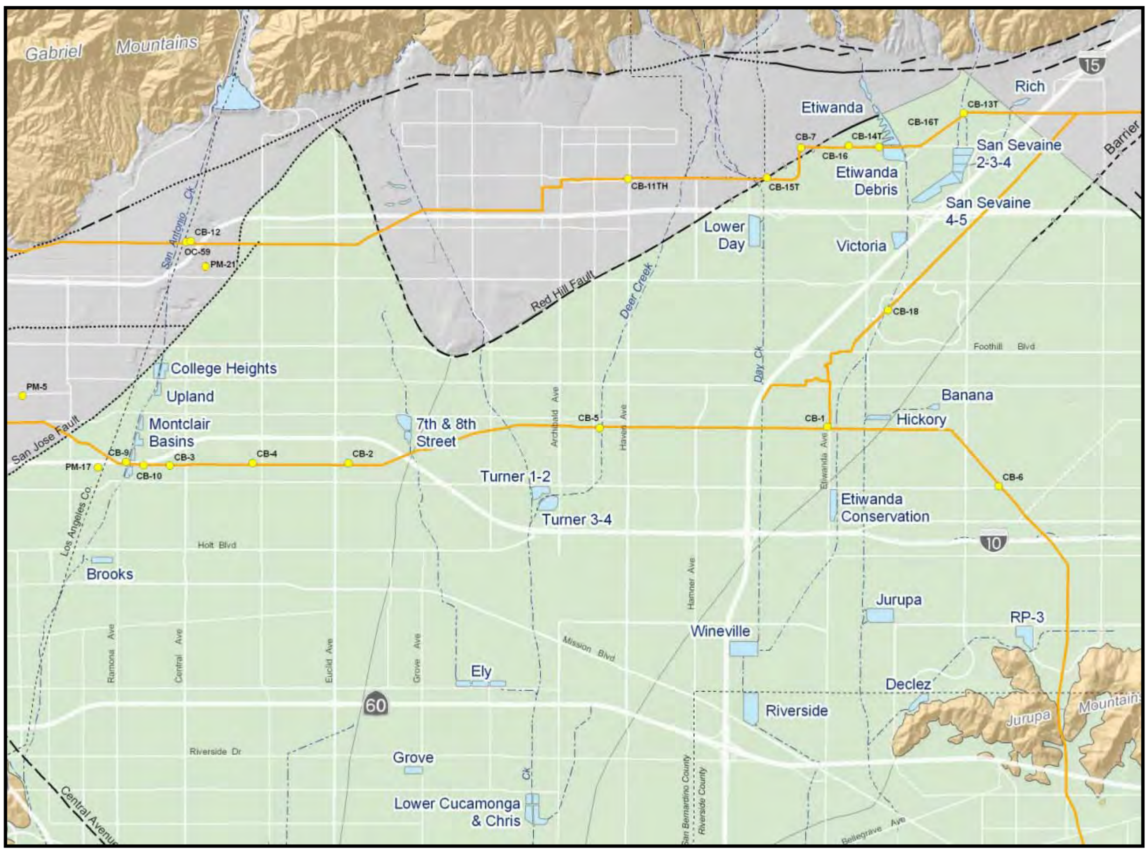
# Chino Basin Recycled Water Groundwater Recharge Program

## 2014

## Annual Report




May 1, 2015

**Sylvie Lee, P.E.**
Manager of Planning & Environmental Compliance

**Peter Kavounas, P.E.**
General Manager

May 1, 2015

Regional Water Quality Control Board, Santa Ana Region
**Attention: Mr. Kurt V. Berchtold**
3737 Main Street, Suite 500
Riverside, California 92501-3348

**Subject: Transmittal of the Annual Report for 2014**
**Chino Basin Recycled Water Groundwater Recharge Program**

Dear Mr. Berchtold:

The Inland Empire Utilities Agency (IEUA) and the Chino Basin Watermaster (CBWM) hereby submit the *2014 Annual Report* for the *Recycled Water Groundwater Recharge Program*. The recycled water groundwater recharge program is being implemented by IEUA and CBWM and its annual reporting is pursuant to requirements of the following orders:

- California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2007-0039. Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, June 29, 2007.
- California Regional Water Quality Control Board, Santa Ana Region. Monitoring and Reporting Program No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, June 29, 2007.
- California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2009-0057 Amending Order No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, October 23, 2009.
- California Regional Water Quality Control Board, Santa Ana Region. Revised Monitoring and Reporting Program No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, October 27, 2010.

## ACTIVITIES, FINDINGS, AND CONCLUSIONS

The following bullets summarize the principal activities, findings, and conclusions of the *Recycled Water Groundwater Recharge Program* for 2014:

- The 2014 calendar year include annual program recharge of 19,958 acre-feet (AF), which includes 8,166 AF of storm water and dry weather flows; 10,997 AF of recycled water; and 795 AF of imported water.
- During 2014, recycled water quality monitoring was conducted in accordance with MRP No. R8-2007-0039. No turbidity, coliform, total organic carbon (TOC), or dissolved oxygen (DO) compliance limits were exceeded during 2014. No primary or secondary regulated contaminants limits were exceeded during 2014, with the exception of secondary MCL for odor.
- During 2014, one notification was made to the DDW and Regional Board regarding the exceedance of the total nitrogen (TN) limit of 5 mg/L for the average of two consecutive sample results at the Banana Basin lysimeter (BNA-LYS-25).
- No corrective actions were necessary for RP-1 and RP-4. No unit process changes occurred during 2014.
- In-aquifer blending of recycled water, diluent water, and native groundwater is evident at monitoring wells in the vicinity of 8$^{th}$ Street, Banana, Hickory, Brooks, Ely, Turner, Victoria, and RP3 Basins. For 8$^{th}$ Street, Banana, and Hickory Basins, blending was observed to be occurring both in the area of the groundwater mound and downgradient. Evidence includes variations in water chemistry, variations in water levels, and recharge ratios of water sources.
- At the end of 2014, the volume-based 120-month running average recycled water contributions (RWCs), inclusive of groundwater underflow, by basin were: 8$^{th}$ Street - 22%; Banana - 34%; Brooks - 18%; Ely - 21%, Hickory - 26%, RP3 - 13%; San Sevaine 5 - 5%; Turner Basin Cells 1&2 - 11%; Turner Basin Cells 3&4 - 25%; and Victoria - 28%. These basins are all in compliance with their maximum RWC limits determined during their respective start-up periods.
- CBWM has verified in the Recycled Water Groundwater Recharge Quarterly Monitoring Reports that there was no reported pumping of groundwater in 2014 for domestic or municipal use from the zones that extend 500 feet and 6-months underground travel time from the 8$^{th}$ Street, Banana, Brooks, Ely, Hickory, Turner, RP3, San Sevaine, and Victoria recharge sites.
- Sufficient data exist to estimate approximate arrival times of recycled water at monitoring wells 8TH-1/1 (22 months) for 8th Street Basin; BRK-1/1 (5 months) and BRK-1/2 (17 months) for Brooks Basin; BH-1/2 (2 months) for Hickory Basin; California Speedway Infield Well (29 months) for Banana Basin; TRN-1/2 (3.2 months) for Turner Cell 1; TRN-2/2 (13 months) and Ontario Well No. 25 (48 months) for Turner Cell 4, respectively; VCT-1/1 for Victoria Basin (7.5 months) and RP3-1 (3.3 months) for RP3 Basin Cell 1. Other program monitoring wells have yet to indicate arrival of recycled water. Other monitoring wells have not yet shown definitive variations in EC, TDS, and chloride that would signal arrival of recycled water at these well sites.
- Comparison of the pre-recharge elevation contour map (Fall 2003) with the most recent post-program start-up groundwater contour map (Spring 2014, draft) indicates minor regional changes in groundwater elevation are present but indicate the recharge program and pumping patterns have not significantly changed groundwater flow directions. The 2014 groundwater elevations in the program monitoring wells have generally changed less than the contour interval (25 feet) used in the 2003, 2006, 2008, 2010, and 2012 groundwater elevation maps. A deeper and larger area pumping depression has developed in the vicinity the Chino Desalter

well field (planned hydraulic control) and a smaller pumping depression has developed in Pomona west of Brooks Basin. Some changes in the contouring style/methodology are evident between the 2003 and 2012 maps. For example, the groundwater contours in the area north of Victoria and San Sevaine basins were interpreted for the 2003 map, but were not interpreted for the 2014 map.

## DECLARATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments thereto; and that, based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Executed on the 1st day of May 2015 in the Cities of Chino and Rancho Cucamonga.

Sylvie Lee, P.E.
*Manager of Planning &*
*Environmental Compliance*

Peter Kavounas, P.E.
*General Manager*

# Chino Basin Recycled Water Groundwater Recharge Program

# 2014 Annual Report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May 1, 2015


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# 1 INTRODUCTION

This is the 2014 Annual Report for the Chino Basin Recycled Water Groundwater Recharge Program. Inland Empire Utilities Agency (IEUA), Chino Basin Watermaster (CBWM), Chino Basin Water Conservation District, and San Bernardino County Flood Control District are partners in the implementation of the Chino Basin Recycled Water Groundwater Recharge Program. The recharge program is part of a comprehensive program to enhance water supply reliability and improve the groundwater quality in local drinking water wells throughout the Chino Groundwater Basin by increasing the recharge of storm water, imported water and recycled water. Figure 1-1 is a location map of the recharge basin locations used in the Recycled Water Groundwater Recharge Program. Recharge operations for 8$^{th}$ Street, Banana, Brooks, Ely, Hickory, RP3, Turner, San Sevaine, and Victoria Basins have previously been summarized in the four 2014 quarterly monitoring reports to the Regional Board Water Quality Control Board (Regional Board) for these basins where recharge of recycled water has been initiated. During the 2014 calendar year, 19,958 acre-feet (AF) of water were recharged in the Chino Basin, which included 8,166 AF of storm water and dry weather flows; 10,997 AF of recycled water; and 795 AF of imported water.

## 1.1 Requirements of Order No. R8-2007-0039

This Recycled Water Groundwater Recharge Program is subject to the requirements found in the following documents issued by the California Regional Water Quality Control Board Santa Ana Region:

- Order No. R8-2007-0039 Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster, Chino Basin Recycled Water Groundwater Recharge Program, Phase I and Phase II Projects, San Bernardino County, June 29, 2007;
- Monitoring and Reporting Program No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster, Chino Basin Recycled Water Groundwater Recharge Program Phase I and Phase II Projects, San Bernardino County, June 29, 2007;
- Order No. R8-2009-0057 Amending Order No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster, Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, October 23, 2009; and
- Revised Monitoring and Reporting Program No. R8-2007-0039 for Inland Empire Utilities Agency and Chino Basin Watermaster. Chino Basin Recycled Water Groundwater Recharge Program: Phase I and Phase II Projects, San Bernardino County, October 27, 2010.

The Monitoring and Reporting Program (MRP) in the Order No. R8-2007-0039 describes the requirements for the Annual Reports. The following is an excerpt from Section VI of the MRP:

3. The annual report shall include the following:

   a. A list of the analytical methods employed for each test and associated laboratory quality assurance/quality control procedures. The report shall restate, for the record, the laboratories used by the users to monitor compliance with this Order and their status of certification. Upon request by Regional Board staff, the users shall also provide a summary of performance.

   b. A mass balance to ensure that blending is occurring in the aquifer at each recharge basin. Recharge water groundwater flow paths shall be determined annually from groundwater elevation contours and compared to the flow and transport model's flow paths, travel of recharge waters, including leading edge of the recharged water plume, any anticipated changes. The flow and transport model shall be updated to match as closely as possible the actual flow patterns observed within the aquifer if the flow paths have significantly changed.

   c. A summary of corrective actions taken as a result of violations, suspensions of recharge, detections of monitored constituents and any observed trends, information on the travel of the recycled water (estimated location of the leading edge), description of any changes in operation of any unit processes or facilities, and description of any anticipated changes, including any impacts on other unit processes.

   d. A summary of calibration records for equipments, such as pH meters, flow meters, turbidity meters, and lysimeters.

   e. All downgradient public drinking water systems. A summary discussion on whether domestic drinking water wells extracted water within the buffer zone defined by the area less than 500 feet and 6 months underground travel time from the recharge basins, including the actions/measures that were undertaken to prevent reoccurrence. If there were none, a statement to that effect shall be written.

   f. A summary of the results and recommendations of any tracer testing conducted during the past year.

4. At least one year after the blended recharged water has reached at least one groundwater monitoring well, the users shall submit a report to the CDHS and Regional Board evaluating the compliance with the minimum underground retention time, distance to the nearest point of extraction, blending, and the maximum RWC requirements. The annual report shall include water quality data on turbidity, coliform, total nitrogen, dissolved oxygen, regulated contaminants, TOC, and non-regulated contaminants compliance.

## 1.2 Organization of the Annual Report

The annual report contains two main sections: Section 2: Recycled Water Quality Monitoring and Section 3: Groundwater Recharge Monitoring. Supporting documents for these sections are included in the 2014 quarterly monitoring reports or are provided as appendices to this report. Section 2 discusses compliance with recycled water production specifications and other water quality requirements. Section 3 discusses the blending and movement of recycled water in the groundwater basin.

# 2 RECYCLED WATER QUALITY MONITORING

## 2.1 Recycled Water Quality Specifications

During 2014, recycled water quality monitoring was conducted in accordance with the required frequency for all parameters as specified in MRP No. R8-2007-0039. All monitoring and compliance data for the year can be found in the quarterly monitoring reports submitted to the Regional Board (IEUA 2014a, 2014b, 2014c, 2015).

### *2.1.1 Detections and Compliance with Narrative Limits*

Recycled Water Specifications A.5 though A.9 are narrative limits in the permit. The 2014 recycled water quality monitoring data and associated limits for specifications A.5 through A.9 are shown in Tables 2-1 and 2-2 of the quarterly monitoring reports.

The monitoring and compliance for Table 2-1 parameters is based on the analysis of the two separate recycled water sources, Regional Plant No. 1 (RP-1) and Regional Plant No. 4 (RP-4) sampled at the NPDES-permitted monitoring locations (M-001B/REC-001 and REC-002) at their respective facilities. In accordance with MRP No. R8-2007-0039, the required monitoring frequency for turbidity and pH is continuous; total coliform is daily; total inorganic nitrogen (TIN), total nitrogen (TN), and total organic carbon (TOC) is weekly; and total dissolved solids (TDS) is monthly. None of the narrative limits for turbidity, coliform, TDS, TIN, pH, or TOC were exceeded during 2014. During 2014, one notification was made to the State Water Resources Control Board – Division of Drinking Water (DDW) and Regional Board regarding the exceedance of the TN limit of 5 mg/L for the average of two consecutive sample results at the Banana Basin lysimeter (BNA-LYS-25).

Table 2-2 presents IEUA's Agency-wide 12-month running average for TDS and TIN as required by the NPDES permit. During 2014, there were no exceedances of the agency-wide 12-month running average for TDS and TIN.

### *2.1.2 Detections and Compliance with Regulated and Non-regulated Contaminants*

Recycled Water Specification A.1 through A.4 of Order No. R8-2007-0039 are limits based primary maximum contaminant levels (MCLs), secondary MCLs, and Action Levels established by the Environmental Protection Agency (EPA). The monitoring for compliance of these parameters is based on the analysis of a sample collected at a recycled water sampling point along the distribution pipeline. The sample point is the turnout to NRG California South, LP (formerly known as Reliant Energy), as it represents a mixture of recycled water from both RP-1 and RP-4. The 2014 recycled water quality monitoring data and associated limits for Recycled Water Specifications A.1 through A.4 are shown in Table 2-3 of the quarterly monitoring reports. Compliance determination for these constituents is based on 4-quarter running averages. In accordance with MRP No. R8-2007-0039, the required monitoring frequency for constituents with primary MCLs is quarterly and constituents with secondary MCLs is annually. During 2014, the 4-quarter running average concentrations for constituents with constituents with primary

MCLs, secondary MCLs, and action levels did not exceed compliance limits, with the exception of odor (secondary MCL).

Non-regulated contaminants include the remaining priority pollutants, endocrine disrupting chemicals & pharmaceuticals, and unregulated chemicals. These constituents do not have associated limits; however require annual monitoring in accordance with MRP No. R8-2007-0039 (Table II. Recycled Water Monitoring). The non-regulated contaminants monitoring data for recycled water can be found in Table 2-4 of the quarterly monitoring report. In 2014, the annual sampling for recycled water took place during the fourth quarter of 2014.

The compliance sampling point for Total Trihalomethanes (TTHMs) and Total Haloacetic Acids (HAA5) are not at the NRG Turnout. TTHMs and HAA5 compliance sampling is performed at the recharge basin lysimeters prior to the recycled water reaching the groundwater table. During 2014, compliance sampling for TTHMs and HAA5 was collected at lysimeters actively receiving recycled water from basins. Compliance for TTHMs and HAA5 were consistently met throughout 2014 at the selected lysimeters.

## 2.2 Groundwater Quality Monitoring

Groundwater quality data is collected at designated monitoring wells, and at the nearest down gradient potable water supply well near recharge basins utilizing recycled water. Location maps for wells monitored for the recharge program are presented on Figures 2-1 through 2-7 for Hickory & Banana, Turner, 7th & 8th Street, Ely, Brooks, RP3, and San Sevaine & Victoria Basins, respectively. Groundwater quality samples are collected and tested quarterly for all constituents listed in Table 1 of Section V in the MRP R8-2007-0039, and annually for constituents specified in the Phase II Findings of Fact, Attachment A in the permit (Bullet 27 in the Conditions Section). All groundwater-quality monitoring data is reported in Table 2-8a and 2-8b of the quarterly monitoring reports. Table 2-1 in this annual report summarizes the quarterly groundwater quality results from the nearby potable supply wells in 2014.

Groundwater quality monitoring results can be used to assess background or baseline conditions, to estimate the time the arrival of recharge waters, to estimate the percentage of recycled water at a monitoring well, and to access the impacts of recharged water on down-gradient groundwater supplies. Section 3.2 and Section 3.4 of this report describe how the groundwater quality monitoring results are used for these purposes in more detail.

## 2.3 Laboratory Certifications and Test Methods

Water quality samples collected for the recycled water recharge program are analyzed by either the IEUA or Eurofins Eaton Analytical (EEA). Both of the laboratories are DDW Environmental Laboratory Accreditation Program (ELAP) certified, pursuant to the California Environmental Laboratory Improvement Act. The IEUA laboratory certification is valid through October 2015 and the EEA laboratory certification is valid through January 2016.

To ensure the quality and reliability of test measurements and results, specific programs and procedures have been developed by both the IEUA and EEA. The most recent Laboratory

Quality Assurance Manual (19th Edition, March 2015) for IEUA is attached as Appendix A. The 2014 Annual Laboratory QA/QC Data Summary Report was also submitted to the Regional Board as an attachment in IEUA's 2014 Annual NPDES Report.

## 2.4 Calibration Summary

The field parameters of temperature, pH, conductivity, dissolved oxygen, oxidation/reduction potential were recorded during monitoring well sampling using a QED MP20 Multiparameter Meter. This instrument utilizes a flow-cell to allow water to flow through the meter chamber without exposure to the atmosphere. Field analytical instruments used throughout this project were maintained and calibrated each day of use. Calibration was conducted according to instructions provided by the instrument manufacturer.

## 2.5 Violations, Suspensions, and Corrective Actions

No operational problems or corrective actions at RP-1 or RP-4 were initiated based on regulatory monitoring at the NRG Turnout and at the recharge basins.

In May 2014, the average of two consecutive TN sample results for the Banana Basin compliance lysimeter exceeded the 5 mg/L limit. The DDW and the Regional Board were both notified via e-mail regarding the exceedance. Recycled water deliveries were voluntarily suspended on May 23, 2014. Recycled water deliveries to Banana Basin were resumed on June 2, 2014.

