,166.20	3,058.30	23,603.00	10,000.00	1,920.40	0.00	--	672.60	1,143.80	16,815.60	71,379.90
2004-05	5,744.20	2,998.00	0.00	0.00	1,714.50	0.00	1,800.00	500.66	1,121.25	10,840.09	24,718.70
2005-06	48,069.20	2,815.50	9,400.80	7,500.00	357.10	0.00	0.00	0.00	1,052.99	12,658.01	81,853.60
2006-07	0.00	2,963.30	4,159.20	0.00	166.70	2,978.00	0.00	573.59	1,108.29	15,794.12	27,743.20
2007-08	0.00	3,027.20	5,724.40	0.00	0.00	0.00	0.00	91.76	1,132.17	779.07	10,754.60
2008-09	0.00	3,064.90	0.00	0.00	0.00	0.00	0.00	788.73	1,146.29	4,671.98	9,671.90
2009-10	16,076.40	2,611.50	0.00	0.00	0.00	1,427.80	0.00	1,886.58	976.70	12,340.72	35,319.70
2010-11	23,737.90	2,428.20	0.00	11,646.50	0.00	12,264.60	0.00	14,655.86	908.13	5,211.01	70,852.20
2011-12	3,257.20	2,999.40	0.00	18,169.10	0.00	12,871.40	0.00	22,426.22	1,121.78	0.00	60,845.10
2012-13	2,034.70	3,037.40	0.00	10,000.00	0.00	10,098.80	0.00	16,269.22	1,135.98	5,138.80	47,714.90
2013-14	0.00	2,983.90	0.00	31,288.90	0.00	3,110.10	0.00	1,202.03	1,115.97	0.00	39,700.90
2014-15	1/ 0.00	1,716.40	0.00	21,790.60	0.00	0.00	0.00	0.00	641.93	558.07	24,707.00

1/ Estimated as of February 28, 2015.

2/ In-Lieu replenishment through CWEA.

TABLE 6
HISTORICAL WATER PRODUCTION
(ACRE-FEET)

<u>FISCAL</u> <u>YEAR</u>	<u>FIRST</u> <u>QUARTER</u>	<u>SECOND</u> <u>QUARTER</u>	<u>THIRD</u> <u>QUARTER</u>	<u>FOURTH</u> <u>QUARTER</u>	<u>TOTAL</u>
1973-74	76,455	52,082	40,945	65,904	235,386
1974-75	78,099	48,846	41,069	57,207	225,221
1975-76	78,514	51,680	48,147	63,964	242,305
1976-77	67,128	53,721	42,800	49,346	212,995
1977-78	60,696	47,985	33,894	55,682	198,257
1978-79	70,583	47,487	36,888	63,448	218,406
1979-80	76,119	52,642	38,317	59,221	226,299
1980-81	74,255	55,014	41,003	63,691	233,963
1981-82	78,600	51,682	39,670	52,393	222,345
1982-83	71,902	47,264	38,555	54,485	212,206
1983-84	70,020	44,938	51,594	70,034	236,586
1984-85	78,296	51,643	45,785	69,111	244,835
1985-86	78,048	54,539	46,482	69,755	248,824
1986-87	78,220	56,281	49,763	71,853	256,117
1987-88	77,030	52,581	54,012	68,239	251,862
1988-89	78,926	58,264	50,169	70,062	257,421
1989-90	78,469	60,387	50,941	64,037	253,834
1990-91	74,542	59,973	44,053	56,239	234,807
1991-92	66,545	54,724	41,168	61,254	223,691
1992-93	74,939	54,857	42,328	67,229	239,353
1993-94	77,436	58,198	48,448	62,749	246,831
1994-95	81,306	58,590	43,990	62,771	246,657
1995-96	82,201	64,224	51,680	73,995	272,100
1996-97	85,432	61,594	57,232	78,528	282,786
1997-98	85,517	61,422	47,766	62,727	257,432
1998-99	84,474	63,194	54,828	66,010	268,505
1999-00	83,375	69,981	54,574	74,265	282,195
2000-01	84,306	65,723	52,359	71,817	274,204
2001-02	83,305	62,304	56,637	65,521	267,767
2002-03	70,540	56,364	50,408	58,497	235,809
2003-04	72,162	57,558	55,545	70,642	255,908
2004-05	78,039	55,998	47,195	69,032	250,264
2005-06	80,129	63,577	54,428	64,620	262,755
2006-07	83,945	67,260	62,519	73,568	287,292
2007-08	76,162	58,530	53,862	72,639	261,194
2008-09	77,180	59,664	49,895	66,874	253,612
2009-10	75,655	56,991	43,866	63,223	239,734
2010-11	71,987	50,362	45,374	61,645	229,367
2011-12	75,176	52,702	49,033	62,378	239,289
2012-13	77,222	53,988	47,075	67,297	245,582
2013-14	73,898	55,406	49,007	65,226	243,536
2014-15	66,951	50,123	--	--	225,000 1/
4-Year Average	73,312	53,055	48,372	64,967	238,352
10-Year Average	76,939	57,448	50,225	66,650	251,263
41-Year Average	76,752	56,347	47,642	65,053	245,794