Odor has a secondary MCL of 3 Units in Recycled Water Specification A.3. During every quarter of 2014, the 4-quarter running average threshold odor value exceeded the secondary MCL. The odor has been identified by Eaton Analytical (contract laboratory) as chlorine. Recycled water used for groundwater recharge must meet disinfected tertiary recycled water standards in accordance to Title 22. Sodium hypochlorite is used as the disinfection agent at the RP-1 and RP-4 water recycling facilities; hence, the smell of chlorine is prominent in recycled water and is therefore unavoidable. Order No. R8-2007-0039 allows compliance for secondary MCLs to be determined at the mound monitoring well. Based on the mound monitoring well data (Table 2-8a), threshold odor does not exceed 3 Units at any of the monitoring wells.

During 2014, there were exceedances of limits for constituents sampled at groundwater monitoring wells adjacent to recharge basins receiving recycled water. These exceedances were primarily for secondary MCLs, and some for primary MCLs and total coliform presence. As required in MRP R8-2007-0039 Section V.2 the DDW were notified when necessary. The following describes the exceedances that were detected during 2014 groundwater sampling, and any DDW notification:

- Turbidity exceeding the secondary MCL of 5 NTU was observed in several monitoring wells, namely: 8TH-1/1, BRK-2/1, Southridge JHS, T-2/1, Unitex 91090, and VCT-1/1.
- pH exceeding the secondary MCL of 8.5 was observed at Ontario Well Nos. 20, 25, 29, and 38; BRK-2/2; and VCT-2/2.

- TDS and electrical conductivity (EC) were higher than their secondary MCLs of 500 mg/L and 900 µmhos/cm, respectively, in the RP3 basin area wells (Alcoa MW3 and Southridge JHS) and Ely MW2 (Walnut). Bishop of San Bernardino Corporation and JCSD Well No. 13 slightly exceeded the TDS secondary MCL. The wells south of the Ely Basins and near the RP3 Basins are located in areas where the TDS and EC concentrations in groundwater are elevated. South of the Ely Basins, TDS is about 500 mg/L and EC is about 750 µmhos/cm. In the RP3 Basins area, TDS is about 750 mg/L and EC is about 1,000 µmhos/cm. TDS concentrations measured at wells in the monitoring well networks for the basins listed above are documented in the CBWM's State of the Basin reports.
- Color exceeded the secondary MCL of 15 units in monitoring wells at 8TH-1/1, BRK-2/1 and Unitex 91090.
- Dissolved manganese analyses were above the secondary MCL of 50 µg/L at RP3-1/2. Recycled water manganese concentrations are generally less than 20 µg/L. Historical stormwater manganese analyses have been observed to fall within the range of 10 to 180 µg/L.
- Some monitoring wells in the Banana & Hickory, RP3, Brooks, and Ely Basins monitoring networks have $NO_3$-N concentrations above the primary MCL of 10 mg/L. These higher levels are characteristic of groundwater quality in the local area where historically the $NO_3$-N concentrations ranges from 10-30 mg/L.
- Total coliform was detected at 8TH-2/2, Alcoa MW1, Bishop of San Bernardino Corporation, BRK 1/1, California Speedway – Infield Well, California Speedway 2, Ely Basin MW1 & MW2, Fontana Water Company Wells F23a & F37A, Ontario Well 35, RP3-1/1, RP3-1/2, Riverside Well (Ely), Southridge JHS, T-1/2, Unitex 91090, and VCT-2/2. During 2014, the highest total coliform result at any well was 23 MPN/100 mL. In accordance with the MRP, notification to the DDW of coliform presence in active municipal drinking water wells must be made within 48 hours of receiving the results. Notification of coliform presence was started with 2Q14 reporting.
- During the annual sampling event (4Q14), perchlorate concentration above the primary MCL of 6 µg/L was detected at BRK-1/2. Perchlorate concentrations at BRK-1/2 have always been at levels slightly above the MCL since sampling at this well began in early 2007, prior to recycled water recharge. The perchlorate concentrations in BRK-1/2 are consistent with historical background groundwater concentration founds at nearby wells in the Pomona area. The perchlorate concentrations in this area are reported in the CBWM's State of the Basin reports.

## 2.6 Unit Process Changes and Anticipated Impact on Water Quality

No unit process changes occurred during the 2014 calendar year, therefore there was no impact on water quality.

## 2.7 Summary of Chemical Usage

The summary of treatment chemicals used on a monthly basis at RP-1 and RP-4 during the 2014 calendar year is presented in Table 2-2.

# 3 GROUNDWATER RECHARGE MONITORING

## 3.1 Summary of Recharge Operations

Groundwater recharge using recycled water has been initiated in 8th Street, Banana, Brooks, Ely, Hickory, RP3, Turner, San Sevaine, and Victoria Basins. During 2014, IEUA's recycled water recharge totaled 10,997 AF.

| Basin | 2014 Recycled Water Recharge (AF) | Percent of 2014 Recycled Water Recharge |
|---|---|---|
| 8th Street | 408 | 4% |
| Banana | 1,157 | 11% |
| Brooks | 917 | 8% |
| Ely | 1,749 | 16% |
| Hickory | 2,240 | 20% |
| RP3 | 1,503 | 14% |
| San Sevaine | 43 | 0% |
| Turner | 1,449 | 13% |
| Victoria | 1,531 | 14% |
| Total | 10,997 | 100% |

Appendix B of this report contains the monthly groundwater recharge summaries for all sites in the recycled water groundwater recharge program. Monthly recharge volumes, including diluent and recycled water volumes, are presented in the quarterly monitoring reports (IEUA, 2014a, 2014b, 2014c, and 2015), but are repeated in this section's discussion of RWC (recycled water contribution) management plans.

## 3.2 In-Aquifer Blending of Recycled Water

Section IV.B.3.b of the MRP requires the annual report include:

> A mass balance to ensure that blending is occurring in the aquifer at each recharge basin.

In-aquifer blending of recharge using recycled water and diluent water can be shown in two ways. The first is the mass balance of relative volumes of the recharge water sources - recycled water and diluent water, including storm water / local runoff, underflow, and imported water - presented in the RWC Management Plans. The second is by comparison of relative concentrations of water quality parameters that have distinct concentrations in both the background (or baseline) groundwater and the recycled water used for recharge, such as EC, TDS, and chloride.

While both these methods are appropriate, they should be used together as evidence of in-aquifer blending. They are appropriate as the horizontal groundwater flow travel velocity away from the recharge site is much slower than the vertical recharge percolation velocity. This velocity difference results in the development of the groundwater mound of recharged water beneath a recharge site. In-aquifer blending occurs as the accumulating water sources comprising the mound dissipate away from the basin. As discussed in section 3.2.2, blending is evidenced by water quality concentration changes in the monitoring wells located down gradient from the recharge sites. Location maps for wells monitored for the recharge program are presented on Figures 2-1 through 2-7. As discussed in section 3.2.1, the volume-based percentage of recycled water recharged expresses the reasonably anticipated blending as recharge moves towards distant monitoring wells. Actual blending, however, will likely be greater (expressed as a lower percentage of recycled water) as the recharged water blends with groundwater in storage.

### *3.2.1 Evidence of Blending Based on Volume*

The 2014 monthly recharge volumes by water type are presented in Appendix B and in the historical recharge portion of the RWC Management Plans (Appendix C). Recycled water and diluent water are typically recharged in distinct batches. However, there can be some blending of local runoff with recycled water as it is delivered to the basins, or if storm water enters a basin already containing some recycled water. Variations in the delivery period for batches of diluent water and recycled water provide a level of blending. Dilution with groundwater already in storage is accounted for by the utilization of groundwater underflow in the calculation of running average RWC.

To be conservative, initial use of the fraction of groundwater underflow used as a diluent water source in the RWC calculation is either October 2009 (the date the permit amendment was adopted allowing for its use) or the first month of a basin's recycled water recharge (if after October 2009). Underflow for each basin was calculated using the Darcy flow equation with input parameters originating from Chino Basin Watermaster's calibrated groundwater flow model. The underflow estimation method was documented in Appendix G of the 2009 Annual Report for the Recycled Water Groundwater Recharge Program (IEUA and CBWM, 2010). Conservatively, the underflow calculation was made using only the upper-most sediments (upper model layer), and thus does not included potential mixing of recycled water recharge with groundwater in the deeper sediments (lower model layer).

The running average RWC calculation is equal to:

*Recycled Water 120-Month Total / (Recycled Water + Diluent Water 120-Month Total)*

At the end of December 2014, the (volume-based) running average RWC for basins having initiated recharge using recycled water were as follows:

| Basin | RWC Limit | 120-Mo. Running Avg. RWC |
|---|---|---|
| 8th Street | 28% | 22% |
| Banana | 36% | 34% |
| Brooks | 42% | 18% |
| Ely | 29% | 21% |
| Hickory | 36% | 26% |
| RP3 | 50% | 13% |
| San Sevaine 5 | 27% | 5% |
| Turner 1&2 | 24% | 11% |
| Turner 3&4 | 45% | 25% |
| Victoria | 50% | 28% |

Maximum RWC and the RWC management plans are discussed in more detail in Section 3.3. The volume-based percentages express reasonably anticipated blending as recharge waters move towards distant monitoring wells.

### *3.2.2 Evidence of Blending Based on Water Quality*

Time-series graphs of EC, TDS, and chloride were prepared for monitoring wells adjacent the recharge sites to help identify occurrence of blending within the aquifer. The graphs depicting trends in EC, TDS, and chloride are presented in Appendix D. The graphed data are tabulated in prior quarterly monitoring reports. In general, background (or baseline) groundwater concentrations of EC, TDS, and chloride are much lower than recycled water used for recharge. Blending can be gauged based on how rapidly these concentrations change and for how long the change persists. The degree of blending can be estimated based on the proportional relationship of the recycled water EC (and chloride) and the background groundwater EC (and chloride). For wells showing EC (and chloride) increases associated with recycled water recharge, Table 3-1 provides an estimated range of the peak percent blend of recycled water observed at a given well in the past year. The mass-balance blend percentages in Table 3-1 are estimated by taking the concentration difference between the annual peak monitoring well groundwater concentration and the groundwater background (or baseline) then dividing by the difference between the recycled water concentration and the groundwater background (or baseline). The background groundwater concentration is generally the concentration prior to recycled water recharge. The recycled water concentration is the observed historical concentrations of RP-1 and RP-4 recycled water.

**8th Street Basin Area**

For the 8th Street Basin area, the 2009-10 increase in chloride concentrations in the shallower monitoring well (8TH-1/1), was interpreted to indicate the arrival of recycled water recharged in 2007 and 2008. The break in recycled water delivery between September 2008 and August 2009 shows up at the end of 2010 as the downward trend of EC, TDS, and chloride at this well. This represents an approximate 21-month travel time for recharge in the north portion of 8th Street Basin to percolate to the water table and travel to 8TH-1/1. This corresponds well with the previous estimate of 22 months. In 2014, the 8TH-1/1 monitoring well groundwater EC, TDS, and chloride concentrations were the highest since the initiation of recycled water recharge at the 8$^{th}$ Street Basin. As presented in Table 3-1, the highest percent blend of recycled water in the groundwater mound at 8TH-1/1 during 2014 was approximately 71% to 83% based on EC and chloride variations.

From mid-2011 to 2012, there were slight increases in the EC, TDS, and chloride concentrations in the deeper casing of 8TH-1/2. After trending downward since the well was constructed, these increases suggest recycled water recharge from 2007 and 2008 may have started to arrive in the deeper casing after a travel time of roughly 46 months. In 2013 and 2014, the 8TH-1/2 monitoring well groundwater EC and TDS concentrations increased slightly, while the chloride concentrations increase only slightly, suggesting that the movement of recycled water downward at this location may be blending with underflow at a steady rate. As the data are within historical, pre-recycled water recharge values, continued monitoring of these water quality parameters at the deeper casing water quality is needed to identify with certainty the arrival and blending of recycled water at this depth. Recycled water arrival would be confirmed should these concentrations continue to rise significantly above the 2011 baseline concentrations at this location and depth. As presented in Table 3-1, the highest percent blend of recycled water in the groundwater mound at 8TH-1/2 during 2014 may have reached approximately 16% to 28% based preliminarily on EC and chloride variations.

The shallower casing of monitoring well 8TH-2 (8TH-2/1), located approximately 2,500 feet farther from 8TH-1, between 2007 and 2014 shows cyclical seasonal variations and a medium-term trend of decreases in EC, TDS, and chloride that make the arrival of recycled water somewhat difficult to evaluate. Arrival of recycled water at 8TH-2/1 would likely be observed as a longer-term increase in the cyclical annual peaks of EC, TDS, and chloride, which have yet to be observed. At monitoring well 8TH-2/2, TDS and EC concentrations both show an increase from 2007 through mid-2009 followed by a consistent decrease through 2014 to below the 2007 concentrations. Between 2007 and 2014, chloride concentrations vary within background concentrations. These data most likely indicate varied concentrations of groundwater are moving past the well site. There is insufficient data from 8TH-2/2 to identify the source of the groundwater in relation to the recharge operations at 8th Street Basin. More evidence is needed to determine arrival time of recycled water at this location.

**Banana & Hickory Basins Area**

Beginning in early 2008 and peaking in mid-2009, the Banana and Hickory Basins area monitoring well BH-1 casing 2 (BH-1/2) located adjacent to Hickory Basin demonstrated a significant changes in EC, TDS, and chloride (100 to 150-mg/L difference in TDS). These changes are attributed to the initiation and continued recharge of recycled water at Hickory and Banana Basins. In 2010 through 2014, generally consistent EC, TDS, and chloride concentrations of the groundwater at BH-1/2 suggest a stabilized and perhaps sustained peak RWC with historical operations at Hickory and Banana Basins. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water the groundwater mound at BH-1/2 during 2014 reached approximately 37% to 65%.

The California Speedway Infield Well, south of Banana Basin, shows gradual increases for EC, TDS, and chloride concentrations (150-mg/L TDS and 19 mg/L chloride differences) through

2014 since the initiation of recycled water recharge in 2005. The gradual increase is to be expected with gradual blending as groundwater moves away from the basin (compare with the 150 to 200-mg/L TDS variation at the basin area mound). Travel time from Banana Basin to the California Speedway well based on these data is approximately 29 months. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater at the California Speedway Infield Well during 2014 reached approximately 20% to 55%.

The EC, TDS, and chloride data do not definitively suggest that recycled water recharge has reached downgradient wells California Speedway No. 2, Reliant East, and Ontario Well No. 20. While, slight increases in EC, TDS, and chloride are observed at California Speedway No. 2 and Ontario Well No. 20 since late 2008, Fontana Water Company 37A (located 2,240 feet upgradient of Banana basin) has also shown small but steady increases in EC (50 µmhos/cm), TDS (28 mg/L), and chloride (6-mg/L) between 2006 and 2013. Continued observation of the Fontana Water Company well is needed to evaluate whether these wells are being impacted by recycled water recharge or if they are revealing a slow regional change in background water quality.

### Brooks Basin Area

For the Brooks Basin area, monitoring wells are located at the basin (BRK-1) and downgradient of the basin (BRK-2). Recycled water recharge began in September 2008. EC, TDS, and chloride concentrations at BRK-1/1 show seasonal increases and decreases through its history, likely related to recharge activity. Concentration increases of 100 mg/L for TDS and 50 mg/L for chloride have been observed and attributed to the presence of recycled water at BRK-1/1. In the deeper casing (BRK-1/2), smaller increases in EC, TDS, and chloride began in January 2010 and continued through 2013. Concentration increases of 50 mg/L for TDS and 10 mg/L for chloride have been observed and are attributed to the presence of recycled water at BRK-1/2. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater mound at the recharge basin during 2013 reached approximately 68% to 89% at BRK-1/1 and approximately 9% to 26% at BRK-1/2. These data show that blending is occurring in the aquifer beneath Brooks Basin.

The chloride concentrations at BRK-2/1 show a 35-mg/L stepped increase in 2011 and coincides with a 100 umhos/cm decrease in EC. Then in 2012 and continuing through 2014, chloride and EC concentrations returned to background levels. While these trends may indicate a 2011 arrival of recycled water recharge in the shallower casing groundwater, continued observations at this well will be necessary to identify, with certainty, the presence of recycled water. The return to background concentrations through 2013 and 2014 could suggest a change in groundwater flow direction (of Brooks Basin recharge) around this well. Groundwater flow direction west of Brooks Basin is subject to the dynamics of a pumping depression in Pomona which has been observed to gradually shift location and magnitude over the years (see Appendix E).

### Ely Basin Area

Groundwater in the area directly south of Ely Basin (south of the 60 Freeway) is on the northern perimeter of a portion of the Chino Groundwater Basin with high background TDS and nitrate concentrations. Groundwater in this area has TDS concentrations between 500 and 1,000 mg/L, as is typical of lands in the Chino Basin with irrigation history (CBWM, 2003). Recycled water has been recharged at Ely Basin since 1999. Quarterly sampling of the Ely area monitoring wells began in 2007, when the site was incorporated in the program's recharge permit.

For Ely Basin, monitoring wells are located at the basin (Philadelphia well) and downgradient (Walnut well and Riverside well). Historical recycled water recharge is estimated to have traveled to and beyond the three monitoring wells directly downgradient of Ely basin due to their proximity to the basin (0.0 miles, 0.5 mile and 1.0 mile for the Philadelphia, Walnut, and Riverside wells, respectively). At the two downgradient wells, the high background concentrations of EC, TDS, and chloride make it difficult to identify the arrival of lower concentration storm water and recycled water.

The 2014 sample results at the Philadelphia well show EC and chloride at historically high levels nearly equal to that of recycled water. Due to drought conditions in 2014, recycled water was the predominate recharge source. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater at the Philadelphia well during 2014 reached approximately 90% to 100%.

The EC, TDS, and chloride concentrations at the Walnut well have historically been at 1.5 to 2 times the concentrations found in recycled water. It is thus difficult to attribute variations in concentration with recharge activity at Ely Basin. The lower TDS concentrations may be linked with more intense periods of storm water and recycled water recharge that would dilute the higher background TDS groundwater. The volume-based percent recycled water recharged at Ely basin has been between 10% and 25% since 2009 (including groundwater underflow).

Further down gradient of the Walnut well, the EC, TDS, and chloride of groundwater at the Riverside well are relatively stable and do not indicate any direct impacts from recycled water or diluent water recharge from 2007 through 2014. There is however a slight increase in EC, TDS, and chloride that should be observed further in the coming years that could indicate the gradual arrival of recycled water at this well.

**Turner Basin Area**

The Turner Basin area monitoring well TRN-1/2 (at Turner 1) has historical and temporal variations in EC, TDS, and chloride (100 to 200 mg/L for TDS) that can be attributed to cycles of recycled water recharge. After the recycled water start-up period at Turner 1 (2006-2007), recycled water deliveries had been limited, and thus EC, TDS, and chloride concentrations decreased towards background levels. However, with the current drought conditions, a larger volume of recycled water was delivered in 2014 than prior years, Turner 1 area groundwater thus saw noticeable increase in EC, TDS, and chloride indicating that recharge water moves quickly away from Turner 1. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater mound at Turner 1 during 2014 was 63% to 74% at TRN-1/2.

At monitoring well TRN-2/2 (adjacent to Turner 4), the EC, TDS, and chloride concentrations are delayed several months from past recharge activities. The slower, more steady, and smaller relative concentration changes at monitoring wells TRN-2/1 and TRN-2/2 (compared to TRN-1/2) suggests that recharge from Turner 4 is more laterally distributed when it reaches the groundwater table. This is consistent with the slower recharge rates observed at Turner 4. In

2014, Turner 4 also saw increased recycled water recharge volumes from prior years. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater mound at the Turner 4 basin during 2014 was approximately 85% to 100%. The TRN-1/2 and TRN-2/2 data show recycled water blending is occurring with groundwater in the aquifer beneath the Turner Basins.