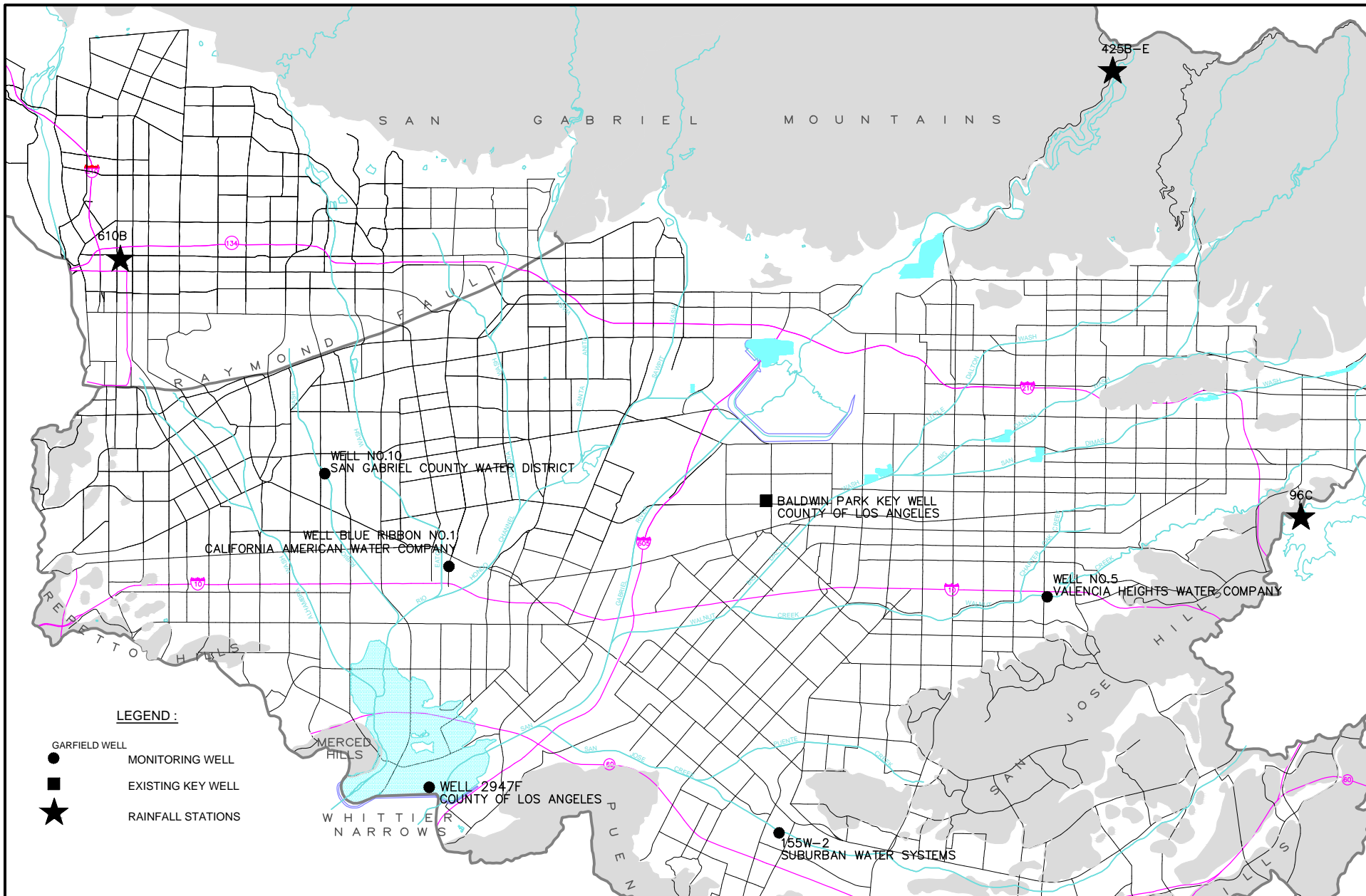
1/ ESTIMATED

TABLE 7

**TOTAL HISTORICAL WATER DEMAND IN BASIN
(ACRE-FEET)**

<u>FISCAL YEAR</u>	<u>TREATED IMPORTED WATER</u>	<u>TOTAL PRODUCTION</u>	<u>TOTAL DEMAND</u>
1973-74	630	235,386	236,016
1974-75	1,036	225,221	226,257
1975-76	3,539	242,305	245,844
1976-77	9,471	212,995	222,466
1977-78	11,427	198,257	209,684
1978-79	11,724	218,406	230,130
1979-80	13,032	226,299	239,331
1980-81	16,799	233,963	250,762
1981-82	17,402	222,345	239,747
1982-83	14,208	212,206	226,414
1983-84	18,298	236,586	254,884
1984-85	21,676	244,835	266,511
1985-86	20,872	248,824	269,696
1986-87	22,575	256,117	278,692
1987-88	28,537	251,862	280,399
1988-89	25,799	257,421	283,220
1989-90	31,478	253,834	285,312
1990-91	29,922	234,807	264,729
1991-92	18,606	223,691	242,297
1992-93	18,948	239,353	258,301
1993-94	18,412	246,831	265,243
1994-95	19,517	246,657	266,174
1995-96	16,931	272,100	289,031
1996-97	17,205	282,786	299,990
1997-98	14,208	257,432	271,640
1998-99	13,846	268,505	282,351
1999-00	21,062	282,195	303,257
2000-01	19,971	274,204	294,175
2001-02	35,153	267,767	302,920
2002-03	40,982	235,809	276,791
2003-04	50,758	255,908	306,666
2004-05	35,979	250,264	286,244
2005-06	23,125	262,755	285,880
2006-07	25,904	287,294	313,198
2007-08	30,174	261,194	291,368
2008-09	21,683	253,168	274,850
2009-10	16,329	240,270	256,599
2010-11	10,316	228,780	239,095
2011-12	10,561	239,388	249,949
2012-13	14,344	245,582	259,926
2013-14	22,216	243,536	265,752
Most Recent			
5-Year Average	14,753	239,511	254,264
10-Year Average			
21,063	251,223	272,286	
41-Year Average			
19,870	245,784	265,653	

Note: Total Production includes USG-5



LEGEND :