The downgradient Ontario Well No. 25 shows a slight increase in EC (75 umhos/cm), TDS (40 mg/L), and chloride (10 mg/L) above background levels that suggest recycled water arrival in July 2010. Little variation in these parameters was evident in 2012 and a slight decline was observed in 2013. Estimated travel time based on these water quality data is approximately 48 months. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater at Ontario Well No. 25 during 2014 was approximately 5% to 6%.

In January 2009, downgradient Ontario Well No. 29 showed a slight stepped increase in TDS and chloride concentration similar in magnitude to the gradual rise at Ontario Well No. 25. However, the increase at Ontario Well No. 29 is within the range of background data. These changes are not definitive changes that would correlate with groundwater recharge using recycled water. Ontario Well No. 29 was not sampled from October 2010 to October 2012 because the well was out of commission. The 2013 and 2014 data are lower than the wells' peak values in 2010 and are within background concentrations. Additional data from future monitoring are required to assess the arrival and blending of recycled water at Ontario Well No. 29.

**RP3 Basin Area**

For the RP3 Basins area, the initiation of recycled water recharge occurred in June 2009. Through 2012, variations in water quality concentrations from the RP3-1 monitoring wells were difficult to draw conclusions from in regards to the percent recycled water. The variations were likely due to purging of higher TDS and chloride water from the soil and groundwater beneath the basin. By April 2012, EC, TDS, and chloride concentrations reached historical lows for this well site and then began to increase moderately through 2013 and on through 2014. Use of the low values in 2012 as baseline conditions and the two year steady rise in EC, TDS, and chloride, there is now sufficient data to estimate a blend of recycled water beneath the basin. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater at RP3-1/1 during 2014 was approximately 87% to 93%, and the highest percentage for RP3-1/2 was 88% to 99%.

Downgradient well ALCOA MW-1 showed spikes in EC, TDS, and chloride in 2011, 2012, 2013, and 2014. These spikes of high concentrations are greater in magnitude than their respective concentrations in recycled water, and thus are likely due to salt contamination moving past the well. The background concentrations at ALCOA MW-1 are similar to that of recycled water. More data are required to correlate the arrival of recycled water at ALCOA MW-1.

Downgradient well ALCOA MW-3 has higher EC, TDS, and chloride concentrations than ALCOA MW-1. In 2014, ALCOA MW-3 groundwater continued to show decreasing and increasing EC, TDS, and chloride concentrations, which suggests salt contamination moving past the well site. The EC has ranged from 785 to 1,015 µmhos/cm which is higher than the recycled water EC (about 750 μmhos/cm). More data are required to evaluate the arrival of recycled water at ALCOA MW-3.

The Southridge Junior High School (JHS) well water quality data show a slight but gradual decrease in EC, TDS, and chloride concentrations since quarterly sampling began in 2009 through 2014. The background concentrations at the Southridge JHS well are higher than that of recycled water. As such, mixing of groundwater with recycled water at this location would appear as a slight downward trend. Alternatively it could increase as higher salinity upgradient groundwater moves southward. The well data do not suggest that recycled water recharge has reached the downgradient Southridge JHS well from the RP3 recharge site. In 2013, the well pump's electric motor failed and no samples were collected until its repair in 2014. In 2014, the well was rehabilitated and the pump was replaced. A well video was conducted and identified the well is screened at multiple depths. The screen intervals are from:

- 100 feet to 140 feet below ground surface,
- 160 feet to 200 feet below ground surface
- 220 feet to 258 feet below ground surface
- 278 feet to 320 feet below ground surface
- 340 feet to 360 feet below ground surface

As of April 7, 2014, the static ground water elevation was 198.4 feet below ground surface level.

**San Sevaine & Victoria Basins Area**

Monitoring of San Sevaine and Victoria Basins area wells began in late 2009 and continued through 2014. Initiation of recycled water recharge began in these two basins in mid-2010. For San Sevaine area, the 2010 through 2014 trends in EC, TDS, and chloride have yet to indicate the arrival of recycled water at monitoring points SSV-1 and Unitex 91090.

Victoria Basin mound monitoring well VCT-1/1 has shown a slight increase in EC, TDS, and chloride concentrations beginning in May 2011 that increase more rapidly through 2013, and continue through 2014. Mound monitoring well VCT-1/1 water quality data support a travel time of approximately 7.5 months based on the initiation of recycled water recharge on September 2, 2010 and its arrival detection with the May 19, 2011 sample. As presented in Table 3-1 based on EC and chloride variations, the highest percent blend of recycled water in the groundwater mound at Victoria Basin during 2013 was 42% to 60% at VCT-1/1. Downgradient wells VCT-2 and CVWD No. 39 have not shown any EC, TDS, or chloride variations that would indicate arrival of recycled water.

## 3.3 RWC Management Plan

The RWC Management Plan is a necessary tool to demonstrate how IEUA and CBWM will meet the maximum RWC limits established during the start-up period of a recharge site. In 2009, IEUA and CBWM received a permit amendment from the RWQCB Order No. R8-2009-0057 that allows for a 120-month RWC averaging period (previously a 60-month period) and for the inclusion of a fraction of groundwater underflow as a diluent water source in the RWC calculation. In 2010, the National Water Research Institute (NWRI) convened an independent expert panel to review the amendment and evaluate if the amendment provided an equal level of public protection. The panel supported the proposed Darcian method of quantifying site specific groundwater underflow; but recommended that, to be conservative (from a mixing standpoint), the fraction of the underflow used should only include the uppermost aquifer layers of higher hydraulic conductivity.

The RWC Management Plans presented in this report include the 120-month averaging period and the use of a fraction of the basin groundwater underflow. The RWC Management Plans are updated to reflect the actual operation of the basin through the previous calendar year and to forecast average operations for the next 120 months. Appendix C contains the RWC Management Plans for 8th Street, Banana, Brooks, Ely, Hickory, RP3, San Sevaine 5, Turner Basin Cells 1&2, Turner Basin Cells 3&4, and Victoria Basins.

Each RWC Management Plan was developed using historical diluent and recycled water recharge volumes, and projections of diluent water recharge volumes and planned recycled water recharge deliveries. Storm water projections are based on the historical averages of diluent recharge for the corresponding months. With each subsequent operational year, storm water projections will be updated to include the past year's historical data. For a conservative approach to the RWC calculation, imported water forecasts are not used as diluent water to calculate the projected RWC.

Following the 2009 recharge permit amendment to allow the utilization of groundwater underflow as a diluent water source, the 2009 Annual Report (IEUA and CBWM, 2010) contained RWC Management Plans showing underflow occurring since the historical initiation of recycled water recharge in a basin. However, upon further discussion with DDW (formerly CDPH), the RWC calculations were revised to initiate the use of a fraction of groundwater underflow beginning in October 2009 (the month the amendment was issued) for basins already receiving recycled water. For basins that start recycled water recharge after the 2009 permit amendment, the use of underflow in the RWC calculation begins upon the month of recycled water recharge initiation. This change in underflow application in RWC calculation was made for the 2010 and subsequent annual reports. For basins initiated with recycled water recharge after October 2009, by the 120th month of recycled water recharge operations, there will be a full 120 months of underflow in the RWC calculation for each basin.

Within the limits of historical recharge, storm water projections, and groundwater underflow, planned recycled water deliveries are forecasted to either maximize the available basin capacity or maintain the volume-based RWC within a basin's maximum RWC limit. The volume-based RWC is a calculation of the percent recycled water infiltrated compared to all recharge and is based on a 120-month rolling average. While the plan contains calculations for up to 120 months of historical data, the graphed RWC Management Plans (Appendix C) show only the previous 60 months of recharge and projections for the next 120 months. Historical data not tabulated here are contained in earlier annual reports.

Table 3-2 lists the volume-based RWC actual at the end of 2014 for each recharge site. The recharge sites are all in compliance with their maximum RWC limits. Based on future projections of diluent recharge, the RWC Management Plans show that recycled water deliveries for each basin can continue to be made and remain in compliance with their RWC limits.

## 3.4 Buffer Zone/Travel Time Compliance

Section VI.B.3.e of the M&RP requires the annual report to include the following:

> A summary discussion on whether domestic drinking water wells extracted water within the buffer zone defined by the area less than 500 feet and 6 months underground travel time from the recharge basins, including the actions/measures that were undertaken to prevent reoccurrence. If there were none, a statement to that effect shall be written.

As stated in the cover letters of the 2014 quarterly monitoring reports, CBWM has certified that there was no reported pumping of groundwater in 2014 for domestic or municipal use from the zones that extend 500 feet and 6 months underground travel time from the 8th Street, Banana, Brooks, Ely, Hickory, RP3, San Sevaine, Turner, and Victoria Basins. In fact, there are no domestic or municipal production wells in the buffer zones of the aforementioned recharge sites.

### *3.4.1 Recharge Water Arrival Times*

As documented in annual reports and basin start-up period reports, sufficient data exist to estimate arrival times of recycled water at monitoring wells: 8TH-1/1 and 8TH-1/2 for 8th Street Basin; BRK-1/1 and BRK-1/2 for Brooks Basin; BH-1/2 for Hickory Basin; California Speedway Infield Well for Banana Basin; TRN-1/2 and TRN-2/2 for Turner 1 and Turner 4 Basins, respectively; Ontario Well No. 25 for Turner 4 Basin; VCT-1/1 for Victoria Basin, and RP3-1/1 and RP3-1/2 for RP3 Basins. The evaluations of arrival time are based on the water chemistry data presented in Appendix D and basin operations data. Arrival times can be determined from notable increases in EC, TDS, and/or chloride concentrations above background, excluding natural seasonal variations.

**8th Street Basin Area**

Travel time from 8th Street Basin through the vadose zone and along groundwater flow paths to monitoring well 8TH-1/1 is estimated by steadily increasing concentrations of EC, TDS, and chloride beginning in July 2009 and continuing through 2013. Recharge of recycled water began at 8th Street Basin on September 7, 2007, thus the travel estimate for 8TH-1/1 is approximately 660 days (22 months). The travel time to the further downgradient monitoring well 8TH-2/2 had appeared to be more rapid (perhaps a more direct flow path), and was preliminarily estimated to be approximately 402 days (13 months) based on chloride data (IEUA, 2009). While this difference between wells was conceivable and was supported by continued observations of EC, TDS, and chloride in 2010, the water quality data from 2011, 2012, 2013, and 2014 at this location no longer support this estimate. This is evidenced by the decline in EC, TDS, and chloride through 2014 below initial background concentrations with no observable influence from recycled water recharged.

**Banana & Hickory Basins Area**

Travel time from Hickory Basin through the vadose zone and along groundwater flow paths to monitoring well BH-1/2 was documented at approximately 59 days (IEUA and CBWM, 2009).

The California Speedway Infield Well has demonstrated a small but gradual increase in EC, TDS, and chloride from September 2005 through the end of 2012. Travel time from Banana Basin to California Speedway Infield Well is estimated at 890 days (29 months) based on a stepped increase in EC, TDS, and chloride concentrations between data collected on October 9, 2007 and January 7, 2008 (IEUA and CBWM, 2009). The modeled travel time to the California Speedway Infield Well was 682 days (22 months) (CH2MHill, 2003). Other Banana-Hickory monitoring wells have not yet shown definitive variations in EC, TDS, and chloride that would signal arrival of recycled water at these well sites. Data collected in 2014 are consistent with the prior data interpretations.

**Brooks Basin Area**

Travel time from Brooks Basin through the vadose zone to the shallow casing of mound monitoring well BRK-1/1 located at the basin was initially interpreted from EC changes to be approximately 7 days (IEUA and CBWM, 2010a) due to the observation of a 200 µmhos/cm EC increase following initiation of recycled water recharge in August 2008. However, data from 2009 and the completion of the Brooks Basin Start-Up Period report suggested the earlier data were anomalous and document the travel time estimate to be approximately 150 days (5 months) based on trends in EC, TDS, and chloride data. The chloride increase from background concentration to over 80 mg/L in January, February, and March 2009 are indicative of the arrival of recycled water. Evaluation of 2010 through 2014 EC, TDS, and chloride data indicate recycled water arrived at the deeper casing (BRK-1/2) in January 2010 for a travel time of approximately 526 days (17 months). At the downgradient monitoring well BRK-2, variations of EC, TDS, and chloride concentrations following recharge are similar to the background variations prior to recycled water recharge, which makes identification of travel time to this well difficult. The 2012 EC, TDS, and chloride data at BRK-2 (casings BRK-2/1 and BRK-2/2) continue to be within the range of the background concentration; however an increase in chloride concentration at BRK-2/1 throughout 2011 and 2012 may suggest the arrival of recycled water. In 2013 and 2014, the chloride concentration at BRK-2/1 returned to background levels. More data are required to determine the arrival time.

**Ely Basin Area**

Groundwater in the Ely Basin area has high background TDS and nitrate concentrations from a history of irrigation. Due to the seasonal variations of TDS, EC, and chloride concentrations at the Philadelphia, Walnut, and Riverside Wells, arrival times are difficult to determine. Recycled water recharge began in 1999 and thus it is estimated that recycled water has already arrived and traveled beyond these wells.

**Turner Basin Area**

Travel time from Turner Basins through the vadose zone to the groundwater was documented at 97 days (3 months) and 285 days (9 months) to monitoring wells TRN-1/2 and TRN-2/2, respectively (IEUA and CBWM, 2009). Further review of historical data suggests travel times approaching 10 to 12 months for both sites. While the initial rise in EC, TDS, and chloride at TRN-1/2 suggested a 3-month travel time, the subsequent decline in EC, TDS, and chloride during summer and fall of 2008 suggested a longer travel time of approximately 10 months, after recycled water recharge stopped in the summer of 2007. At TRN-2/2, the EC, TDS, and chloride increased significantly from background concentrations in the summer of 2007 and are indicative of the (initial) 11-month travel time. Both monitoring wells have two casings, with the shallower being designated /1 and the deeper being designated /2. TRN-1/1 is not currently sampled as it was constructed above the water table for future mound sampling, if needed. Original modeling (CH2MHill, 2003) for the Turner recharge site predicted a 109-day travel time to each of these wells. Recycled water continued to be detected at TRN-2/2 (as elevated EC) through 2013. Decrease in EC, TDS, and chloride concentrations at TRN-1/2 indicate that recycled water recharged during the start-up period has migrated away from this location since July 2008, after the high volume recharge start-up period ended in 2007. The water quality beneath Turner 1 still indicates the presence of recycled water from subsequent recycled water recharge activities. The travel time from Turner Basins to downgradient Ontario Well No. 25 suggest a travel time of 1,475 days (48 months) (IEUA and CBWM, 2011). Downgradient monitoring well, Ontario Well No. 29, has not yet shown variations in EC, TDS, and chloride that could signal arrival of recycled water at these well sites. Data collected in 2014 are consistent with the prior data interpretations for these two Ontario wells.

### RP3 Basin Area

Travel time from RP3 Basin (cell 1) through the vadose zone to the shallower casing of mound monitoring well RP3-1/1 (located at on the west side of cell 1) was initially interpreted in the 2009 Annual Report (IEUA and CBWM, 2010a) to be approximately 14 days based on observation of EC changes. However, 2009 through 2010 data and RP3 Basin Start-Up Period Report findings indicate the earlier data did not represent the arrival of recycled water, but was instead evidence of vadose zone flushing (IEUA and CBWM, 2010b). The EC and water level trends support a travel time estimate of approximately 99 days. While the background EC prior to recycled water recharge was 1,000 to 1,100 µmhos/cm, initiation of storm water recharge operations at cell 1 in February 2009 appears to have pushed the higher EC water from the vadose zone, raising the well water EC to 1,400 µmhos/cm. Recycled water recharge began on June 2, 2009 and a 400-µmhos/cm decrease in EC was observed in this mound monitoring well by August 25, 2009. The approximately 99-day travel time to the well is corroborated by the hydrograph of well casing RP3-1/1 (Appendix E), which shows an approximately +90-day delay between the mid-September 2010 recharge low and the mid-December 2010 water level low. Recycled water has also been observed as a chloride increase in both the shallow and the deep casing RP3-1/1 and RP3-1/2 in the summer of 2010, approximately 12 months after initiation of the basin with recycled water. The longer time to observe a chloride response is likely due to background noise of water purged from the vadose zone. The water quality data from downgradient monitor wells ALCOA MW-1 and MW-3 do not indicate the arrival of recycled water at these locations.

### San Sevaine & Victoria Basins Area

San Sevaine Basins lie directly upgradient of Victoria Basin and thus these two sites are considered together. There is currently insufficient data from the San Sevaine area monitoring wells to establish travel times of recharge to mound monitoring well SSV-1/1 and to cross gradient well Unitex 91090. For Victoria Basin, mound monitoring well VCT-1/1 water quality data (EC, TDS, and chloride) support a travel time of approximately 7.5 months based on the initiation of recycled water recharge on September 2, 2010 and the beginning of a steady rise in EC, TDS, and chloride through 2014 (starting with the May 19, 2011 sample).

### *3.4.2 Leading Edge of Recycled Water in Aquifer*

The leading edges of groundwater containing a component of recycled water were evaluated for the various recharge sites using monitoring well data. Such data include groundwater elevations changes and changes in EC, TDS, and/or chloride concentrations. Water quality data were discussed in Section 3.2 and Section 3.4. Appendix E contains basin-specific water level hydrographs, with discussion in Section 3.5.2 of water level mounding due to recycled water recharge. Location maps for wells monitored for the recharge program are presented in Figures 2-1 through 2-7. Evaluation of basin-specific water chemistry and water level data indicate recycled water recharge has passed the first monitoring wells located downgradient of 8$^{th}$ Street, Banana, Brooks, Ely, Hickory, Turner Basins, Victoria, and RP3 Basins. Only two production wells used for monitoring near the basins show a water quality change from background concentrations that would be associated with recycled water recharge; specifically, California Speedway Infield Well for Banana & Hickory Basins and Ontario Well No. 25 for Turner 4. CBWM certifies on a quarterly basis that no pumping for drinking water purposes took place in the buffer zones extending 500 feet laterally and 6 months underground travel time from each of the recharge sites using recycled water and further specifies there are no domestic or municipal production wells in the buffer zones of these recharge sites.

### *3.4.3 Tracer Test Results*

No tracer tests were conducted in 2014, nor are any planned for the current program.

## 3.5 Groundwater Elevations

Section VI.B.3.b of the M&RP requires the annual report to include a discussion of groundwater elevations and flow paths:

> Recharge water groundwater flow paths shall be determined annually from groundwater elevation contours and compared to the flow and transport model's flow paths, travel of recharge waters, including leading edge of the recharged water plume, any anticipated changes. The flow and transport model shall be updated to match as closely as possible the actual flow patterns observed within the aquifer if the flow paths have significantly changed.

### *3.5.1 Current Elevation vs. Modeled Elevation*

Groundwater elevations from the recharge program monitoring wells and many other wells are used by CBWM to periodically prepare groundwater elevation contours of the Chino groundwater basin. Groundwater contour maps were prepared for 1997, 2000, 2003, 2006, 2008, 2010, 2012, and 2014. These groundwater elevation maps from the Chino Basin Watermaster's *Biennial State of the Basin Reports* are presented in Appendix F.

A comparison of the pre-recharge elevation contour map (Fall 2003) with the most recent post-program start-up groundwater contour map (Spring 2014) indicates several things. First, local changes in groundwater elevation near the recharge basins due to recharge activities are present, but are not generally evident by the contour interval of 25 feet shown in the maps, indicating that the recharge program has not significantly impacted regional groundwater flow directions. Local recharge mounds at basins are evident in well hydrographs at the monitoring wells shown in Appendix E, but are generally smaller than the contour interval (25 feet) on the maps. Small differences in groundwater flow direction are noticeable for mounds building at 8$^{th}$ Street (+15 feet) and at Ely Basins (+20 feet) between the 2003 and 2012 maps, but neither difference suggests that downgradient monitoring well locations are inappropriately located to become characteristic of recharge water quality. Also of note, a deeper and larger area pumping depression has developed in the vicinity the Chino Desalter (hydraulic control) well field and a smaller (narrower) regional pumping depression has developed in the Pomona, area west of Brooks Basin. There are some changes in the contouring style/methodology between the 2003 and 2014 maps. For example, the groundwater contours in the area north of Victoria and San Sevaine Basins were interpreted for the 2003 map, but were not interpreted for the 2010, 2012, and 2014 maps.

### *3.5.2 Water Level Trends in Monitoring Wells*

Appendix E contains groundwater elevations hydrographs for wells constructed for the monitoring program from the approximate time of a basin's start-up periods through the end of 2013. Location maps for wells monitored for the recharge program are presented on Figures 2-1 through 2-7. Plotted on each hydrograph is the daily rate of water captured for the nearest recharge site. These hydrographs can be used to identify local increases in groundwater elevations and their correlation with local recharge. Generally these wells are mound monitoring wells at basins or the next monitoring well downgradient of the recharge site.

**8$^{th}$ Street Basin Area**

The hydrographs of the 8$^{th}$ Street Basin mound monitoring well (8TH-1) show 5- to 10-foot seasonal fluctuations and a longer-term 10-foot increasing trend in water levels between 2008 and 2014. There are missing water level data for both casings at 8TH-1 in 2011 due to the loss and replacement of the pressure transducers and pumps at the well. Hand-measured water levels supplemented the hydrographs during that time. The hydrograph for downgradient well 8TH-2 also shows about a 10-foot increasing water level trend between 2008 and 2014. Short duration downward spikes in the 8TH-2 hydrograph are indicative of nearby groundwater pumping activities.

**Brooks Basin Area**

The hydrographs for the Brooks Basin mound monitoring well (BRK-1/1) show 2- to 10- foot seasonal fluctuations in water level and were relatively stable annually between mid-2009 and mid-2013. From mid-2013 through 2014, water levels have fallen feet perhaps due to the low rainfall that year and a decrease in stormwater recharge. The larger groundwater elevation fluctuations in the deeper casing (BRK-1/2) are due to a greater influence from nearby groundwater production at that depth. Prior to the generally stable period of mid-2009 to the end of 2013, water levels at BRK-1/1 and BRK-1/2 had generally declined approximately 10 feet during 2008 and early 2009. The shallower casing (BRK-1/1) was redeveloped during 2010. Due to the removal of monitoring equipment at that time, it does not have a continuous water level record in 2010. Periods of rising water levels on the Brooks basin monitoring well hydrographs correlate well with about a 3-months lag from recharge activity at Brooks Basin. The hydrograph of the downgradient (intermediate) monitoring well BRK-2 shows a similarly stable trend as BRK-1/2 from 2009 to 2014 with the exception of slightly larger seasonal fluctuations and pumping influences.

### Banana & Hickory Basins Area

The hydrograph for the Banana and Hickory Basins mound monitoring well (BH-1) shows seasonal and longer-term water level fluctuations of about 15 feet. Between 2006 and 2009, a 15-foot steady decline in water level occurred. For 2009 through 2014, the BH-1/2 hydrograph shows relative stable water levels with 5-foot season fluctuations. For 2012, the hydrograph rose about 10 feet above the 2009 through 2011 levels, but came back down in 2013. The peak and trough seasonal fluctuations appear delayed between 3 and 4 months from peak recharge activities. Impacts on water elevations due to recharge at Hickory and Banana Basins are muted and delayed due to the over 400-foot depth to the water table at this location.

### Turner Basin Area

The hydrographs for the two Turner Basin monitoring wells, TRN-1/2 and TRN-2/2, show annual variations (related to stormwater recharge and longer-term water level fluctuations in about a 30-foot range). Annually the hydrographs have shown 10- to 25-foot variations in groundwater elevation with delays of 1 to 2 months associated with peaks in recharge. The annual low water elevations of September 2007 to September 2009 are generally the same elevation. The annual lows of September 2009 through 2014 show a 10-foot rise suggesting recharge at Turner Basins has a positive impact on regional water levels in their vicinity.

### Ely Basin Area

Ely Basin has received recycled water recharge since 1999, 6 years prior to the currently permitted regional recharge program. In 2011, IEUA installed a transducer in MW-1 (aka the Philadelphia well) and began recording water levels. The 2014 annual report is the first presentation of that site's hydrograph. From 2011 to 2014, the Ely Basin long-term water levels were generally stable, but show 20-foot variations within days of changes in recharge.

### RP3 Basin Area

The hydrograph of the RP3 Basin mound monitoring well, RP3-1, shows a good correlation with recharge activity at the basin. In 2007 and 2008, the water elevation did not vary by more than 2 to 3 feet with recharge activity. However, after initiation of Jurupa Basin in June 2009 for diverting recycled water and winter stormwater (for subsequently pumping to the RP3 site), annual recharge volumes and water levels increased. For 2009 through 2011, dramatic increases in groundwater elevations occurred, followed by a decrease in groundwater elevation in late 2012 when the RP3 basin was off line for maintenance. For 2013, water levels rebounded 5 to 10 feet upwards with renewed recharge at the RP3 site. Water levels at RP3 fell about 6 feet through most of 2014 due in part to the low rainfall and stormwater recharge in that year.

### Declez Basin Area

A hydrograph for Declez Basin monitoring well DCZ-1 is included in this report in preparation for the initiation of recycled water recharge in late 2015 or early 2016, depending on the completion of IEUA's Wineville pipeline extension. The hydrograph contains data since 2008. The data generally shows 10 to 15 feet seasonal variations, with the water level responding within days of stormwater recharge. The long-term water level trend at this site is stable between 2008 and 2014.

### San Sevaine & Victoria Basins Area

Between 2010 and 2013, the hydrograph for the San Sevaine 5 basin mound monitoring well (SS-1) shows seasonal and longer-term water level fluctuations within a 5-foot range.  SS-1 was installed in spring 2010 and does not have sufficient water level history to correlate with recharge at the San Sevaine Basins. 2014 water levels of SS-1 experienced a steady decline of about 10 feet, due in part to the low rainfall and stormwater recharge in that year. Recycled water recharge at San Sevaine 5 was limited in 2014 due to a geotechnical investigation of low basin infiltration rates.

The hydrograph for the Victoria Basin mound monitoring well (VCT-1/1) shows seasonal and longer-term water level fluctuations within a 20-foot range. The water level transducer installed at VCT-1/1 in April 2010 was found to be faulty and only manual measurements were measured until April 2011. The mound area water levels rose 15 feet from 2010 to 2011, then fell and rose 5 feet in 2012. In 2013, the mound area water levels fell approximately 10 feet. There appears to be about an 11-month delay between recharge and water table changes beneath the Victoria Basin, yet more observations are needed to confirm this delay. In late 2014, water levels rose sharply 10 feet due to relatively higher volume recharge of recycled water in early 2014.

The hydrograph for the Victoria Basin downgradient (intermediate) monitoring well (VCT-2/2) shows long-term water level fluctuations within a 12-foot range. Seasonally, the hydrograph shows 5- to 8-foot water level fluctuations in 2010 through 2013. This well was installed in spring 2010 and the existing water level data set does not yet correlate well with recharge activities at the San Sevaine and Victoria Basins. While both the water levels and the recharge volumes rise and fall annually, the data set requires comparison of a longer duration data set to determine their correlation with certainty. Data for 2014 were not available for download due to Caltrans construction activities at the well’s site.

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# TABLES

## Table 2-1
## Quarterly Groundwater Quality at Nearest Potable Well

| | Sample Location | Date | TOC (mg/L) | Total Coliform (MPN/100mL) | pH | EC (µmho/cm) | TDS (mg/L) | Al (µg/L) | Color (units) | Cu (µg/L) | Corrosivity Index (SI) | Foaming Agents (mg/L) | Fe (µg/L) | Mn (µg/L) | MTBE (µg/L) | Odor Threshold (TON) | Ag (µg/L) | Thiobencarb (µg/L) | Turbidity (NTU) | Zn (µg/L) | Cl (mg/L) | Hardness (mg $CaCO_3$/L) | Na (mg/L) | $SO_4$ (mg/L) | $NH_3$-N (mg/L) | $NO_2$-N (mg/L) | $NO_3$-N (mg/L) | Nitrogen, Total (mg/L) | TKN (mg/L) | Alkalinity (mg $CaCO_3$/L) | Dissolved Oxygen (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8th St | City of Ontario Well No. 35 | 1Q14 | <0.10 | <1.1 | 8.5 | 340 | 234 | <25 | <3 | <0.5 | 0.2 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.08 | <1 | 7 | 136 | 22 | 21 | <0.1 | 0.09 | 2.8 | 2.9 | <0.5 | 138 | 1.7 |
| | | 2Q14 | 0.14 | <1.1 | 8.2 | 340 | 238 | <25 | <3 | <0.5 | 0.3 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.10 | <1 | 8 | 133 | 23 | 22 | <0.1 | <0.02 | 3.2 | 3.2 | <0.5 | 137 | 1.9 |
| | | 3Q14 | 0.17 | 2.2 | 8.2 | 350 | 220 | <25 | <3 | 1.2 | 0.2 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.10 | <1 | 11 | 154 | 23 | 21 | <0.1 | 0.08 | 3.1 | 3.2 | <0.5 | 143 | 3.2 |
| | | 4Q14 | 0.24 | <1.1 | 7.7 | 385 | 268 | <25 | <3 | 1.3 | 0.2 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.16 | 2 | 11 | 174 | 21 | 22 | <0.1 | 0.04 | 4.3 | 4.3 | <0.5 | 151 | 3.9 |
| Banana & Hickory | City of Ontario Well No. 20 | 1Q14 | <0.10 | <1.1 | 8.6 | 355 | 226 | <25 | <3 | <0.5 | 0.4 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.11 | 1 | 8 | 171 | 14 | 6 | <0.1 | 0.10 | 2.2 | 2.3 | <0.5 | 166 | 1.4 |
| | | 2Q14 | 0.23 | <1.1 | 8.3 | 360 | 244 | <25 | <3 | 0.6 | 0.4 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.18 | <1 | 9 | 170 | 14 | 7 | 0.1 | <0.02 | 2.6 | 2.6 | <0.5 | 166 | 1.9 |
| | | 3Q14 | 0.22 | <1.1 | 8.0 | 360 | 230 | <25 | <3 | <0.5 | 0.7 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.85 | <1 | 10 | 181 | 14 | 6 | <0.1 | 0.10 | 2.1 | 2.2 | <0.5 | 169 | 5.2 |
| | | 4Q14 | 0.13 | <1.1 | 8.6 | 375 | 264 | <25 | <2 | 1.4 | 0.4 | <0.05 | 17 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.20 | <1 | 10 | 177 | 14 | 7 | <0.1 | 0.07 | 2.5 | 2.6 | <0.5 | 172 | 1.8 |
| Brooks | Pomona Well No. 10 | 1Q14 | 0.19 | <1.1 | 8.1 | 510 | 316 | <25 | <3 | 4.9 | 0.6 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.10 | 4 | 39 | 244 | 12 | 40 | <0.1 | 0.06 | 7.6 | 7.7 | <0.5 | 143 | 2.1 |
| | | 2Q14 | 0.19 | <1.1 | 8.1 | 505 | 324 | <25 | <3 | 2.0 | 0.5 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.14 | 3 | 39 | 229 | 12 | 42 | <0.1 | <0.02 | 7.6 | 7.6 | <0.5 | 138 | 2.6 |
| | | 3Q14 | 0.31 | <1.1 | 8.1 | 505 | 332 | <25 | <3 | <0.5 | 0.5 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.09 | <1 | 36 | 252 | 13 | 38 | <0.1 | 0.08 | 6.8 | 6.9 | <0.5 | 141 | 4.7 |
| | | 4Q14 | 0.25 | <1.1 | 7.9 | 505 | 364 | <25 | <3 | 0.7 | 0.5 | <0.05 | <15 | <1 | <0.5 | 2 | <0.25 | <0.2 | 0.12 | 2 | 38 | 245 | 12 | 39 | <0.1 | 0.03 | 6.9 | 6.9 | <0.5 | 138 | 5.2 |
| Ely | Bishop Of San Bernardino Corp. | 1Q14 | 0.32 | <1.1 | 8.4 | 735 | 672 | <25 | <3 | 0.6 | 0.7 | 0.07 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.2 | <1 | 34 | 344 | 24 | 59 | <0.1 | 0.11 | 18.0 | 18.1 | <0.5 | 216 | 1.4 |
| | | 2Q14 | 0.46 | <1.1 | 8.3 | 725 | 468 | <25 | <3 | 2.0 | 0.8 | <0.05 | 20 | 1 | <0.5 | <1 | <0.25 | <0.2 | 0.19 | 3 | 45 | 354 | 23 | 56 | <0.1 | 0.04 | 16.8 | 16.8 | <0.5 | 210 | 1.2 |
| | | 3Q14 | 0.38 | 2.2 | 8.2 | 740 | 440 | <25 | <3 | <0.5 | 0.9 | 0.07 | 39 | 2 | <0.5 | 1 | <0.25 | <0.2 | 0.63 | 2 | 35 | 370 | 24 | 58 | <0.1 | 0.09 | 17.6 | 17.7 | <0.5 | 221 | 4.5 |
| | | 4Q14 | 0.34 | <1.1 | 7.9 | 755 | 514 | <25 | <3 | 3.1 | 0.8 | <0.05 | 841 | 3 | <0.5 | 2 | <0.25 | <0.2 | 0.2 | 2 | 36 | 368 | 24 | 61 | <0.1 | 0.04 | 19.5 | 20.1 | <0.6 | 219 | 4.8 |
| RP-3 | JCSD Well No. 17 | 1Q14 | 0.25 | <1.1 | 8.2 | 610 | 412 | <25 | <3 | 0.8 | 0.5 | <0.05 | <15 | 2 | <0.5 | 1 | <0.25 | <0.2 | 0.10 | <1 | 59 | 239 | 28 | 45 | <0.1 | 0.03 | 13.5 | 13.5 | <0.5 | 122 | 1.3 |
| | | 2Q14 | 0.27 | <1.1 | 8.2 | 565 | 398 | <25 | <3 | 0.8 | 0.4 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.07 | 2 | 52 | 235 | 29 | 38 | <0.1 | 0.03 | 12.0 | 12.0 | <0.5 | 112 | 2.6 |
| | | 3Q14 | 0.36 | <1.1 | 7.9 | 630 | 438 | <25 | <3 | 0.6 | 0.6 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.08 | <1 | 78 | 265 | 31 | 34 | <0.1 | 0.09 | 9.0 | 9.1 | <0.5 | 129 | 2.7 |
| | | 4Q14 | 0.30 | <1.1 | 8.0 | 600 | 440 | <25 | <3 | 2.0 | 0.4 | <0.05 | <15 | <1 | <0.5 | 2 | <0.25 | <0.2 | 0.09 | 5 | 66 | 236 | 28 | 39 | <0.1 | 0.02 | 10.3 | 10.3 | <0.5 | 128 | 3.8 |
| San Sevaine | Unitex 91090 | 1Q14 | 0.22 | 1.1 | 8.3 | 345 | 230 | <25 | <3 | <0.5 | 0.2 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.07 | 2 | 27 | 130 | 24 | 27 | <0.1 | <0.02 | 1.6 | 1.6 | <0.5 | 111 | 1.6 |
| | | 2Q14 | 0.19 | <1.1 | 8.0 | 380 | 264 | <25 | <3 | 0.5 | 0.1 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.19 | 2 | 30 | 149 | 20 | 30 | <0.1 | <0.02 | 2.6 | 2.6 | <0.5 | 116 | 1.8 |
| | | 3Q14 | 0.27 | 2.2 | 7.8 | 395 | 248 | <25 | <3 | <0.5 | 0.3 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.22 | 3 | 30 | 189 | 14 | 29 | <0.1 | 0.07 | 1.7 | 1.8 | <0.5 | 123 | 4.2 |
| | | 4Q14 | 0.38 | 23 | 7.7 | 365 | 262 | 71 | 20 | 39.1 | -0.1 | <0.05 | 3790 | 50 | <0.5 | 1 | <0.25 | <0.2 | 12.1 | 16 | 27 | 143 | 23 | 27 | <0.1 | 0.03 | 1.5 | 2.1 | <0.6 | 114 | 4.2 |
| Turner | City of Ontario Well No. 25 | 1Q14 | <0.10 | <1.1 | 8.4 | 425 | 268 | <25 | <3 | <0.5 | 0.3 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.08 | <1 | 16 | 183 | 22 | 16 | <0.1 | 0.08 | 4.5 | 4.6 | <0.5 | 169 | 1.5 |
| | | 2Q14 | 0.14 | <1.1 | 8.2 | 420 | 284 | <25 | <3 | <0.5 | 0.4 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.15 | <1 | 16 | 179 | 23 | 16 | 0.1 | <0.02 | 4.8 | 4.8 | <0.5 | 168 | 2.0 |
| | | 3Q14 | 0.32 | <1.1 | 7.7 | 435 | 284 | <25 | <3 | <0.5 | 0.5 | <0.05 | <15 | <1 | <0.5 | 1 | <0.25 | <0.2 | 0.06 | <1 | 17 | 193 | 24 | 16 | <0.1 | 0.17 | 4.4 | 4.6 | <0.5 | 173 | 5.4 |
| | | 4Q14 | 0.20 | <1.1 | 8.6 | 435 | 290 | <25 | <3 | <0.5 | 0.3 | <0.05 | <15 | 2 | <0.5 | 1 | <0.25 | <0.2 | 0.08 | <1 | 20 | 187 | 23 | 16 | 0.1 | 0.05 | 4.5 | 4.6 | <0.5 | 171 | 2.2 |
| Victoria & San Sevaine | CVWD No. 39 | 1Q14 | <0.10 | <1.1 | 8.4 | 275 | 182 | <25 | <3 | 1.4 | 0.1 | <0.05 | 33 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.30 | 2 | 6 | 107 | 16 | 8 | <0.1 | 0.08 | 2.6 | 2.7 | <0.5 | 119 | 1.8 |
| | | 2Q14 | 0.15 | <1.1 | 8.3 | 275 | 194 | 50 | <3 | 0.7 | 0.0 | <0.05 | 46 | <1 | <0.5 | <1 | <0.25 | <0.2 | 1.31 | 1 | 18 | 110 | 23 | 15 | <0.1 | 0.05 | 2.0 | 2.1 | <0.5 | 118 | 2.4 |
| | | 3Q14 | 0.19 | <1.1 | 8.0 | 280 | 194 | <25 | <3 | 0.5 | 0.2 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.25 | <1 | 5 | 109 | 24 | 10 | <0.1 | 0.11 | 2.1 | 2.2 | <0.5 | 122 | 4.1 |
| | | 4Q14 | 0.16 | <1.1 | 7.8 | 275 | 208 | <25 | <3 | 0.8 | 0.0 | <0.05 | <15 | <1 | <0.5 | <1 | <0.25 | <0.2 | 0.08 | <1 | 5 | 109 | 23 | 10 | <0.1 | 0.04 | 2.4 | 2.4 | <0.5 | 120 | 4.6 |
| | *Primary Maximum Contaminant Level* | | | | | | | 1000 | | 1300 | | | | | 13 | | | 70 | | | | | | | | | 10 | | | | |
| | *Secondary Maximum Contaminant Level* | | | | 6.5-8.5 | 900 | 500 | 200 | 15 | 1000 | | 0.5 | 300 | 50 | 5 | 3 | 100 | 1 | 5 | 5000 | 250 | | | 250 | | | | | | | |