- GARFIELD WELL
- MONITORING WELL
- ★ EXISTING KEY WELL
- ★ RAINFALL STATIONS



861 VILLAGE OAKS DRIVE, SUITE 100
COVINA, CALIFORNIA 91724
TEL: (626) 967-6202
FAX: (626) 331-7065

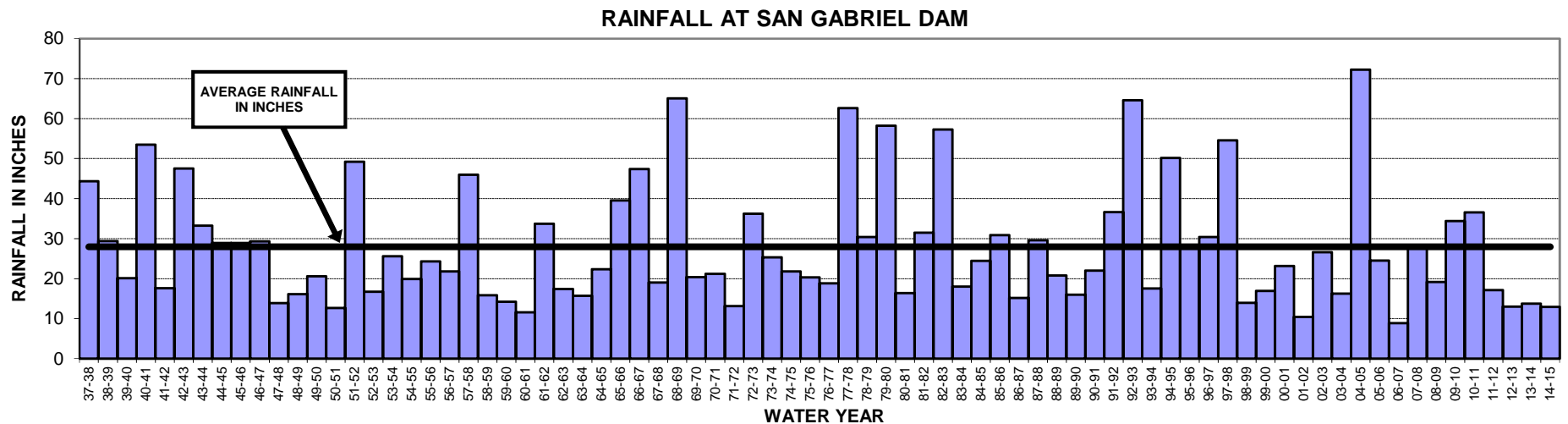
2171 E Francisco Blvd., Suite K
San Rafael California 94901
2651 W Guadalupe Rd., Suite A209
Mesa Arizona 85202



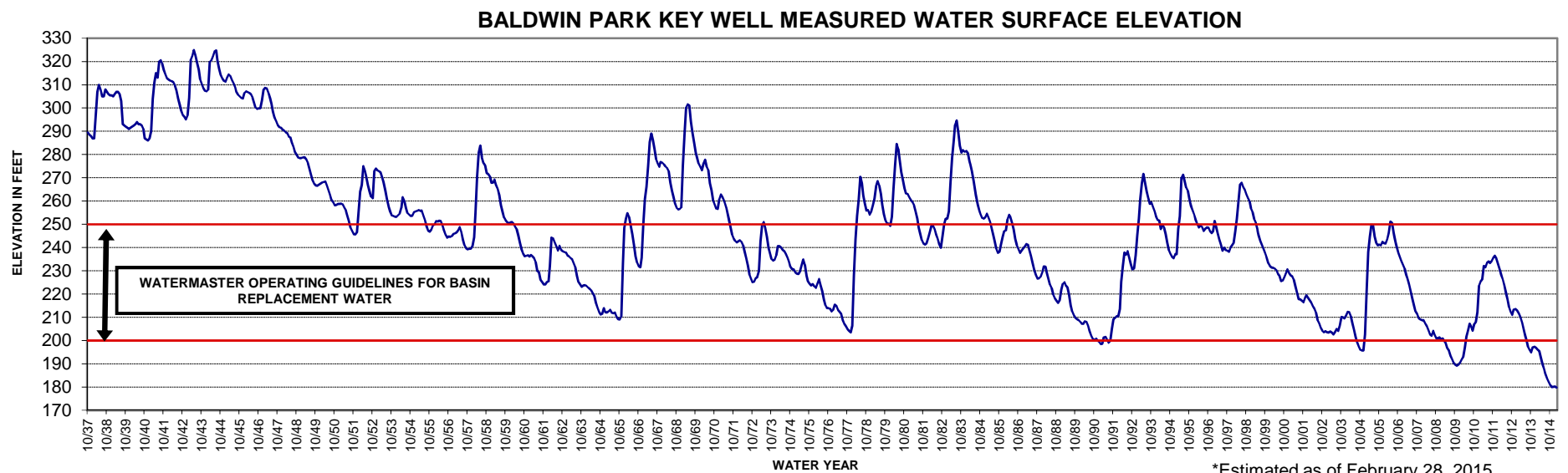
APPROXIMATE SCALE
1" = 12,000'

MAIN SAN GABRIEL BASIN WATERMASTER

WELL LOCATION MAP



*Estimated as of February 28, 2015



*Estimated as of February 28, 2015



STETSON ENGINEERS INC.