Blank cells indicate that analysis was not run for a constituent during the quarter

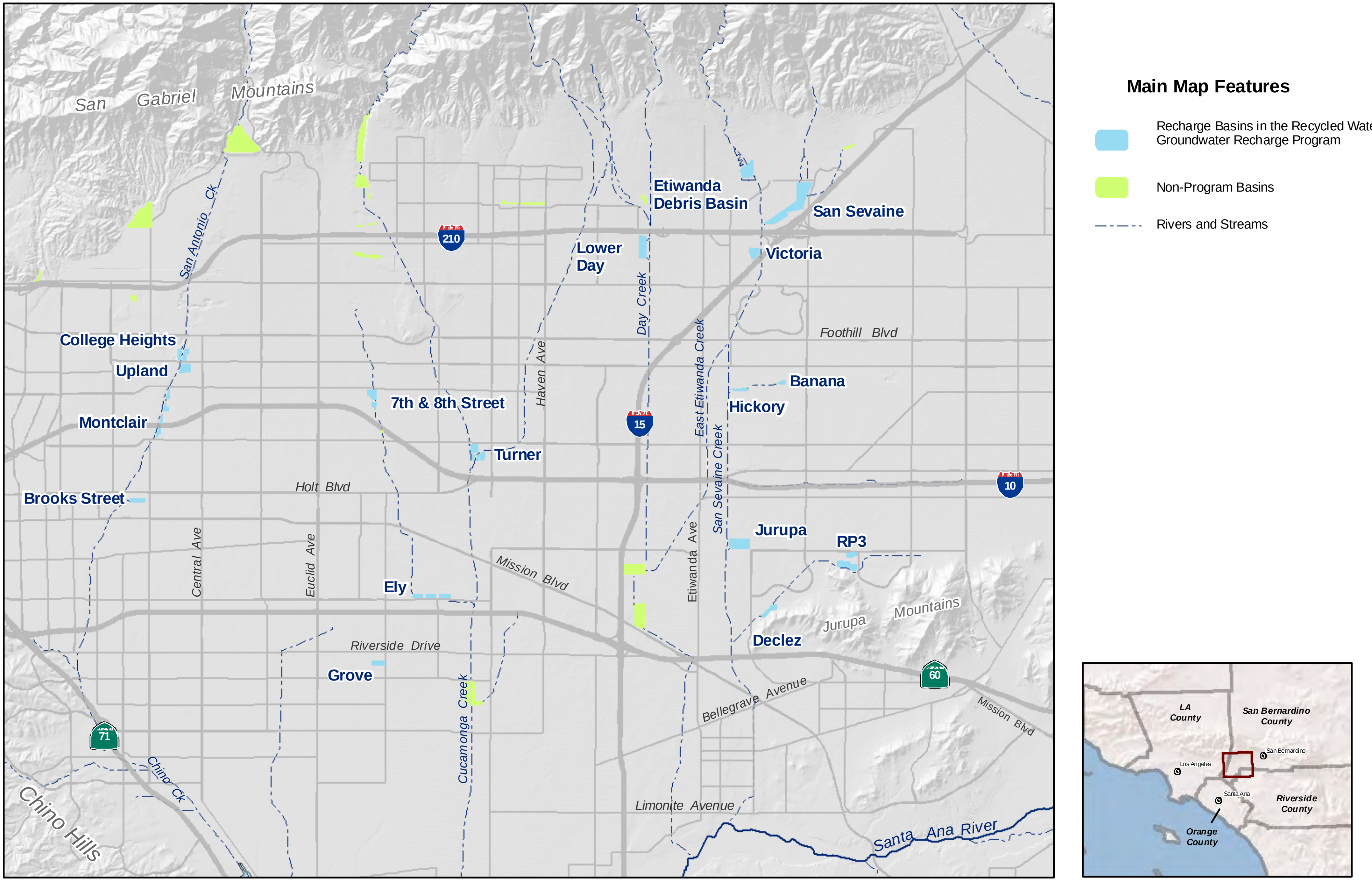
Table 2-2
Regional Plants No. 1 & No. 4 Chemical Usage Summary

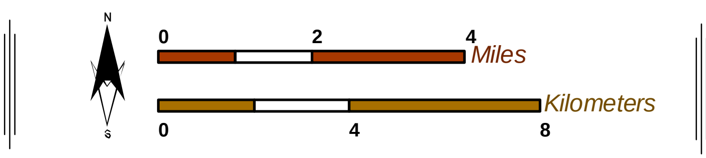
| | RP-1 (Flow) | | | | RP-1 (Tertiary) | | | RP-4 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ferric Chloride | Polymer | Sodium Hypochlorite | Sodium Hydroxide | Aluminum Sulfate | Sodium Hypochlorite | Sodium Bisulfite | Ferric Chloride | Aluminum Sulfate | Sodium Hypochlorite |
| Month | Gal. | Gal. | Gal. | Gal. | lbs. | Gal. | Gal. | Gal. | Gal. | Gal. |
| *Jan-14* | 32,700 | 234 | 584 | 145 | 7,998 | 125,750 | 13,800 | 21,543 | 7,794 | 1,126 |
| *Feb-14* | 28,350 | 211 | 656 | 145 | 7,224 | 104,200 | 17,900 | 19,230 | 7,141 | 776 |
| *Mar-14* | 28,700 | 249 | 839 | 190 | 7,998 | 108,600 | 21,600 | 27,059 | 6,204 | 1,074 |
| *Apr-14* | 31,500 | 253 | 628 | 202 | 7,740 | 104,100 | 10,300 | 25,747 | 4,944 | 808 |
| *May-14* | 28,050 | 239 | 974 | 213 | 7,955 | 97,400 | 7,600 | 28,238 | 4,652 | 861 |
| *Jun-14* | 19,500 | 236 | 1,239 | 258 | 7,740 | 95,900 | 5,400 | 30,568 | 5,040 | 1,245 |
| *Jul-14* | 20,860 | 242 | 1,220 | 259 | 7,998 | 109,700 | 6,000 | 35,187 | 4,999 | 1,119 |
| *Aug-14* | 22,000 | 259 | 2,750 | 285 | 7,998 | 123,300 | 8,100 | 41,069 | 5,242 | 908 |
| *Sep-14* | 20,400 | 247 | 2,002 | 562 | 7,740 | 114,700 | 7,600 | 35,177 | 3,327 | 941 |
| *Oct-14* | 23,475 | 254 | 2,282 | 523 | 7,998 | 107,900 | 8,800 | 35,374 | 6,192 | 1,110 |
| *Nov-14* | 24,150 | 269 | 1,241 | 508 | 7,697 | 104,500 | 17,600 | 22,731 | 1,293 | 782 |
| *Dec-14* | 27,300 | 307 | 1,310 | 444 | 7,998 | 112,700 | 44,500 | 18,640 | 1,461 | 670 |
| Total | 306,985 | 3,001 | 15,725 | 3,734 | 94,084 | 1,308,750 | 169,200 | 340,563 | 58,289 | 11,420 |

**Table 3-1**
**Evidence of Recycled Water Blending Based on Water Quality at Monitoring Wells in 2014 Based on EC and Chloride**

| Basin | Well | Well Position | Recycled Water EC (µmhos/cm) | Groundwater Background EC (µmhos/cm) | Peak EC at Well (µmhos/cm) | Mass-Balance Blend (max) (% Recycled Water) | Recycled Water Cl (mg/L) | Groundwater Background Cl (mg/L) | Peak Cl at Well (mg/L) | Mass-Balance Blend (max) (% Recycled Water) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8th Street | 8TH-1/1 | Downgradient | 750 | 200 | 590 | 71% | 110 | 9 | 93 | 83% |
| | 8TH-1/2 | Downgradient | 750 | 255 | 335 | 16% | 110 | 13 | 40 | 28% |
| | 8TH-2/1 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | 8TH-2/2 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| Banana & Hickory | BH-1/2 | Mound | 750 | 360 | 505 | 37% | 110 | 10 | 75 | 65% |
| | California Speedway Infield | Downgradient | 750 | 420 | 600 | 55% | 110 | 11 | 31 | 20% |
| | California Speedway No. 2 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | Reliant East Well | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | Fontana Water Co. 37A | Upgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | Ontario No. 20 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| Brooks | BRK-1/1 | Mound | 750 | 367 | 626 | 68% | 110 | 11 | 99 | 89% |
| | BRK-1/2 | Mound | 750 | 535 | 590 | 26% | 110 | 16 | 24 | 9% |
| | BRK-2/1 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | BRK-2/2 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| Ely | Philadelphia Well | Mound | 750 | 245 | 700 | 90% | 110 | 34 | 116 | 108% |
| | Walnut Well | Downgradient | Well impacted by regionally high TDS concentration | | | | Well impacted by regionally high TDS concentration | | | |
| | Riverside Well | Downgradient | No EC fluctuation correlatable with recharge | | | | No EC fluctuation correlatable with recharge | | | |
| Turner | TRN-1/2 | Mound | 750 | 390 | 615 | 63% | 110 | 21 | 87 | 74% |
| | TRN-2/2 | Mound | 750 | 350 | 690 | 85% | 110 | 9 | 112 | 102% |
| | Ontario No. 25 | Downgradient | 750 | 420 | 435 | 5% | 110 | 14 | 20 | 6% |
| | Ontario No. 29 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| RP-3 | RP3-1/1 | Mound | 750 | 475 | 715 | 87% | 110 | 20 | 104 | 93% |
| | RP3-1/2 | Mound | 750 | 465 | 715 | 88% | 110 | 41 | 109 | 99% |
| | Alcoa MW-3 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | Alcoa MW-1 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | IEUA Southridge JHS | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| San Sevaine & Victoria | SS1-1/1 | Mound | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | Unitex 91090 | Crossgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | VCT-1/1 | Mound | 750 | 330 | 505 | 42% | 110 | 38 | 81 | 60% |
| | VCT-2/2 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |
| | CVWD No. 39 | Downgradient | Inconclusive evidence of recycled water | | | | Inconclusive evidence of recycled water | | | |

# FIGURES

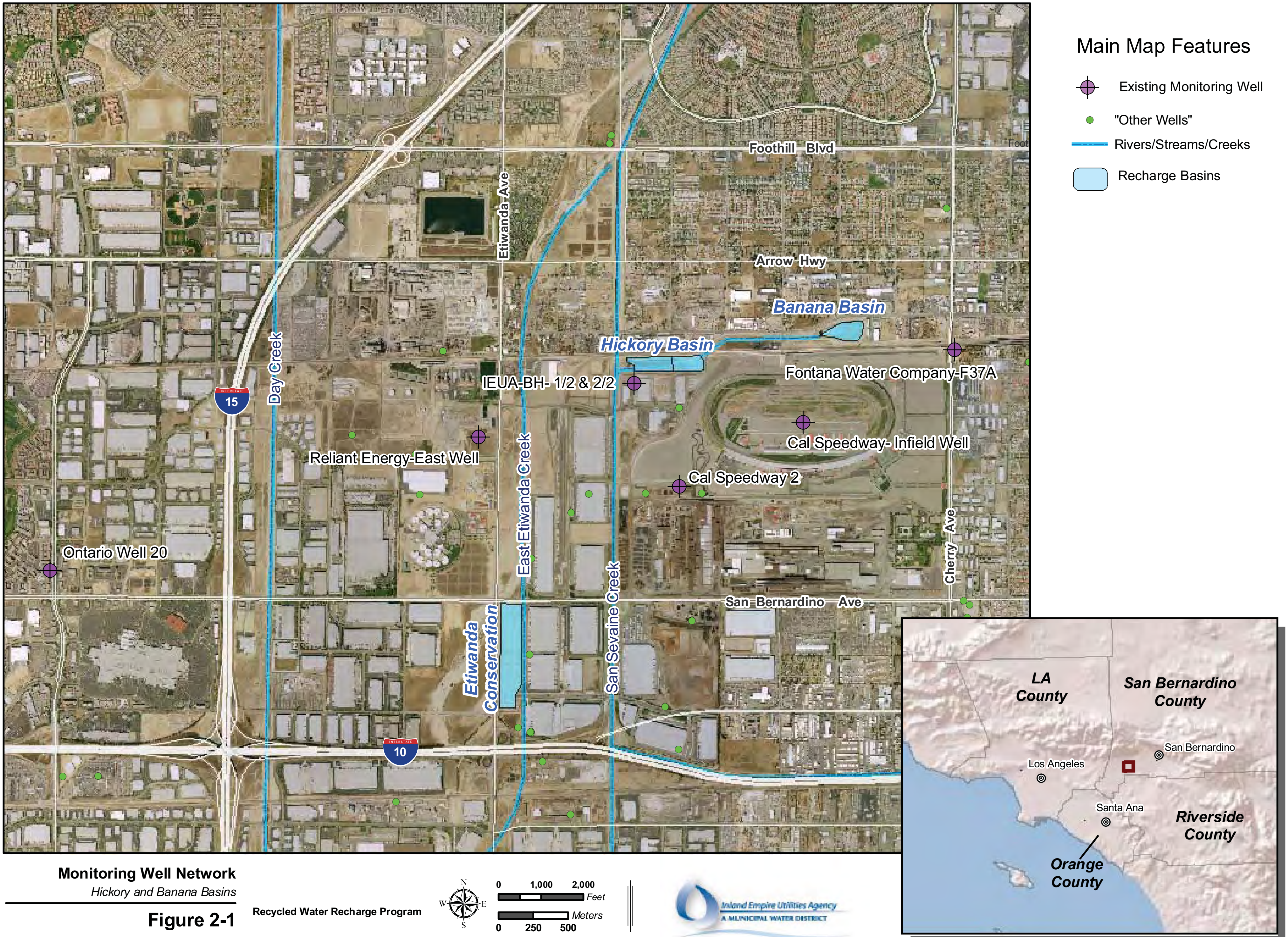





**Chino Basin Recycled Water Groundwater Recharge Program**

*Basin Locations*

**Figure 1-1**




**Monitoring Well Network**

*Hickory and Banana Basins*

**Figure 2-1**

**Recycled Water Recharge Program**

0 1,000 2,000 Feet

0 250 500 Meters

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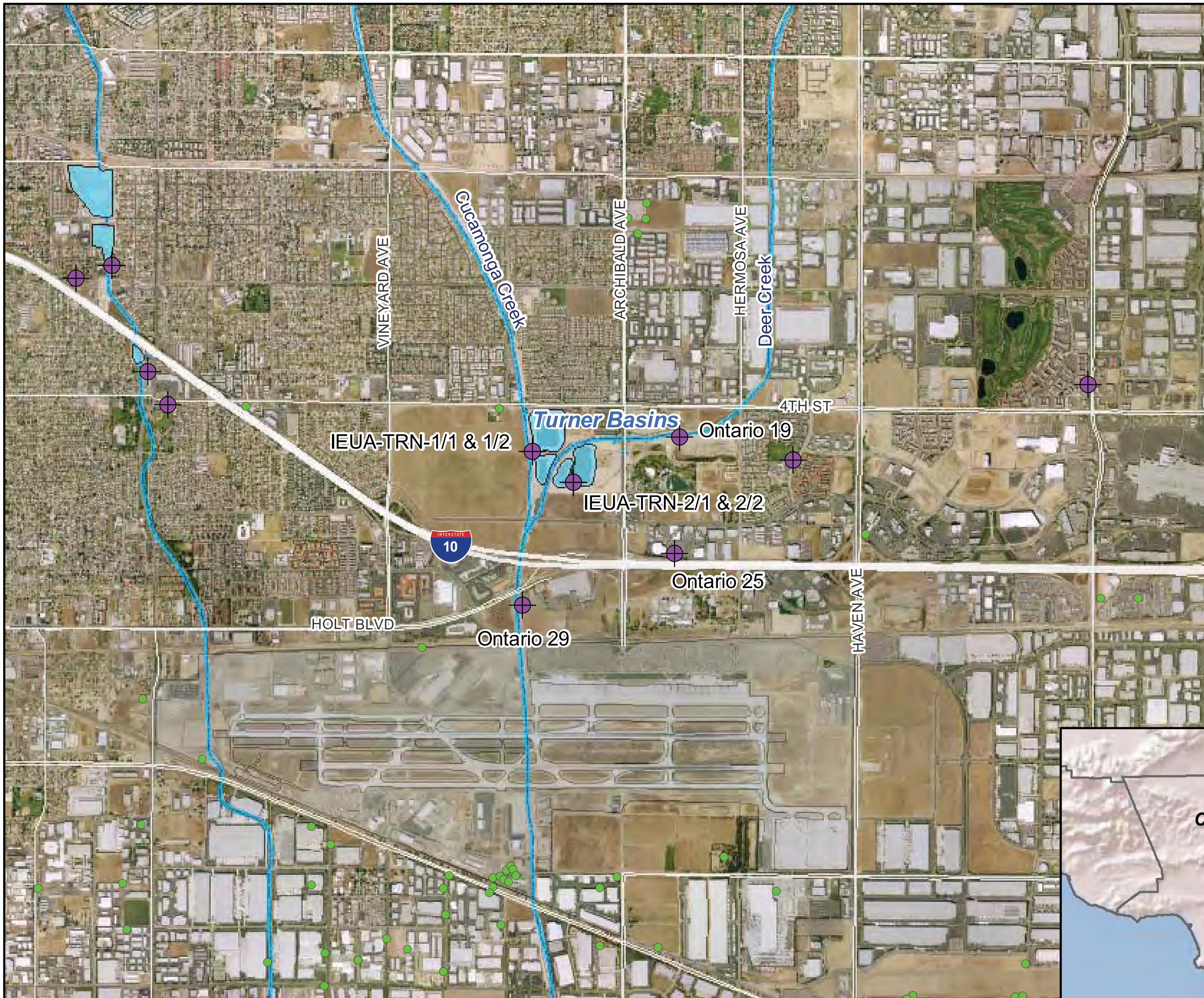