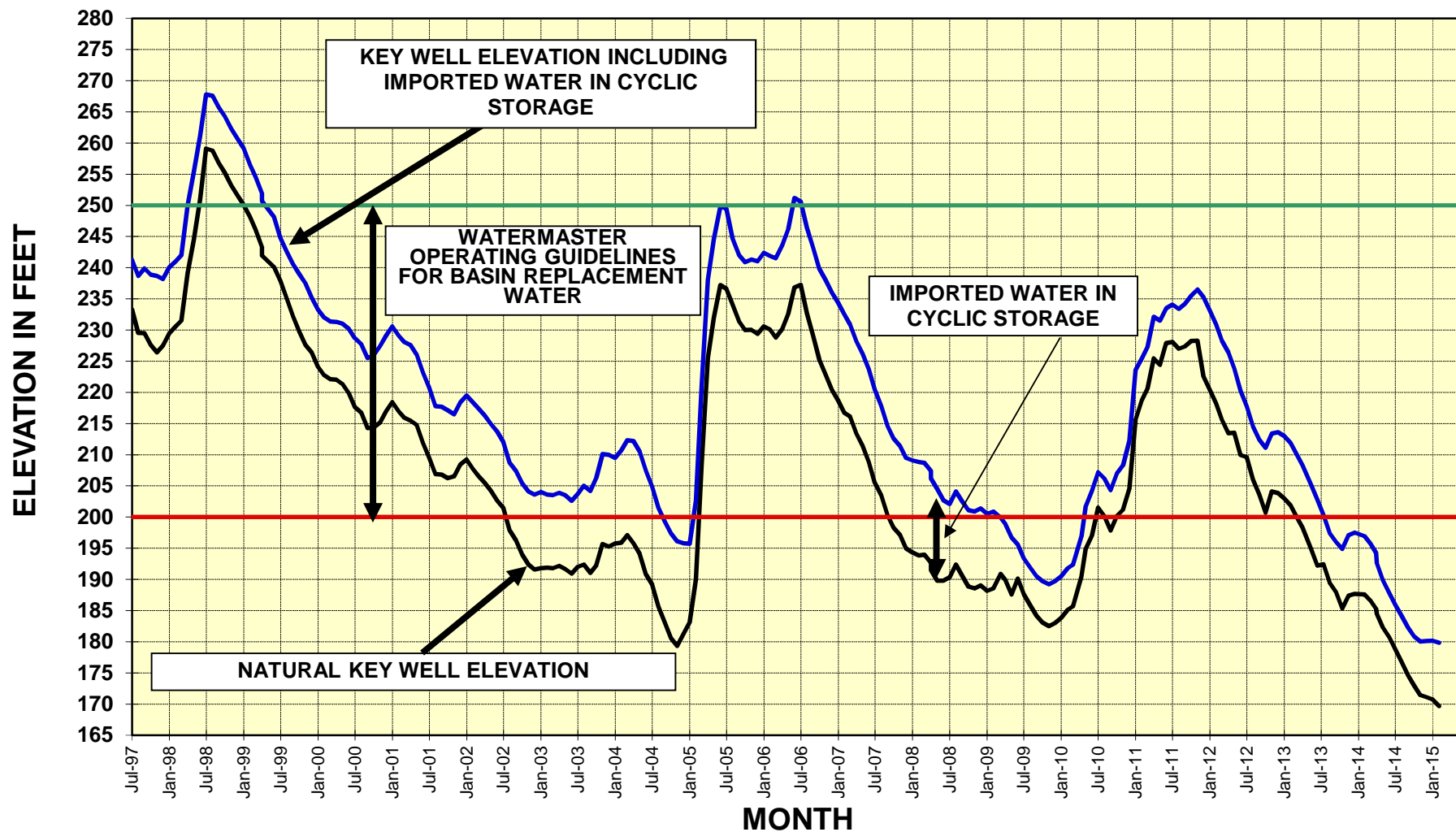
Covina San Rafael Mesa, Arizona

WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

SAN GABRIEL DAM RAINFALL AND BALDWIN PARK KEY WELL ELEVATION

FIGURE 1



STETSON ENGINEERS INC.

Covina San Rafael Mesa, Arizona

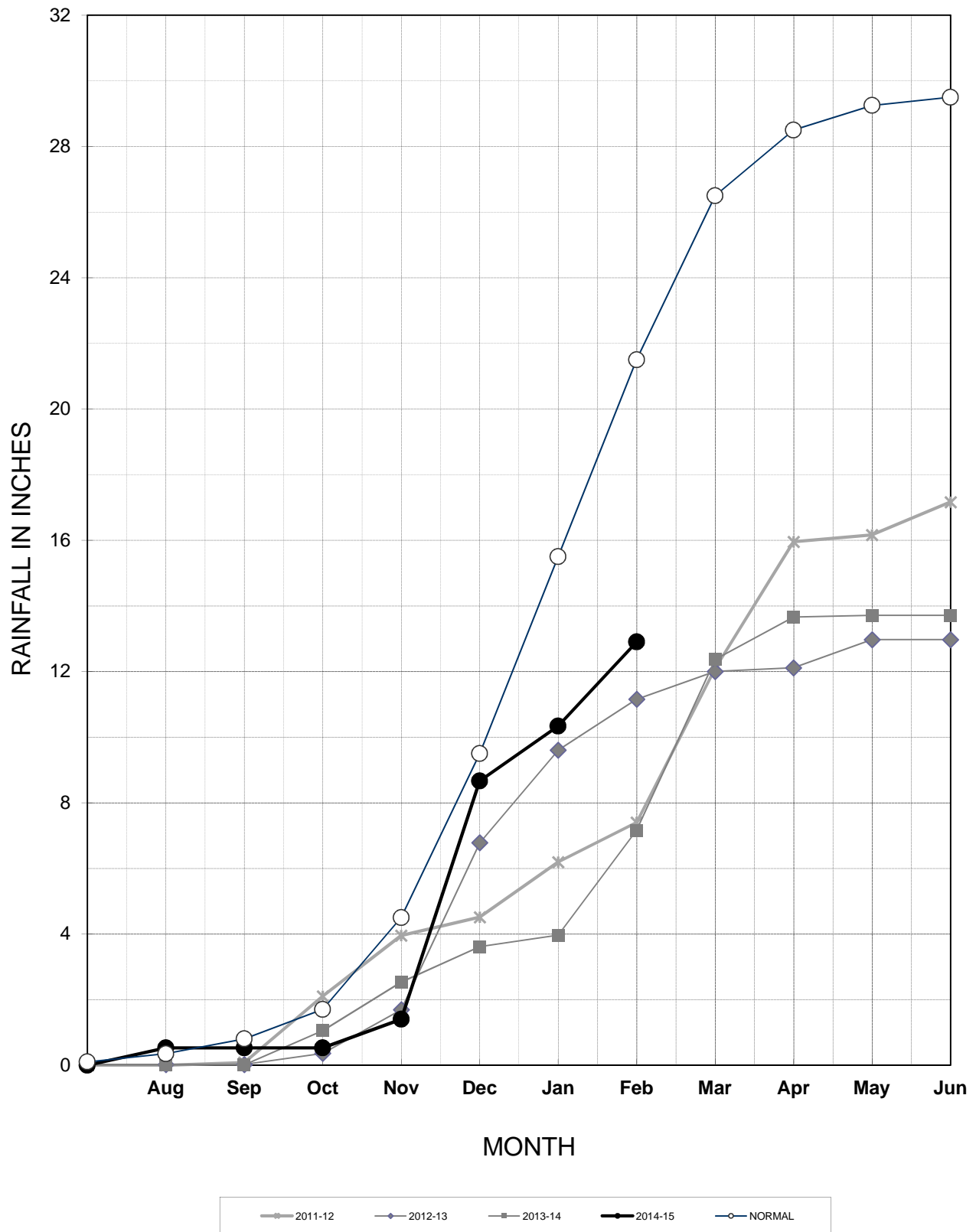
WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