**Monitoring Well Network**
*Turner Basins*

**Figure 2-2**

**Recycled Water Recharge Program**

0 1,000 2,000 *Feet*
0 250 500 *Meters*

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT


**Monitoring Well Network**
*7th and 8th Street Basin*

**Figure 2-3**

**Recycled Water Recharge Program**

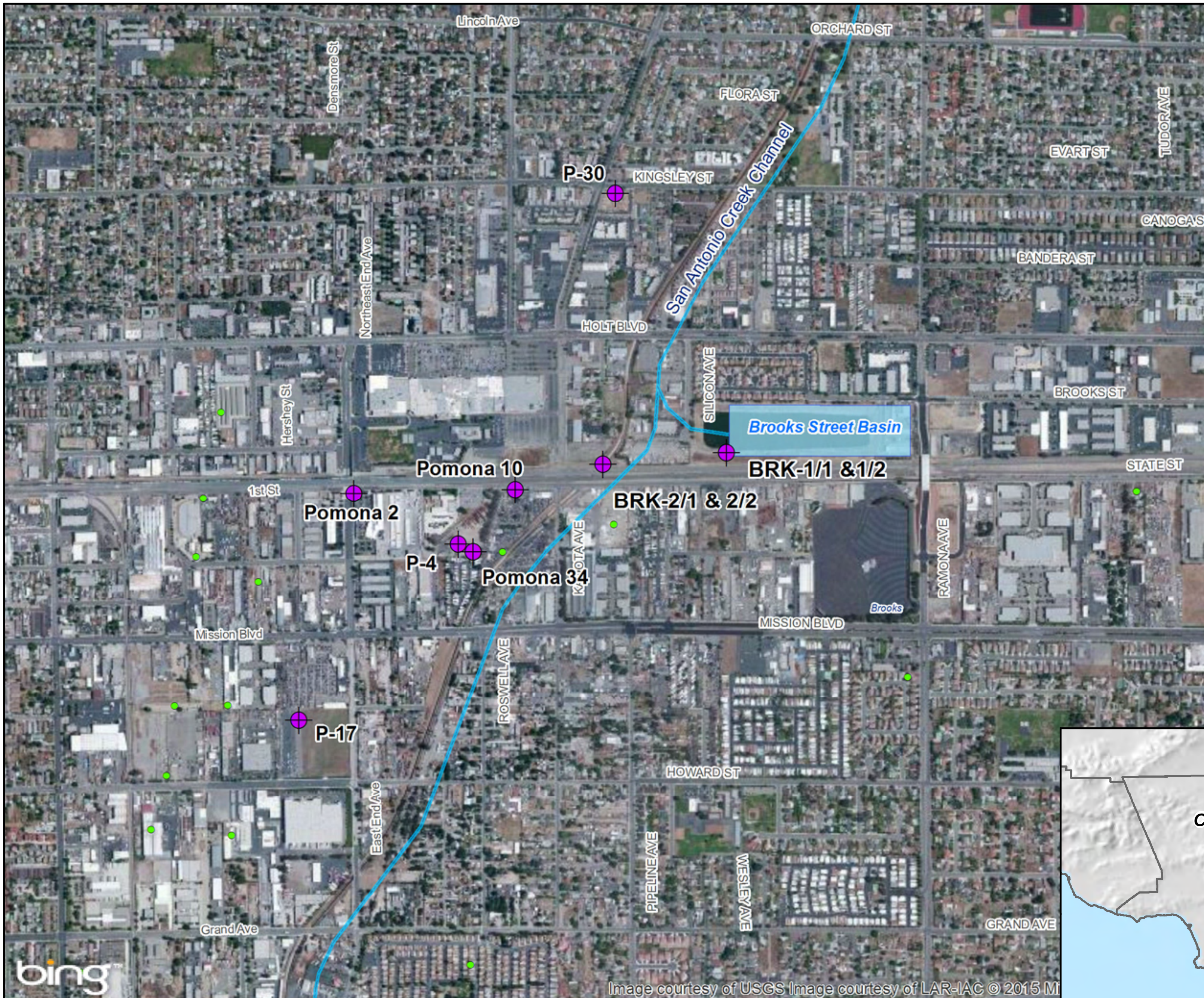

**Monitoring Well Network**

*Ely Basins*

**Figure 2-4**

Recycled Water Recharge Program

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT




## Main Map Features

- Existing Monitoring Well
- "Other" Wells
- Rivers/Streams/Creeks
- Recharge Basins


**Monitoring Well Network**

*Brooks Street Basin*

**Figure 2-5**

**Recycled Water Recharge Program**

0 1,000 Feet

0 300 Meters

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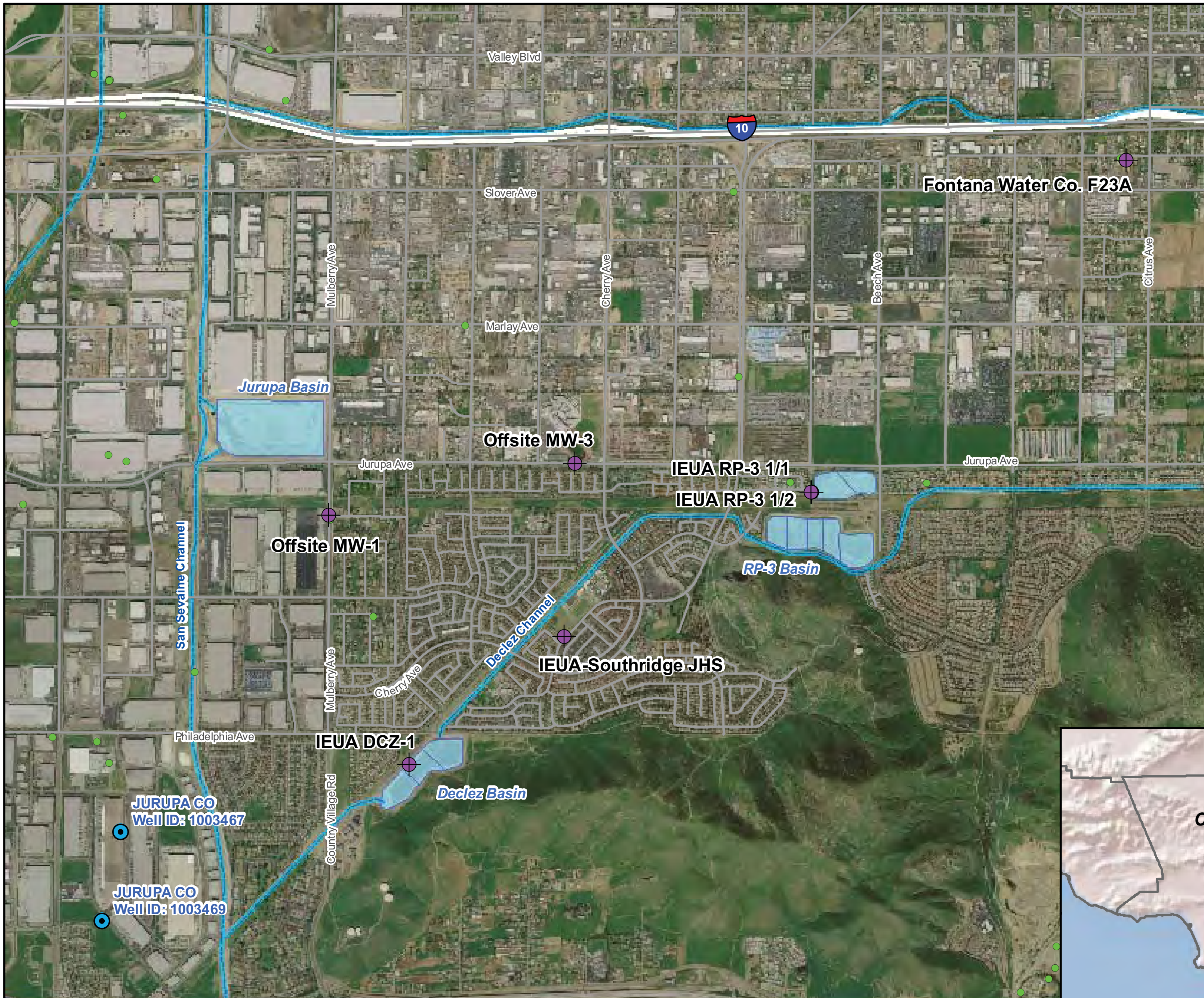



**Monitoring Well Network**
*RP-3 Basin*

**Figure 2-6**

**Recycled Water Recharge Program**

0 1,000 2,000 Feet
0 250 500 Meters

Inland Empire Utilities Agency
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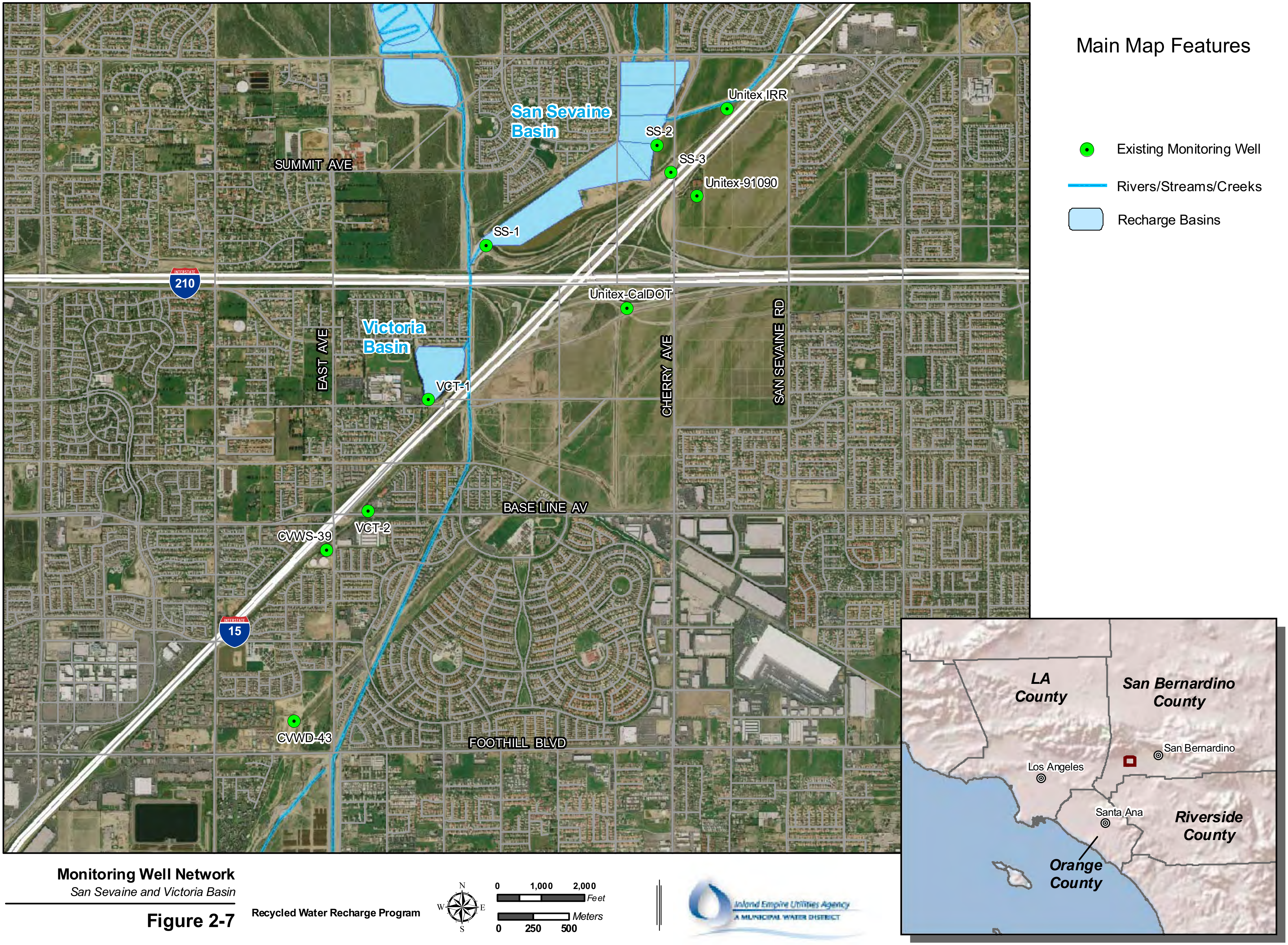


**Monitoring Well Network**

*San Sevaine and Victoria Basin*

**Figure 2-7**

**Recycled Water Recharge Program**

0 1,000 2,000 Feet

0 250 500 Meters

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

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# APPENDIX A

# IEUA LABORATORY QUALITY ASSURANCE MANUAL

Inland Empire
UTILITIES AGENCY
A Municipal Water District

Clean, inexpensive, plentiful water.

# *Laboratory*

# *QUALITY ASSURANCE MANUAL*

***19th Edition, March, 2015***

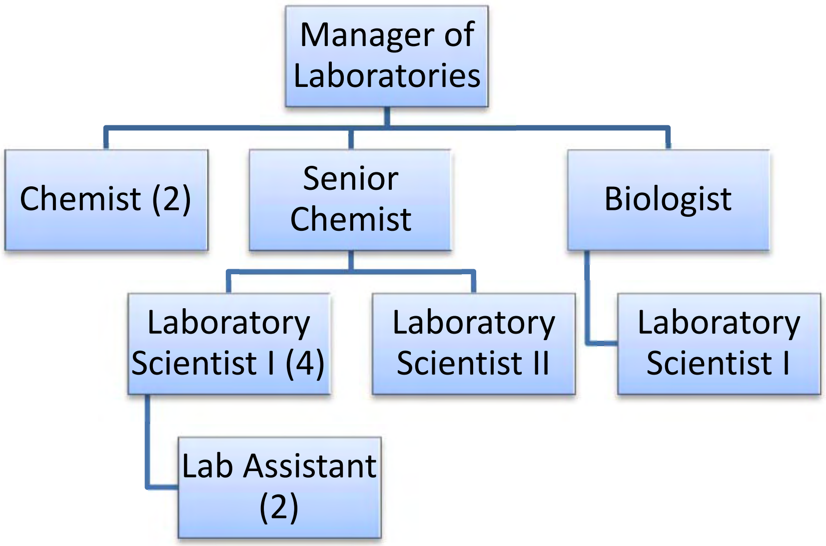
Reviewed, updated, and approved by:
Nel Groenveld, Manager of Laboratories

2450 E. Philadelphia Ave.
Ontario, CA 91761
909-993-1600

**Table of Contents**

**SECTION 1: ORGANIZATIONAL STRUCTURE**

The Manager of Laboratories provides direction and administrative support for the Inland Empire Utilities Agency (IEUA) Laboratory Quality Assurance program. The Manager is ultimately responsible for all results produced within the laboratory and all final reports must be reviewed and signed by the Manager or his/her designated representative. Additionally, the Manager is also responsible for providing an environment in which quality work can be produced.




The QC Officer is responsible for the conduct of the QA program and for taking or recommending corrective actions as is necessary. The QC Officer develops and oversees the various components of the program, monitors all activities and determines conformance with policy and procedures, conducts system audits, evaluates new ideas, advises management in review of technology, methods, equipment and facilities with respect to QA aspects. He/she advises and trains staff in QA aspects. The role of QC Officer is the responsibility of the Biologist, Chemists, Senior Chemist, and the Lab Manager.

The General Chemistry, Metals & Organics, and Biological sections of the Laboratory each have their own supervisor or section lead, which is responsible for the specific analytical operations within their section. These include proper sample handling, chain of custody, data review, staff training, timely completion of high quality results and sample disposal. Chemists, Biologist, Laboratory Scientists I & II, and Laboratory Assistants perform the analyses according to the established methods and quality control requirements in effect at the time.

## SECTION 2: QA OBJECTIVES

This quality assurance manual reflects the laboratory management commitment to quality assurance throughout the sample processing operations. IEUA Laboratory conducts all business activities under prescribed conditions and by using techniques that achieve results to a high degree of reliability and accuracy. The measurements follow generally recognized good laboratory practices and documented protocols. The purpose of the Quality Assurance Manual is to provide policy and oversight for the administration and maintenance of quality assurance (QA) and quality control (QC) within the IEUA Laboratory.

> ***Quality assurance (QA)*** *is an integrated system of management activities to ensure that a process or service meets the customer requirements. QA ensures that the facility, equipment, personnel, testing methods, data, and QC procedures are compliant with regulatory and internal policies so that the reportable results are appropriate for its intended use.*
>
> ***Quality control (QC)*** *is the routine technical activities that quantitatively measure the success of a process or service against defined standards of performance established to meet the needs of the customer. It is the overall system of operations designed to control the particular analytical process of service.*

Quality of the work is the responsibility of every employee.

Specific QA program objectives for the IEUA Laboratory are:

- To develop and put into service methods and procedures capable of meeting the end user's needs for precision, accuracy, sensitivity, defensibility, and specificity.
- To ensure that all laboratory employees receive appropriate training in QA/QC procedures, sufficient in depth, to enable them to carry out the provisions of this manual.
- To establish the level of quality of the laboratory's routine performance as a baseline in which to measure the effectiveness of quality improvement efforts.
- To make any changes in routine methodology found necessary to make it compatible with established performance criteria as established in the previous item above.
- To monitor the routine operational performance of the laboratory through participation in appropriate inter-laboratory testing programs and to provide for corrective actions as necessary.

## SECTION 3: SAMPLING PROCEDURES

Since all data resulting from a given sample must be evaluated on the conditions surrounding the actual sampling event, the main objective in the collection of any sample is to obtain a representative portion of the whole. Though often receiving minimal priority in actual training, the collection of a sample is probably one of the most critical stages in the process that culminates with a data report. The manner in which a particular sample is collected will influence, to some degree, each of the remaining steps leading to this report. To insure that the data generated from a sample are of the highest quality and validity, a thorough program in proper sample collection, handling and transport is necessary.

There are two basic types of samples that one can collect:

1. **Grab**
   Any individual sample is collected in less than 15 minutes. This is the preferred type for measurement of parameters that change over time.

2. **Composite**
   Portions of the total sample are collected over a defined time period.

   They can be collected either automatically or manually, they can be collected proportional to flow or time. Automatic samplers provide accurate unattended sampling and offer flexibility in composite methods.

During and after collection the sample must be preserved to maintain its integrity. Container types, preservation and holding time requirements for each analysis desired must be followed in accordance to the EPA guidelines published in the Federal Register, 40 CFR Part 136.3, May 18, 2012. The Laboratory has established a SOP (*LAB-A03 Sample Collection, Documentation, and Preservation*) which Laboratory and sample collection staff adhere to ensuring EPA guidelines are followed.

When an analysis requires the use of a contract laboratory, their containers are used and procedures followed.

## SECTION 4: SAMPLE CUSTODY, HANDLING, AND DISPOSAL

The measurement result requires a documented, traceable link between the measurement, the sample, and the physical condition that the sample represents.

### A. Chain of Custody

A system employing proper Chain-of-Custody (COC) procedures provides the first link. The COC is a legally acceptable written record that includes all aspects of the sample history, from beginning to end. It should indicate who had custody of the sample and at what time.

Since the majority of the samples analyzed by the IEUA Laboratory are collected by non-laboratory personnel, the COC forms (Attachment A) are initiated in the field and remains with the sample throughout its handling. Upon delivery to the laboratory, the sample is checked and verified that:

- It is clearly marked and dated,
- It was collected in a proper container,
- It is properly preserved,
- There is sufficient volume to perform all requested analyses,
- It is received in good condition,
- COC forms match the sample's description.

If those conditions are met, then the sample is logged into the Laboratory Information Management System (LIMS) and a discrete laboratory log number is assigned to it, the COC form is signed to confirm lab acceptance of the sample. Refer to Laboratory SOP *LAB-A02 Laboratory Sample Receiving and Login* for specific instructions for the various sources of samples received in the IEUA Laboratory.

### B. Storage and Handling

The Laboratory has several locations for sample storage. Some sample aliquots do not require refrigeration (i.e. metals), these are stored either on the counter in the Metals Lab or in a cabinet in Lab building B. Two large Walk-in refrigerators located between the two lab buildings are the primary and long term storage for the majority of samples. Some smaller refrigerators located within the Labs are for short term storage of specific samples near the area in which the analysis takes place.

All refrigerators are maintained at >0ºC and ≤6ºC, the temperature is measured and logged upon staff arrival to the lab in the am, and again prior to staff leaving at the end of the day in the pm. If at any time the temperature is out of specifications samples are removed from the refrigerator and placed in one that is functioning properly, the malfunctioning refrigerator is not used again until the temperature is within specifications. It is also determined if any samples that have not been analyzed yet need to be flagged as suspect due to the temperature issue, or possibly resampled.

### C. Disposal

Samples are typically stored at a minimum for the duration of the holding time of the tests being performed on them. In many cases the samples are stored beyond the sample holding time up to three months, in order to have sample available in case results are questioned and a confirming test needs to be performed.

After approximately three months samples are disposed of by dumping them down the drains in the lab into the sewage treatment facility at which the lab is located, since the majority of the samples received in the lab are from the domestic sewage lines, the treatment facilities process systems, the effluent from the treatment facilities, and some industry samples that discharge into the lines maintained by the Agency. In the case of other types of samples containing potential hazardous materials the samples are disposed of as hazardous material using the Agencies Hazardous material program.