**BALDWIN PARK KEY WELL
GROUNDWATER ELEVATION**

FIGURE 2

FIGURE 3

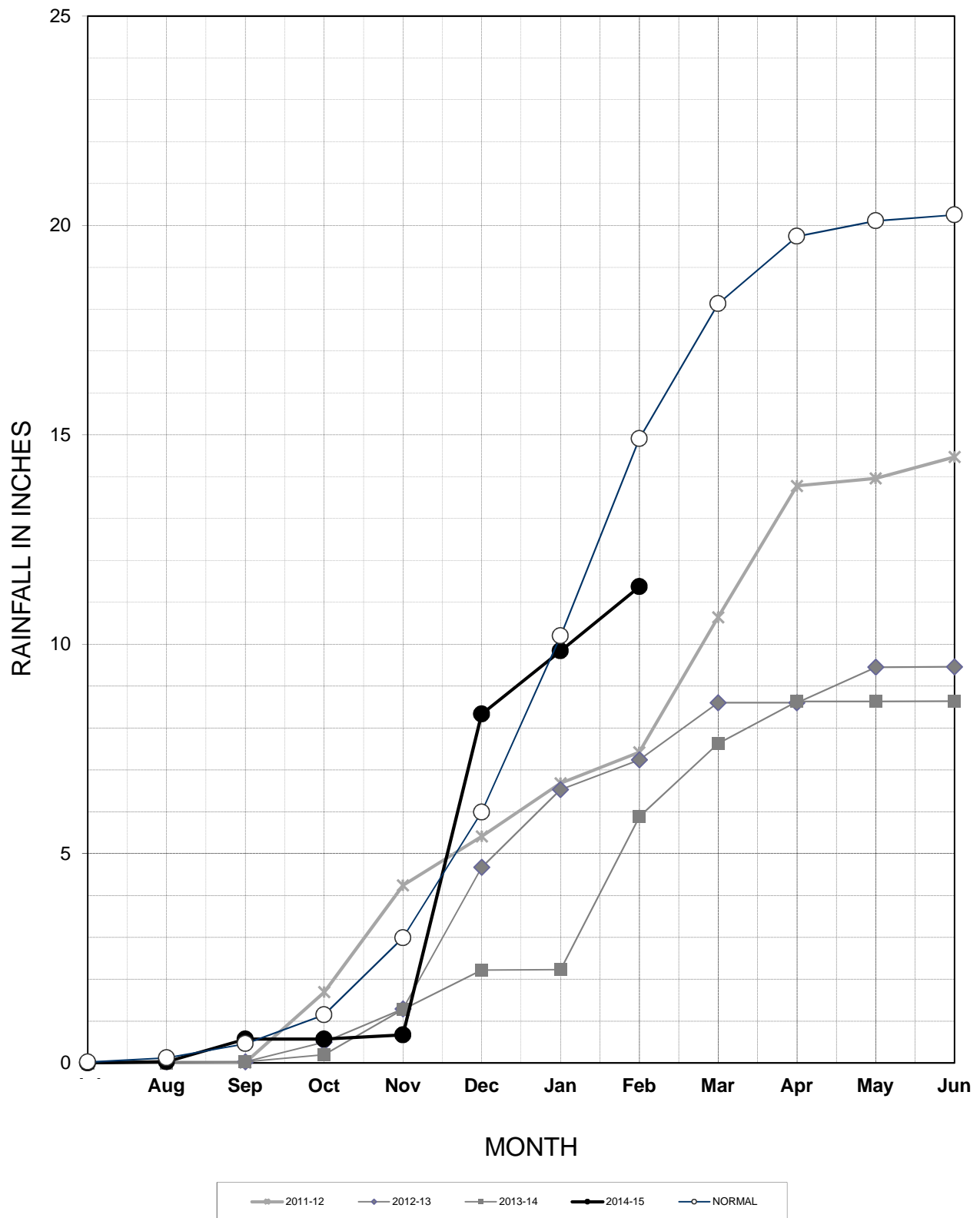


STETSON ENGINEERS INC.
Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

**ACCUMULATED RAINFALL AT SAN GABRIEL DAM
RAINFALL STATION NO. 425B-E**

FIGURE 4

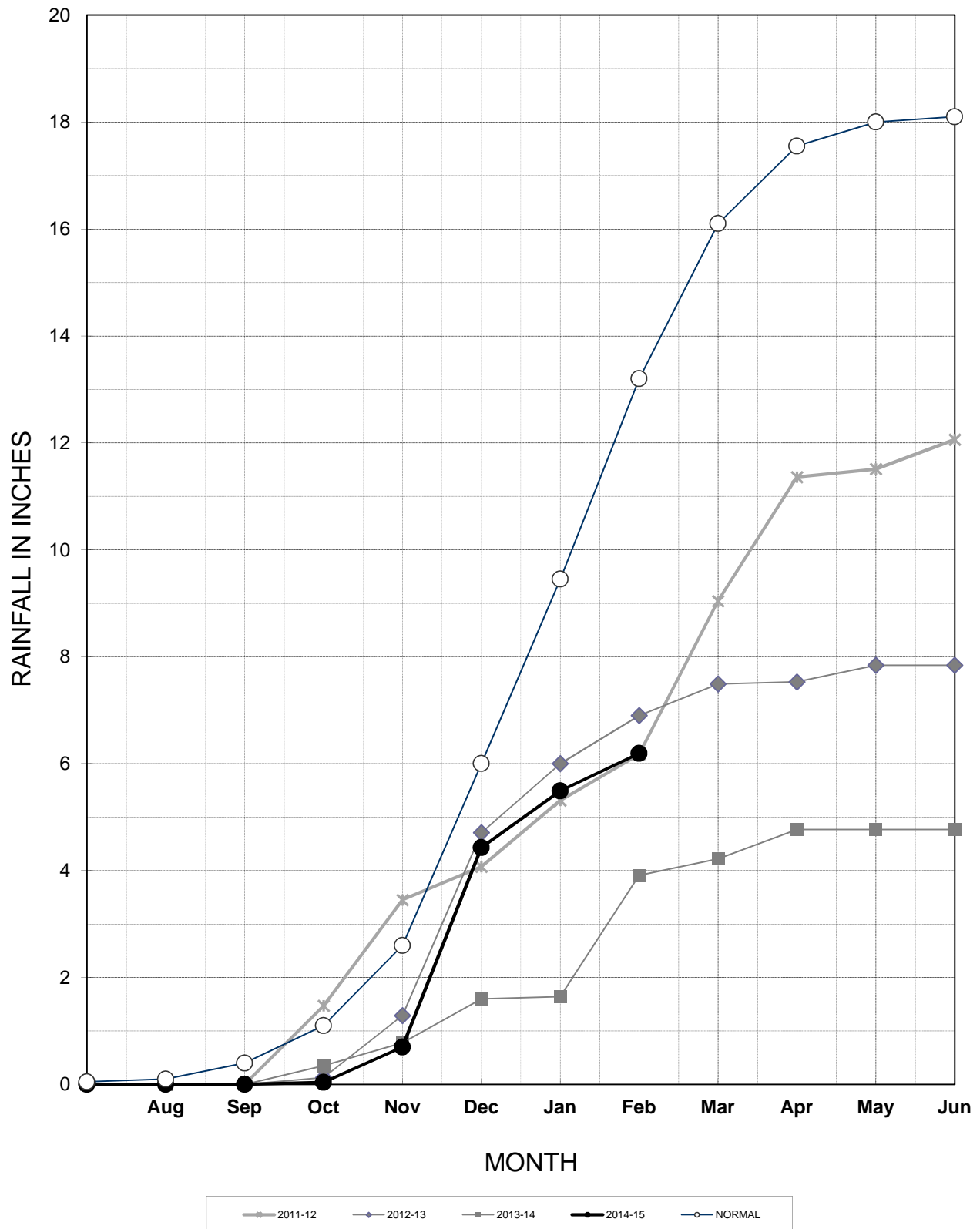


STETSON ENGINEERS INC.
Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

**ACCUMULATED RAINFALL AT PASADENA CITY HALL
RAINFALL STATION NO. 610B**

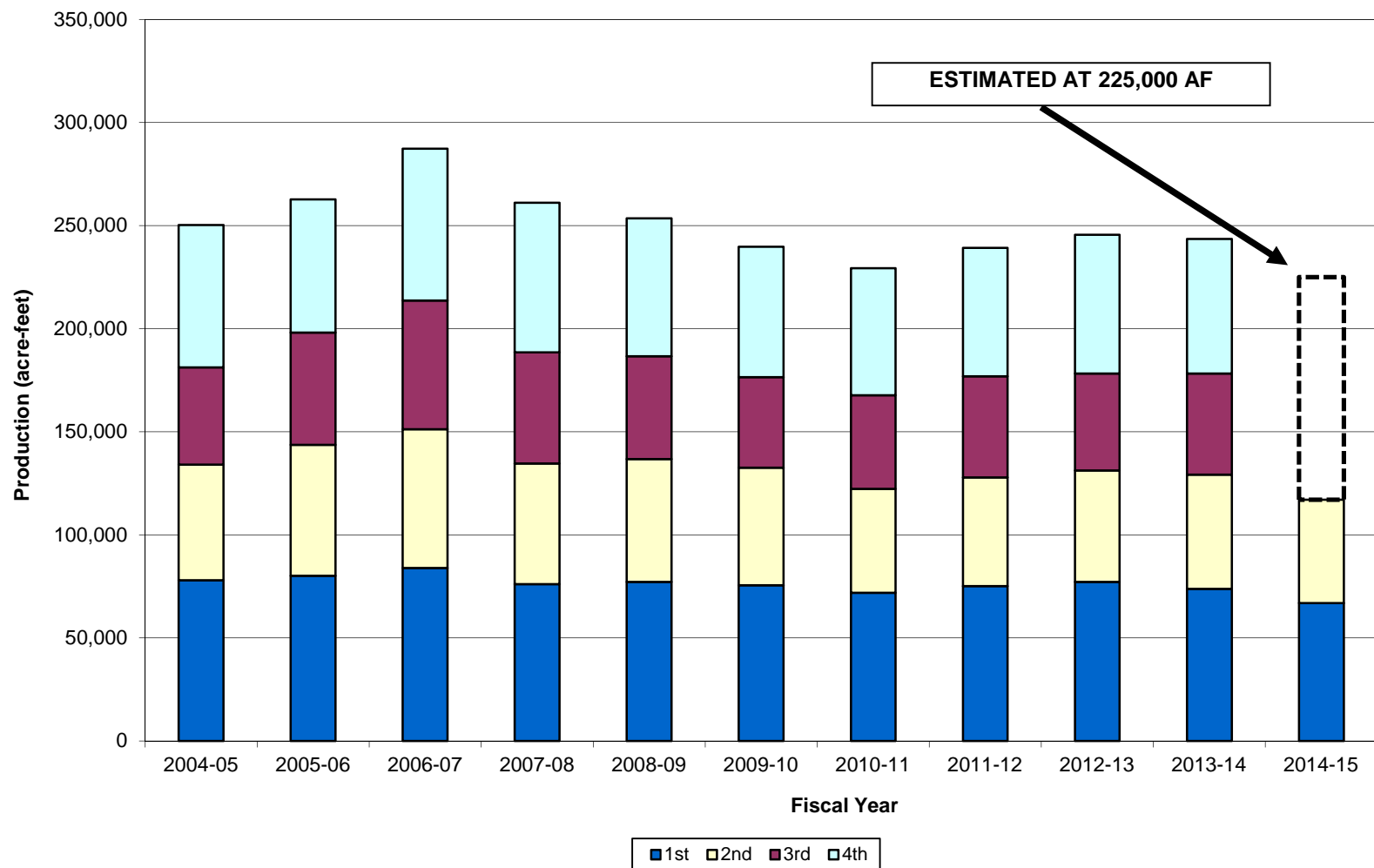
FIGURE 5



STETSON ENGINEERS INC.
Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

**ACCUMULATED RAINFALL AT PUDDINGSTONE DAM
RAINFALL STATION NO. 96-C**



STETSON ENGINEERS INC.

Covina San Rafael Mesa, Arizona

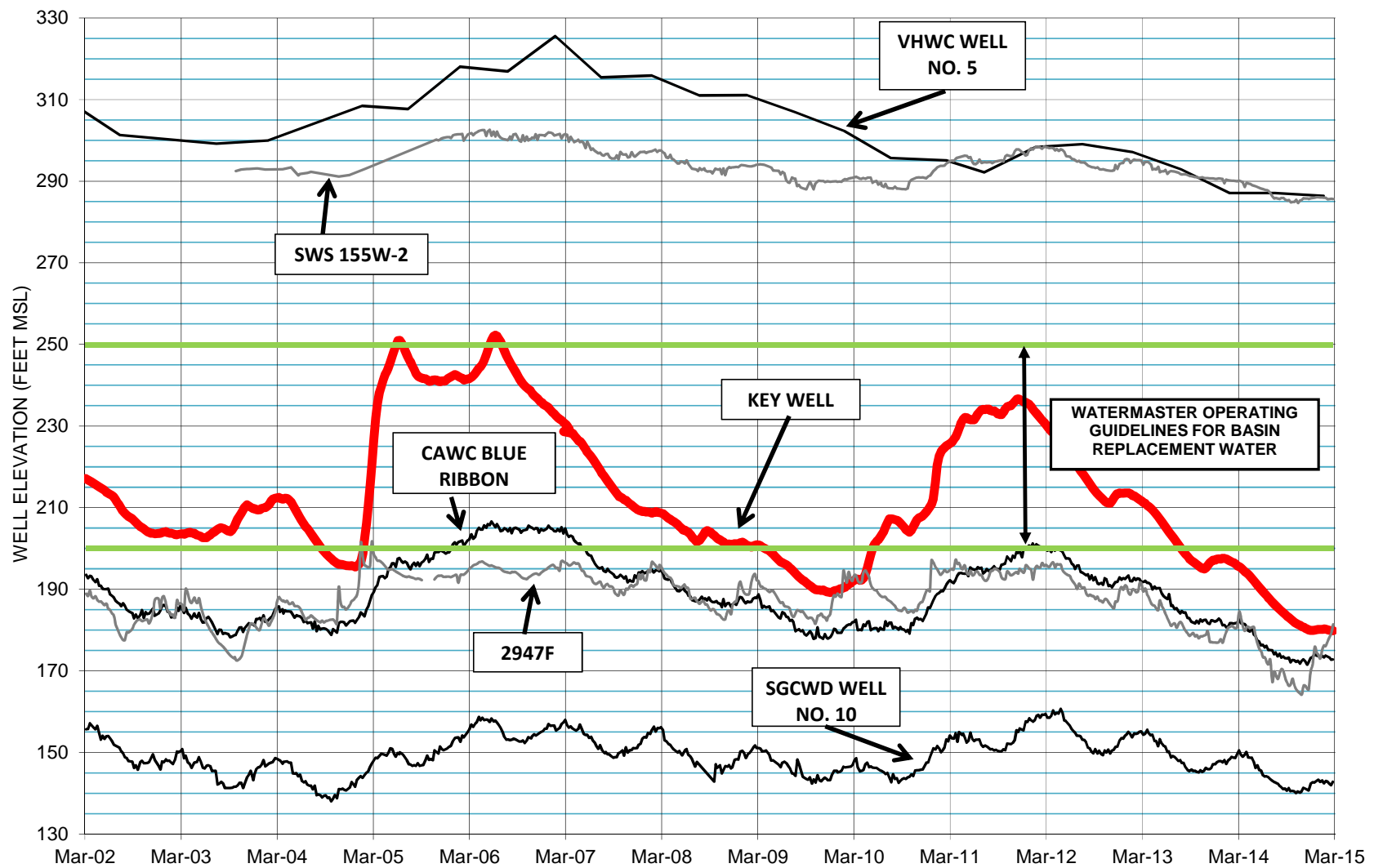
WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

PRODUCTION IN MAIN SAN GABRIEL BASIN

FIGURE 6

APPENDIX A



STETSON ENGINEERS INC.

West Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

**HYDROGRAPHS FOR BALDWIN PARK KEY WELL AND OTHER "KEY WELLS"
BETWEEN MARCH 2002 AND MARCH 2015**

APPENDIX B

APPENDIX B

RANGE OF OPERATING SAFE YIELDS AND PUMPER'S SHARES THEREOF (Acre-feet)

Quantities which may be pumped free of Replacement Water Assessment

Pumper	Pumper's Share %	OSY of 130,000	OSY of 140,000	OSY of 150,000	OSY of 160,000
Adams Ranch Mutual	0.05060	65.78	70.84	75.90	80.96
Alhambra, City of	4.45876	5,796.39	6,242.26	6,688.14	7,134.02
Amarillo Mutual	0.35874	466.36	502.24	538.11	573.98
Andrade, Susan	0.00423	5.50	5.92	6.35	6.77
Arcadia, City of	4.23099	5,500.29	5,923.39	6,346.49	6,769.58
Azusa, City of	1.84988	2,404.84	2,589.83	2,774.82	2,959.81
Bandel Family Trust	0.00845	10.99	11.83	12.68	13.52
Banks, Gale C.	0.02530	32.89	35.42	37.95	40.48
Brea, City of	0.76035	988.46	1,064.49	1,140.53	1,216.56
Brondino, Jeanne	0.01269	16.50	17.77	19.04	20.30
Cadway, Inc.	0.32545	423.09	455.63	488.18	520.72
Calif. American-San Marino	3.98144	5,175.87	5,574.02	5,972.16	6,370.30
California Domestic	6.22093	8,087.21	8,709.30	9,331.40	9,953.49
Canyon Water Company	0.00051	0.66	0.71	0.77	0.82
Champion Mutual	0.07472	97.14	104.61	112.08	119.55
Chevron	0.00101	1.31	1.41	1.52	1.62
County Sanitation Dist.18	0.00228	2.96	3.19	3.42	3.65
Covina, City of	0.23979	311.73	335.71	359.69	383.66
Crevolin, A.J.	0.00114	1.48	1.60	1.71	1.82
Dawes, Mary Kay	0.22359	290.67	313.03	335.39	357.74
Del Rio Mutual	0.10069	130.90	140.97	151.04	161.10
East Pasadena Water Co.	0.71227	925.95	997.18	1,068.41	1,139.63
El Monte, City of	1.40888	1,831.54	1,972.43	2,113.32	2,254.21
El Monte Cemetery	0.00936	12.17	13.10	14.04	14.98
Fox Family Trust Michael Edward Fox and Crystal Marie Fox, Trustees	0.07378	95.91	103.29	110.67	118.05
Garnier, Anton and Anita	0.10843	140.96	151.80	162.65	173.49
Garnier, Ruth Elaine Ailor	0.02110	27.43	29.54	31.65	33.76
Goedert, Lillian	0.00114	1.48	1.60	1.71	1.82
Golden State Water-S.G.V. Dist.	2.92105	3,797.37	4,089.47	4,381.58	4,673.68
Green, Walter	0.03628	47.16	50.79	54.42	58.05
Hansen, Alice	0.00038	0.49	0.53	0.57	0.61
Hanson Aggregates West, Inc.	1.17094	1,522.22	1,639.32	1,756.41	1,873.50
Heinrich, Carolyn	0.01269	16.50	17.77	19.04	20.30
Hemlock Mutual	0.08399	109.19	117.59	125.99	134.38
Industry, City of	0.55810	725.53	781.34	837.15	892.96
Irwindale, City of	0.19025	247.33	266.35	285.38	304.40
Kirklen, Jeffery	0.07379	95.93	103.31	110.69	118.06
Knight, William	0.11530	149.89	161.42	172.95	184.48