## SECTION 5: CALIBRATION PROCEDURES AND FREQUENCY

Calibration establishes the quantitative relationship of the measurement system and the reliability of the reportable concentration of the material measured. The calibration procedure is performed at a prescribed frequency dictated by each method. In general, calibration is accomplished by measuring instrument response to standards containing the analytes in known concentrations while being in compliance with manufacturer's recommendations.

### A. Instrument Calibration

The IEUA Laboratory has a variety of complex instrumentation and calibration frequencies and requirements vary. Perform instrument calibration according to instrument manual instructions. Use manufactures recommendations for calibration. Perform instrument performance checks according to method or SOP instructions.

Some instruments do not require calibration curves but do require regular calibration found in the lab, for example balances, ovens, refrigerators, and exhaust hoods. Balances and exhaust hoods are calibrated and certified by a contract vendor annually. Balances, ovens, and refrigerators are checked for accuracy daily or when used.

### B. Initial Calibration

Calibration curves may be performed daily, weekly, monthly, or each time an instrument is used, the method SOP will specify the frequency required. Perform initial calibration using at least three concentrations of standards for linear curves, or at least five concentrations of standards for nonlinear curves, or as specified by the method of choice. Choose a lowest concentration at the reporting limit, and a highest concentration at the upper end of the calibration range. Choose calibration standard concentrations with no more than one order of magnitude between concentrations. For Linear Regression calibrations a minimum correlation coefficient of 0.995 is required, unless a different minimum is specified in the method.

### C. Calibration Verification

Most instruments require a calibration verification standard to be analyzed after every 10 samples are analyzed to confirm that instrument performance has not changed since the initial calibration. The calibration verification should be a standard at or near the midpoint of the calibration range, and should be within the acceptance criteria specified in the method. Evaluate the calibration-verification analysis based either on allowable deviations from the values obtained in the initial calibration or from specific points on the calibration curve. If the calibration verification is out of control, then take corrective action, including re-analysis of any affected samples.

### D. Calibration Standards/Reagents Preparation

Reagent Chemicals used by IEUA Laboratory are of ACS reagent grade or better, purchased from reputable laboratory supply companies. Standards are either prepared in house using high-purity starting materials or purchased as certified standard concentrates. Lot numbers of purchased reagents are recorded in Reagent preparation logbooks (Attachment B), and logged in the LIMS QC module.

Stock standard solutions are used before their individual expiration date. Intermediate and working calibration standard solutions are used within a specific time period after preparation. To ensure consistency, the newly prepared solutions are compared with a certified standard and must be within 10 percent before used. Detailed procedures and requirements can be found in the individual analyses Standard Operating Procedures (SOPs).

All Stock Standards are labeled with the following:

- Name and concentration of stock

- Date prepared/Preparer's name
- Lot number and expiration date
- Safety concerns as necessary
- Any other pertinent information

Reagents should be examined when used for visible signs of deterioration, such as formation of precipitates, or color variations. Reagents are also examined for purity by subjecting an aliquot to the analytical method for its intended use; for example, reagent water, organic solvents, or acids are analyzed for possible contamination prior to use.

**SECTION 6: ANALYTICAL PROCEDURES**

The laboratory standard operating procedures (SOPs) used in obtaining results are derived from one of the following sources:

1. U.S. Environmental Protection Agency, Cincinnati OH (US EPA), Available at *http://water.epa.gov/scitech/methods/cwa/index.cfm.*

2. Standard Methods for the Examination of Water and Wastewater, *standardmethods.org*

3. ASTM Standards

The following tables provide a complete reference for the methods employed.

**Table 6A: Methods for Water and Wastewater Analyses**

| Parameter | Method | Description |
|---|---|---|
| Alkalinity | SM 2320B | Titration |
| Ammonia as N | EPA 350.1 | Automated Phenate |
| BOD | SM 5210 B | DO Depletion |
| Chloride | EPA 300.0 | Ion Chromatography |
| Chlorine Residual | SM 4500-Cl G | Spectrophotometric, DPD |
| COD | SM 5220 D | Spectrophotometric |
| Color | SM 2120 B | Visual Comparison |
| Conductivity | SM 2510 | Resistance ratio |
| Cyanide, Total | ASTM D7284-08 | FIA with Micro Distillation |
| Cyanide, Free | ASTM 7237-10 | Flow Injection Amperometry |
| DOC | SM 5310 B | Combustion |
| DOC | SM 5310 C | Oxidation |
| Dissolved Oxygen | SM 4500-O G | Electrode |
| Fluoride | SM 4500-F C | Electrode |
| Fluoride | EPA 300.0 | Ion Chromatography |
| Hardness, Total | EPA 200.7 | ICP/AES |
| Hardness, Total | SM 2340 C | Titration |
| MBAS (Surfactants) | SM 5540 C | Spectrophotometric |
| Mercury | EPA 245.1 | Cold Vapor, manual |
| Metals | EPA 200.7 | ICP/AES |
| Metals | EPA 200.8 | ICP/MS |
| Nitrate as Nitrogen | EPA 300.0 | Ion Chromatography |
| Nitrite as Nitrogen | EPA 300.0 | Ion Chromatography |
| Oil & Grease, n-p | EPA 1664 RevB | Automated SPE |
| Oil & Grease, Total | EPA 1664 RevB | Automated SPE |
| pH | SM 4500-H+ B | Electrode |
| Phosphorus, Ortho | EPA 300.0 | Ion Chromatography |
| Phosphorus, Total | EPA 200.7 | ICP/AES |
| Sulfate | EPA 300.0 | Ion Chromatography |
| Sulfide | SM 4500-S D | Color comparison, Methylene Blue |
| TDS | SM 2540 C | Gravimetric, 180°C |
| TKN | EPA 351.2 | Semi-auto, Block digestion |
| TOC | SM 5310 B | Combustion |
| TOC | SM 5310 C | Oxidation |
| TS | SM 2540 B | Gravimetric, 103-105°C |
| TSS | SM 2540 D | Gravimetric, 103-105°C |
| Turbidity | EPA 180.1 | Nephelometric |
| VS | SM 2540 E | Gravimetric, 550°C |
| Bioassay, Chronic | EPA 1002 | C. Dubia |
| Coliform | SM 9221 ABE | MPN |
| HPC | SM 9215 B | Pour Plate |
| Base/Neutral Extractable Organics | EPA 625, EPA 525.2 | Capillary GC/MS |
| Pesticides & PCBs | EPA 608 | GC micro ECD |
| Volatile Organics | EPA 624, EPA 524 | Capillary GC/MS |

**Standard Operating Procedures**

Each analytical method routinely used is documented in the form of a SOP which contains complete detailed instructions to standardize the expected performance of the analytical method.

SOPs should include, where applicable the following items: Scope and application; summary of SOP; sample matrix or matrices, MDL; definitions; interferences; safety considerations; waste management; apparatus, equipment, and supplies; reagents and standards; sample collection, preservation, and storage requirements; specific QC practices, frequency, acceptance criteria, and required corrective action if acceptance criteria are not met; calibration and standardization; details on the actual test procedure, including sample preparation; calculations; qualifications and performance requirements for analysts; data assessment/data management; references, and any tables, flowcharts, and validation or method performance data.

## SECTION 7: DATA REDUCTION, VALIDATION, AND REPORTING

Samples are collected and sent to an analytical laboratory in order to obtain the value of different constituents. In the process of providing this service, various amounts of data is collected. Before a result of an analysis can be reported back to the requestor, the data usually needs to be further reduced. The steps necessary to get the laboratory information from the bench through reporting are as follows:

### A. Data Acquisition

Analytical related data is either recorded on worksheets by analysts at the bench or derived from instrument printouts. Original handwritten worksheets are written in waterproof ink. Any corrections to worksheets are noted by a single pen strike through the incorrect data so it remains legible. The correction is inserted near the strike-out and the initials of the corrector are added including the date the correction was made.

Each laboratory employee has responsibility for the quality of their work. They each must assess their work to ensure that:

- Sample preparation information is correct and complete
- Analytical information is correct and complete
- The appropriate SOP was followed
- QC results meet acceptance criteria
- Analytical and preparation holding times are met
- Documentation and recording of data is correct and complete

### B. Data Reduction

Essential analytical data is to be entered into the LIMS by the analyst either manually and/or electronically. Data stored in LIMS includes the following:

- Reportable results of measurement recorded on worksheets and hand entered directly into LIMS
- Data directly downloaded into LIMS via instrument interfaces
- Raw data that LIMS is programmed to calculate into reportable results
- All QC results associated with each analyses

Direct access to LIMS is secure and restricted to authorized licensed users, each user will be assigned a level of access, i.e., view only, enter, validate, and/or approval.

The primary analyst shall, to the best of his/her ability, correct all mistakes, and resolve all questionable issues before the results are subjected to validation. The review should at a minimum check to see that:

- All required documentation is included with the raw data,
- Proper QC protocols were followed,
- Documentation of any excursions from analysis requirements (qualifiers entered in LIMS)
- Check for math errors

### C. Data Validation

Data validation and approval is the process in which laboratory data are checked and accepted or rejected based on a defined set of criteria.

Upon completion of data reduction the primary analyst will validate the results he/she entered in LIMS. Any changes to validated data entries into LIMS must be performed by staff with appropriate authority and are tracked via an electronic audit trail.

The next step in the validation process is approval of worksheets and data entered in LIMS. Prior to approving data in LIMS a review of the worksheets by a Principle Analyst or Supervisor is performed to ensure that:

- Calibration data are appropriate to the method and completely documented
- QC testing falls within the established guidelines
- Quantitative results are correct
- Documentation is complete and correct
- The data are ready for incorporation into the final report
- The data package is complete and ready for data

storage.

Results are then approved in LIMS after the reviewer has completed all of the checks and is satisfied that internal laboratory acceptance criteria have been met. If errors are found with the documentation, the reviewer returns it to the analyst for corrections or reanalysis.

**D. Data Reporting**

Once determined valid, the results are available for final reporting. LIMS is programed to report data with the appropriate reporting limits, units, and significant figures for each parameter, and rounds 5 to the even number as required.

One report is the monthly plant report to the Regional Board and EPA. To produce these reports, after the data is approved in LIMS it is transferred to a spreadsheet program to make required calculations and review. These results are electronically submitted to the EPA using the eSMR reporting process.

For the Desalter and GWR samples that fall under the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) drinking water analyses reporting program, data is exported from LIMS after final LIMS approval and formatted in the required DDW EDT accepted format and submitted to the DDW by the $10^{th}$ day of the month following sample analysis.

The LIMS also has standardized reports with or without associated QC data for individual samples which the Laboratory Manager or his/her designated representative certifies and releases to the requesting party.

## SECTION 8: INTERNAL QUALITY CONTROL CHECKS

Internal QC is the routine activities and checks such as calibrations, duplicate analysis, spiked samples, etc. included in normal procedures to control accuracy and precision of the measurement process. It determines whether the laboratory operations are within acceptable QC guidelines during sample analysis. The following is a summary of various control checks performed in this lab, not all are used for every analysis, refer to the SOP for control checks to be used for each analysis, if specific guidelines are not listed in an analytical SOP the guidelines listed here are to be followed.

### A. Blanks

*Field Blanks* are check samples which monitor contamination originating from the collection, transport, and storage of samples. Laboratory prepared water is supplied to field personnel for processing in the same manner as samples.

*Travel Blanks* are prepared in the laboratory from nanopure water. Travel blanks are routinely used for volatile organic samples to determine whether sample transport has contaminated the samples collected.

*Laboratory Reagent Blank (LRB)* consists of organic-free or deionized water and all reagents that normally are in contact with a sample during the entire analytical procedure. They serve to measure contamination associated with reagents, preparation, or instrumentation. One LRB is analyzed in every analytical batch of 10 or less samples. Evaluate LRB results for contamination. If unacceptable contamination is present in the LRB, identity and eliminate the source. Typically, sample results are suspect if analytes in the LRB are greater than the RDL. Samples analyzed with a contaminated blank must be re-prepared and re-anaylzed. General guidelines for qualifying sample results with regard to LRB quality are as follows:

- If the LRB is less than the MDL and sample results are greater than the RL, then no qualification is required
- If the LRB is greater than the MDL but less than the RL and sample results are greater than the RL, then qualify the results to indicate that analyte was detected in the LRB
- If the LRB is greater than the RL, further corrective action and qualification is required. .

### B. Laboratory-Fortified Blank/Laboratory Control Standards

*Laboratory-Fortified Blank (LFB) [Laboratory Control Standards* (LCS)] is ultra-pure (nanopure) water to which known amounts of an analyte have been added. They are treated to the same preparation procedure and analysis as samples. Prepare the addition solution from either the same reference source used for calibration, or from an independent source. Recovery of these standards tests the functioning of analytical methods and equipment. LFBs are analyzed in every batch of 10 samples or less. Evaluate the LFB for percent recovery of the added analytes by comparing results to method specified limits, control charts, or other approved criteria. If LFB results are out of control, take corrective action, including re-preparation and re-analysis of associated samples if required.

### C. Laboratory Fortified Matrix/Matrix Spike

*Laboratory Fortified Matrix (LFM) or Matrix Spike (MS)* is samples to which a known amount of an analyte has been added. Prepare the MS from the same reference source used for the LFB/LCS. Prepared and analyzed in each batch of 10 samples or less, spikes are treated the same way as samples. Spike recovery measures the effects of interference in the sample matrix and reflects the accuracy of the analysis. Evaluate the results obtained for MSs for percent recovery. If LFM results are out of control, then take corrective action to rectify the matrix effect, use another method, or flag the data if reported. Base sample batch acceptance on results of LFB analyses rather than MSs alone, because the MS sample matrix may interfere with method performance.

### D. Quality Control Sample

A *Quality Control Sample (QCS)* is a standard prepared from a secondary source, from a stock solution different from that used to prepare calibration standards, to determine if the stock and working standards are accurate. At a minimum the QCS is to be analyzed every time that a new calibration standard is used. If the QCS is not within acceptance limits, do not proceed with analysis; take corrective action such as recalibrating or changing standards.

**E. Duplicate Sample and Matrix Spike Duplicate**

*Duplicate Samples* are additional aliquots of a sample that are treated the same throughout the analytical method. When the analyte concentration is consistently below five times the RL, a *Matrix Spike Duplicate (MSD)* is substituted for the duplicate samples; the MSD is prepared with the same concentration as the MS for the sample. Duplicates are prepared and analyzed in every batch of 10 samples or less. Evaluate duplicate results for precision and accuracy (precision alone for duplicate samples). If duplicate results are out of control, then re-prepare and re-analyze the sample and take additional corrective action, as needed. Base sample batch acceptance on results of LFB/LCS analyses rather than MSDs alone, because the MS sample matrix may interfere with method performance.

**F. Internal Standard**

An *Internal Standard* is a unique analyte included in each standard and added to each sample or sample extract/digestate just before sample analysis. Internal standards should mimic the analytes of interest but not interfere with the analysis. Internal standards are used for Organic analyses by GCMS and some metals analyses by ICPMS. If internal standard results are out of control, take corrective action, including re-analysis if required.

**G. Surrogates**

*Surrogates* are used to evaluate method performance in each sample. Surrogates are used for organic analyses. A surrogate standard is a known amount of a unique compound added to each sample before extraction. Surrogates mimic the analytes of interest and are compounds unlikely to be found in environmental samples. Surrogates are introduced to samples before extraction to monitor extraction efficiency and percent recovery in each sample. If surrogate results are out of control, then take corrective action, including re-preparation and re-analysis if required.

## SECTION 9: PERFORMANCE AND SYSTEM AUDITS

Audits can be either mandatory or voluntary, both assess the performance of the Laboratory and the system the Laboratory has in place to track staff, equipment, and reagents to ensure any problems that arrise can be identified and corrected.

### A. Performance Audits

A performance audit verifies the Laboratory's ability to correctly identify and quantify substances in samples. It involves the analysis of a sample or reference material and comparing the results with the true answer. Some performance audits are mandatory such as analyzing Performance Evaluation (PE) samples annually to maintain certification.

The lab also voluntarily conducts audits of its performance by requiring internal quality control samples to be analyzed at a frequency of once in every batch of 10 samples or less, and also randomly giving an analyst a blind check sample either prepared by a Chemist, or supplied by a commercial vendor.

### B. System Audits

System audits include evaluating all aspects of the laboratory, including but not limited to the following:

- *Personnel* – Education, training, and experience.
- *Physical aspects of the Lab* – Examines lab logistics, cleanliness, and waste disposal.
- *Standard Operating Procedures (SOPs)* – Assess whether they are current, and review for technical errors.
- *Equipment/Instruments* – Check cleanliness, maintenance, calibration, and documentation records.
- *Reagents and Samples* – Check logbooks and containers to make sure they are identified properly.
- *Chain of Custody* – Review procedures, documentation, and records management.
- *Laboratory Information Management System (LIMS)* – Inspect reports, test setups, rights of staff for correctness, as well as compare worksheets to data entered in LIMS.
- *Laboratory Records* – Holding times are met, and QC information is recorded correctly.

Some of these system audits are performed by Laboratory supervision and management, and some reviews are performed periodically by the Agency's Internal Audit Department.

**SECTION 10: PREVENTATIVE MAINTENANCE**

Preventative maintenance is a key element in an analytical laboratory's quality assurance program. In this laboratory, analysts and support personnel perform routine preventative maintenance tasks. These tasks might include the replacement of minor parts, cleaning exterior components and providing the instruments a climate-controlled environment.

Each instrument will have a bound notebook assigned to it to document the following:

- All maintenance performed
- Any sensitivity checks, calibration of instrument parts, or any unique checks required as specified in instrument manuals.
- All manufacturer's maintenance and repairs.
- Each entry in the log book will contain the date, analyst's name, and operation performed (I.e., maintenance, sensitivity check, etc.).

For each instrument, the manufacturer's specified preventative maintenance recommendations and frequency are followed. Many of these instruments (e.g. analytical balance, ICP, IC, GC/MS, ICPMS) are also repaired and maintained under commercial service contracts. All records of service and repair are documented and filed for future reference.

Instruments are constantly monitored by the use of daily calibrations, sensitivity, and response checks. These indicate when a nonscheduled maintenance service is required. If an instrument does fail, the services of an independent laboratory are available and every effort is made to prevent any data loss.

Laboratory support systems (e.g. deionized water supplies, refrigerator and oven temperatures) are monitored daily when in use. The improper functioning of any of these is enough to invalidate data. Since these are controllable devices, our quality assurance program is designed to prevent data loss by these systems.

## SECTION 11: ASSESSMENT OF PRECISION AND ACCURACY

Analytical data is of no value until we know how precise and accurate the data subsets are. We follow specific procedures to assess each dimension of the data we produce.

### A. Precision

Precision analysis demonstrates how well the laboratory can replicate its work. Precision is usually discussed in terms of standard deviation (SD) or relative percent difference (RPD). It is estimated by analyzing replicates of the same sample or a number of duplicate pairs. The latter analysis is generally preferred for estimating the standard deviation of an analytical because of sample availability and the precision of an analysis is based on sample type rather than one particular sample. This provides us with a more correct view of the overall analysis. We use the following calculation to estimate the standard deviation:

$$SD = \sqrt{\frac{n\sum x^2 - (\sum x)^2}{n(n-1)}}$$

Where: *n* = number of duplicate sets measured
*x* = absolute difference of the data pairs
*SD* = Standard Deviation

RPD between sample duplicates is determined by the following calculation:

$$RPD = \frac{duplicate1 - duplicate2}{Mean\ of\ duplicates} \times 100$$

Once the RPD has been determined from a set of data determined to be "in control", a grand average and standard deviation is calculated. Control limits are then established for a method. As the EPA suggests, we set Warning Limits at two standard deviations and Control Limits at three standard deviations above the mean.