APPENDIX B

RANGE OF OPERATING SAFE YIELDS AND PUMPER'S SHARES THEREOF (Acre-feet)

Quantities which may be pumped free of Replacement Water Assessment

Pumper	Pumper's Share %	OSY of 130,000	OSY of 140,000	OSY of 150,000	OSY of 160,000
Landeros, John	0.00038	0.49	0.53	0.57	0.61
La Puente Valley CWD	0.57197	743.56	800.76	857.96	915.15
Loucks, David	0.00152	1.98	2.13	2.28	2.43
Lovelady, June G.	0.09386	122.02	131.40	140.79	150.18
Maggiore, Valarie	0.07379	95.93	103.31	110.69	118.06
Martinez, Frances	0.00038	0.49	0.53	0.57	0.61
McIntyre, William	0.01467	19.07	20.54	22.01	23.47
Miller Coors LLC	1.20047	1,560.61	1,680.66	1,800.71	1,920.75
Monterey Park, City of	3.39216	4,409.81	4,749.02	5,088.24	5,427.46
Nick Tomovich	0.00001	0.01	0.01	0.02	0.02
Nicholson Trust	0.01215	15.80	17.01	18.23	19.44
Nicholson Family Trust	0.00354	4.60	4.96	5.31	5.66
Pellissier Irrevocable QTIP Trust, et a	3.28384	4,268.99	4,597.38	4,925.76	5,254.14
Pico County Water Dist.	0.00038	0.49	0.53	0.57	0.61
Polopolus, et al	0.01138	14.79	15.93	17.07	18.21
Rados, Alexander	0.02176	28.29	30.46	32.64	34.82
Rosemead Development Ltd.	0.00051	0.66	0.71	0.77	0.82
Rurban Homes Mutual	0.11018	143.23	154.25	165.27	176.29
Ruth, Roy	0.00038	0.49	0.53	0.57	0.61
San Gabriel Country Club	0.14476	188.19	202.66	217.14	231.62
San Gabriel County WD	2.73019	3,549.25	3,822.27	4,095.29	4,368.30
San Gabriel Valley WC	10.23802	13,309.43	14,333.23	15,357.03	16,380.83
Sonoco Products	0.15766	204.96	220.72	236.49	252.26
So. Calif. Edison Co.	0.08690	112.97	121.66	130.35	139.04
South Pasadena, City of	1.80520	2,346.76	2,527.28	2,707.80	2,888.32
Southwest Water Company	0.05996	77.95	83.94	89.94	95.94
Sterling Mutual	0.06072	78.94	85.01	91.08	97.15
Suburban Water Systems	12.57888	16,352.54	17,610.43	18,868.32	20,126.21
Sunny Slope Water Co.	1.12770	1,466.01	1,578.78	1,691.55	1,804.32
Tate, Phillip P. & Sieglinde A., et al	0.02926	38.04	40.96	43.89	46.82
Tyler Nursery	0.00162	2.11	2.27	2.43	2.59
United Rock Products	0.23253	302.29	325.54	348.80	372.05
Valencia Heights Water Co.	0.53685	697.91	751.59	805.28	858.96
Valley County Water District	3.01517	3,919.72	4,221.24	4,522.76	4,824.27
Valley View Mutual	0.31169	405.20	436.37	467.54	498.70
Vulcan Materials Company	0.90740	1,179.62	1,270.36	1,361.10	1,451.84
Whittier, City of	4.18519	5,440.75	5,859.27	6,277.79	6,696.30
Wilmott, Erma	0.00038	0.49	0.53	0.57	0.61
Workman Mill Invest. Comp.	0.87839	1,141.91	1,229.75	1,317.59	1,405.42
Total of Pumps	78.31107	101,804.39	109,635.50	117,466.61	125,297.71

APPENDIX B

RANGE OF OPERATING SAFE YIELDS AND PUMPER'S SHARES THEREOF (Acre-feet)

Quantities which may be pumped free of Replacement Water Assessment

Pumper	Pumper's Share %	OSY of 130,000	OSY of 140,000	OSY of 150,000	OSY of 160,000
Azusa Agric. Water Co.	0.00000	0.00	0.00	0.00	0.00
Azusa Valley Water Co.	5.06299	6,581.89	7,088.19	7,594.49	8,100.78
Calif. American (Duarte)	1.84634	2,400.24	2,584.88	2,769.51	2,954.14
Covina Irrigating Co.	3.22577	4,193.50	4,516.08	4,838.66	5,161.23
Glendora, City of	4.75261	6,178.39	6,653.65	7,128.92	7,604.18
Golden State Water Co. - San Dimas District	1.73984	2,261.79	2,435.78	2,609.76	2,783.74
Los Angeles, County of	1.88292	2,447.80	2,636.09	2,824.38	3,012.67
Metropolitan Water Dist.	0.08349	108.54	116.89	125.24	133.58
Monrovia, City of	3.09472	4,023.14	4,332.61	4,642.08	4,951.55
Phillips, Alice B., et al	0.00025	0.33	0.35	0.37	0.40
Total of Intergrated Producers	21.68893	28,195.61	30,364.50	32,533.39	34,702.29
Total of Pumpers	78.31107	101,804.39	109,635.50	117,466.61	125,297.71
TOTAL	100.00000	130,000.00	140,000.00	150,000.00	160,000.00