### B. Accuracy

Accuracy analysis demonstrates how close a result is to the true or expected result. It is somewhat more difficult to assess due to factors external to the laboratory, such as sampling and handling conditions. Assessment of accuracy is demonstrated by spike recovery determinations, standard analysis, and the use of external check samples.

Statistical treatment of the data provides an objective measure of accuracy. The following calculation is used to determine the percent spike recovery:

$$P = 100 \times \frac{A - B}{T}$$

Where: P = percent spike recovery
A = concentration of spiked sample
B = concentration of original sample
T = true value of spike added

Using accumulated spike data for a method, control limits can be established by calculating the average recovery and the standard deviation of the recovery. Warning and Control limits are set as for precision except that they are determined both above and below the mean recovery.

### C. Detection Limits

*Method Detection Limit (MDL)* is the lowest possible concentration of a substance that can be identified, measured, and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing analyte.

As a starting point for selecting the concentration to use when determining the MDL, use an estimate of five times the estimated true detection level. Start by adding the known amount of constituent to reagent water or sample matrix to achieve the desired concentration. Ideally, prepare and analyze at least seven portions of this solution over a 3-day period to ensure that the MDL determination is more representative of routine measurements as performed in the laboratory. Recoveries of the known addition should be between 50 and 150%, with %RSD values ≤20%. MDL is determined using the following calculation:

$$SD = \sqrt{\frac{n\sum x^2 - (\sum x)^2}{n(n-1)}}$$

$$MDL = 3.14\ (SD)$$

The value 3.14 is from a table of the one-sided *t* distribution values where *t* = 6 degrees of freedom at the 99 percent confidence level.

*Practical Quantification Limit (PQL)* is the minimum level that can be reliably achieved by the analytical method within specified limits of precision and accuracy during routine laboratory operating conditions. The PQL is typically 5 to 10 times the MDL

*Reporting Limit (RL)* is the PQL value of the specific analytical method.

**SECTION 12: CORRECTIVE ACTION**

QC data that are outside the acceptance limits or exhibit a trend are evidence of unacceptable error in the analytical process. Corrective action is to be taken promptly to determine and eliminate the source of error. Do not report data until the cause of the problem is either corrected or qualified. Qualifying data does not eliminate the need to take corrective actions, but allows analysts to report data of known quality when it is either impossible or impractical to re-analyze the sample(s).

Corrective action begins at the bench. Analysts should initiate corrective action when a QC check exceeds acceptance limits or exhibits trending and should report an out-of-control event (e.g., QC outliers, hold-time failures, loss of sample, equipment malfunctions, and evidence of sample contamination) to supervisors. Unless specified in an analytical SOP, recommended corrective actions for unacceptable QC data are as follows:

- Check data for calculation or transcription error. Correct results if error occurred.
- Determine whether sample was prepared and analyzed according to the approved method and SOP. If not, prepare and/or analyze again.
- Check calibration standards against an independent standard or reference material. If calibration standards fail, re=prepare calibration standards and/or recalibrate instrument and re-analyze affected sample(s).
- If an LFB fails, analyze another LFB.
- If a second LFB fails, check an independent reference material. If second source is acceptable, re-prepare and re-analyze affected sample(s).
- If a duplicate or MSD RPD falls outside of the acceptance criteria the duplicate should be reanalyzed or qualified if required. In some cases reanalysis of the duplicate sample should be performed and an average of all data meeting Q test limits at a 95% confidence level should be reported with a qualifier.
- If an LFM/MS fails, check LFB. If LFB is acceptable, then qualify the data for the LFM/MS sample, or use another method.
- If an LFM/MS and associated LFB fail, re-prepare and re-analyze affected samples.
- If LRB fails, analyze another LRB.
- If second LRB fails, re-prepare and re-analyze affected sample(s).
- If surrogate or internal standard known addition fails and there are no calculation or reporting errors, re-prepare and re-analyze affected sample(s).

Most problems can be handled at the analyst's level, if the problem persists and cannot be handled by the analyst; the matter is referred to a supervisor and/or QC Officer. The following corrective action steps are then taken:

- Identification of the problem
- Investigation and determination of the cause of the problem
- Corrective action determined to eliminate the problem
- Assigning responsibility for implementing corrective action
- Evaluation of the effectiveness of the corrective action
- Verification that the corrective action has eliminated the problem
- Documentation of the problem and corrective action needed

All suspect analytical results will be evaluated, and data will only be reported upon completion of corrective action, and or qualification of data if necessary. Corrective action documentation is routinely reviewed by the Laboratory Manager/QC Officer for recurring problems which may require changes in analytical procedures, methods, or additional training of analysts.

## SECTION 13: QUALITY ASSURANCE REPORTS

QA reports are generated in the lab by senior level staff. These reports are used in evaluating the overall QA program, identifying problems and trends, and planning for future needs and requirements. These reports include the following:

- Control charts for Precision and Accuracy are generated from LIMS, plotting results for the Quality Control samples analyzed for each batch of tests, including but not limited to: Duplicates, Laboratory Control Standards, Matrix Spikes, and Matrix Spike Duplicates.

- Some instruments and tests have their own software programs that can generate Quality Control charts and reports, for example the CETIS software for the Bioassay test has a number of graphs printed out for each test to assess the acceptability of the test, and reference toxicant control charts. GCs also have software capable of generating Control Charts for each instruments data.

- Weekly the LIMS generates an Audit report of all results that have been audited after data validation.

- Performance evaluation results and comments.

- Summaries of certification activities including results of on-site audits by regulatory agencies, and Laboratory responses to audit deficiencies or action items required as a result of an audit.

- Annually a formal QA report is submitted to the California Water Resources Control Board, Santa Ana Region, summarizing QA activities in the Laboratory for the previous year.

## SECTION 14: BIOASSAYS

This section is to address the unique requirements of Bioassay testing that may not be addressed in the general section of this QA manual Presently the laboratory only analyzes chronic bioassays using *Ceriodaphnia dubia,* the QA practices described will refer to the use of this organism only.

The methods employed for the chronic bioassay are found in the following sources:

1. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. 3rd Edition, EPA 600/4-91-002, 4th Edition, EPA 821-R-02-013

2. Taxonomy of *Ceriodaphnia* (Crustacea: Cladocera) in U.S. Environmental Protection Agency Cultures, EPA 600/4-86-032

In order to obtain results of high quality for toxicity tests, the Quality Assurance practices must cover all aspects of the process from start to finish. These aspects consist of the following:

1. **Sampling and handling**

   Sampling procedures are described in Section 5 of this document. IEUA's NPDES permit requires the effluent toxicity tests be performed on 24 hour composite samples. Sample temperature is maintained at ≤ 6 but not freezing during collection and kept there until the start of the test. Samples are collected either in new plastic jugs which are rinsed first with sample prior to being filled. On site tests are initiated within 24 hours of collection. Proper sample custody procedures are followed which are described in Section 4 of this document.

2. **Source and condition of the test organism**

   The cladoceran, *Ceriodaphnia dubia,* is the organism used by this laboratory. Identification of this organism is verified according to procedures found in reference 2 above.

3. **Condition of the equipment and instruments**

   The Bioassay temperature controlled room is used for rearing of stock cultures and testing. Temperatures are checked and recorded twice daily to determine that they are operating within limits. "Cool-white" fluorescent lighting is available and has the ability to set photo-period length.

4. **Analytical methods**

   The analytical methods for conducting the bioassays follow EPA established procedures and are found in the above references. All routine chemical and physical analyses performed during the tests such as pH, DO, temperature, conductivity, alkalinity, hardness and ammonia follow established quality assurance practices as described in this document.

5. **Instrument calibration**

   Calibration procedures for the routine chemical procedures are discussed in Section 5. All data are recorded on daily laboratory benchsheets. Results are transferred to bioassay spreadsheets and are included with the final report.

6. **Replication**

   A minimum of 10 replicates at each dilution are used. When comparing 100% effluent against a control, 30 replicates at each dilution are used. Generally, the sensitivity of the test increases as the number of replications increases.

7. **Reference toxicants**

   To determine satisfactory laboratory performance and proper sensitivity of the organism, reference toxicants are used under the same conditions as the bioassays being performed. Control charts are constructed for each reference-toxicant-organism combination. Successive toxicity values are plotted and examined to determine if the results are within established limits. Limits for NOEC-LOEC calculations are set at one dilution above and below average NOEC's. Limits for $IC_{25}$'s calculations are set at 2 standard deviations above and below the mean $IC_{25}$'s. At least monthly, a bioassay is conducted using a reference toxicant. These are performed at the same time as a regular bioassay. Should the result from a given reference toxicant fall outside the established range, the entire test system becomes suspect and any data collected during the event is considered not reportable. When this occurs, the procedure is examined and repeated with a different batch of organisms.

**8. QA/QC Requirements**

The Bioassay test has extensive QA/QC requirements; the SOP should be referenced for all specific requirements. A summary of test conditions and test acceptability criteria are listed in Table 12A.

**Table 12A: Summary of Bioassay QC**

| Condition | Acceptance Criteria |
|---|---|
| Test Type | Static Renewal (Required) |
| Temperature (°C) | 25 ± 1°C (Recommended) Test temperature should not deviate (i.e., maximum minus minimum temperature) by more than 3 °C during the test |
| Light quality | Ambient laboratory illumination (Recommended0 |
| Light intensity | 10-20 $\mu E/m_2/s$, 50-100 ft-c (Ambient laboratory illumination (Recommended) |
| Photoperiod | 16 hrs. light, 8 hrs. dark (Recommended) |
| Test chamber size | 30 mL (Recommended minimum) |
| Test solution volume | 15 mL (Recommended minimum) |
| Renewal of test solutions | Daily (Required) |
| Age test of organisms | Less than 24 hrs; and all released within 8 hr period (Required) |
| No. of neonates per test chamber | 1 Assigned using blocking by known parentage (Required) |
| No. of replicate test chambers per concentration | 10 (Required minimum) |
| No. of neonates per test concentration | 10 (Required minimum) |
| Feeding regime | Feed 0.1 mL each of YCT and algal suspension per test chamber daily (Recommended) |
| Cleaning | Use freshly cleaned glass beakers/ new plastic cups daily (Recommended) |
| Aeration | None (Recommended) |
| Dilution water | Uncontaminated source of receiving water or other natural water, synthetic water prepared utilizing MILLIPORE MILLI-Q or equivalent deionized water and reagent grade chemicals or DMW |
| Test concentrations | Effluents: 5 and a control (Required minimum) |
| Dilution factor/series | 100%,90%, 80%, 70%, 60% |
| Test duration | Until 60% or more of surviving control females have three broods (maximum test duration 8 days) Required |
| Endpoints | Survival and Reproduction (Required) |
| Test acceptability criteria | 80% or greater survival of all control organisms and an average of 15 or more young per surviving female in the control solutions. 60% of surviving control females must produce three broods. Cannot use 4th brood for statistical analysis. |

| | |
|---|---|
| Sampling requirements | For on-site tests, samples collected daily and used within 24 hrs of the time they are removed from the sampling device. For off-site tests, a minimum of three samples (e.g., collected on day one, three, and five) with a maximum holding time of 36 hrs before first use. |
| Sample volume required | 1 L/day (Recommended) |
| Control Response | (15-NL) |
| PMSD | (0.13-0.47) |

**9. Record keeping**

Proper record keeping is required. All data are recorded on a real time basis to prevent the loss of information. Records are kept on the test organisms, calibration of equipment and instruments, test conditions and results.

**10. Data evaluation**.

In order for the test to be considered acceptable, several conditions must be met. For chronic tests, the control survival must be at least 90% within 96 hours and at least 80% by the end of the test. The number of offspring per surviving adult must be 15 or greater, and at least 60% must have had three broods.

If temperature, DO or other specified conditions fall outside specification, the test may still be conditionally acceptable. This would depend on the degree of departure and the judgment of the Biologist and regulatory authority. If determined to be reportable, the deviation from specifications would be noted with the data.

Statistical analysis of the data from bioassay tests is calculated using the CETIS program purchased from Tidepool Scientific Software. Both hypothesis testing (NOEC, LOEC) and point estimates (EC, IC, LC) are provided. Results are first calculated at the 95% confidence level. If toxicity is detected at this level, the data are recalculated at the 99% confidence level to determine if toxicity is still detected. If no toxicity is detected, both results are reported to the regulatory agency.

The Agency is required to split a sample once a year with an independent certified lab. Results from the independent laboratory of the annual QA/QC split samples are to be used for QA/QC purposes only and not for purposes of determining compliance with the NPDES permit.

# Laboratory

2450 E. Philadelphia Ave. • Ontario, CA 91761 • (909) 993-1600

## CHAIN OF CUSTODY FORM

SOURCE OF SAMPLE(S): ______________________ Sampling Event: ______________

SAMPLED BY: Signature(s)______________________ Print Name(s) ______________________

COMMENTS:______________________________________________

*IEUA LAB USE ONLY*

| IEUA LIMS Order ID | SAMPLE RECEIVING COMMENTS: |
|---|---|
| | |

| IEUA LIMS Sample ID | Start Date | Start Time | End Date | End Time | SITE NAME | LOCATION NAME | Grab | Composite | # of Bottles | Bottles and Preservative | Analyses Requested | Field Data: Autosampler Temp. °C | Field Data | Sample Collected: Date/Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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*This Chain of Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.*

Appendix B

**Inland Empire Utilities Agency**
**Laboratory**

**Reagent Log**

| Prep. Date | Exp. Date | Reagent or Standard | conc. | Total Vol. | Chemical(s) used | | | | Tech |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | wt./vol. | Chemical name | Mfr. | Lot. # | |
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# APPENDIX B

# MONTHLY GROUNDWATER RECHARGE SUMMARIES

## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS
January 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| San Antonio Channel Drainage System | | | | |
| College Heights | - | - | N | MZ-1 |
| Upland | **1** | - | N | **259** |
| Montclair 1, 2, 3 & 4 | **33** | - | N | AF** |
| Brooks | **3** | - | **109** | |
| West Cucamonga Channel Drainage System | | | | |
| 8th Street | **19** | - | **61** | |
| 7th Street | **8** | - | **47** | |
| Ely 1, 2, & 3 | **8** | - | **211** | |
| Minor Drainage | | | | |
| Grove | **13** | N | N | |
| Cucamonga and Deer Creek Channel Drainage Systems | | | | |
| Turner 1 & 2 | **45** | - | **102** | |
| Turner 3 & 4 | **16** | - | **139** | MZ-2 |
| Day Creek Channel Drainage System | | | | **810** |
| Lower Day | **5** | - | X | AF** |
| Etiwanda Channel Drainage System | | | | |
| Etiwanda Debris | **1** | - | X | |
| Victoria | **2** | - | **158** | |
| San Sevaine Channel Drainage System | | | | |
| San Sevaine 1, 2, 3, & 4 | - | - | - | |
| San Sevaine 5 | - | - | **12** | |
| West Fontana Channel System | | | | |
| Hickory | **9** | **3** | **86** | |
| Banana | **9** | **8** | - | |
| Declez Channel Drainage System | | | | MZ-3 |
| RP3 Cells 1, 3, & 4 | **36** | **86** | **48** | **320** |
| RP3 Cell 2 | **7** | - | **24** | AF** |
| Declez | **3** | **99** | - | |
| Non-Replenishment Recharge** | | | | |
| Brooks (MVWD) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | **(22)** | | | |
| Turner (SAWCO) MZ-2 | - | | | |
| | | | | |
| Month Total = 1,388 AF | **196** | **195** | **997** | January 2014 |
| Fiscal Year to Date Total Since July 1, 2013 = 10,133 AF | **1,564** | **195** | **8,374** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 1,388 AF | **196** | **195** | **997** | Calendar Year to Date |

SW : Storm Water, LR : Local Runoff (and GE, MVWD), MW : MWD Imported Water, RW : Recycled Water

- : No stormwater/local runoff, or basin not in use due to maintenance or testing.

X : Turnouts not available - to be installed during future projects.

N : No turnout planned for installation.

* : Data are preliminary based on the data available at the time of this report preparation.

** : Management Zone Subtotals have deducted from them any Non-Replenishment Recharge, which is recharge originating from pumped groundwater and is not new water.

Printed: Mar. 11, 15 ver. 3

## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS
February 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| **San Antonio Channel Drainage System** | | | | MZ-1 **524** AF** |
| College Heights | **1** | - | N | |
| Upland | **49** | - | N | |
| Montclair 1, 2, 3 & 4 | **181** | - | N | |
| Brooks | **47** | - | **102** | |
| **West Cucamonga Channel Drainage System** | | | | |
| 8th Street | **54** | - | **47** | |
| 7th Street | **5** | - | **41** | |
| Ely 1, 2, & 3 | **294** | - | **194** | MZ-2 **1,405** AF** |
| **Minor Drainage** | | | | |
| Grove | **107** | N | N | |
| **Cucamonga and Deer Creek Channel Drainage Systems** | | | | |
| Turner 1 & 2 | **94** | - | **70** | |
| Turner 3 & 4 | **62** | - | **120** | |
| **Day Creek Channel Drainage System** | | | | |
| Lower Day | **34** | - | X | |
| **Etiwanda Channel Drainage System** | | | | |
| Etiwanda Debris | **30** | - | X | |
| Victoria | **37** | - | **191** | |
| **San Sevaine Channel Drainage System** | | | | |
| San Sevaine 1, 2, 3, & 4 | **64** | - | - | |
| San Sevaine 5 | **5** | - | **16** | |
| **West Fontana Channel System** | | | | |
| Hickory | **19** | **1** | **67** | |
| Banana | **39** | **16** | - | MZ-3 **428** AF** |
| **Declez Channel Drainage System** | | | | |
| RP3 Cells 1, 3, & 4 | **83** | **66** | - | |
| RP3 Cell 2 | **48** | - | - | |
| Declez | **24** | **152** | - | |
| **Non-Replenishment Recharge**** | | | | |
| Brooks (MVWD) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | **(3)** | | | |
| Turner (SAWCO) MZ-2 | - | | | |
| | | | | |
| Month Total = 2,357 AF | **1,274** | **235** | **848** | February 2014 |
| Fiscal Year to Date Total Since July 1, 2013 = 12,491 AF | **2,838** | **431** | **9,222** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 3,746 AF | **1,470** | **431** | **1,845** | Calendar Year to Date |

SW : Storm Water, LR : Local Runoff (and GE, MVWD), MW : MWD Imported Water, RW : Recycled Water

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X : Turnouts not available - to be installed during future projects.
N : No turnout planned for installation.
* : Data are preliminary based on the data available at the time of this report preparation.
** : Management Zone Subtotals have deducted from them any Non-Replenishment Recharge, which is recharge originating from pumped groundwater and is not new water.

Printed: Mar. 11, 15 ver. 4

## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS
March 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| San Antonio Channel Drainage System | | | | |
| College Heights | **3** | - | N | MZ-1 |
| Upland | **12** | - | N | **292** |
| Montclair 1, 2, 3 & 4 | **64** | - | N | AF** |
| Brooks | **12** | - | **130** | |
| West Cucamonga Channel Drainage System | | | | |
| 8th Street | **40** | **5.4** | **26** | |
| 7th Street | **6** | - | - | |
| Ely 1, 2, & 3 | **63** | - | **108** | |
| Minor Drainage | | | | |
| Grove | **10** | N | N | |
| Cucamonga and Deer Creek Channel Drainage Systems | | | | |
| Turner 1 & 2 | **63** | - | **20** | |
| Turner 3 & 4 | **50** | - | **47** | |
| Day Creek Channel Drainage System | | | | |
| Lower Day | **41** | - | X | MZ-2 |
| Etiwanda Channel Drainage System | | | | **907** |
| Etiwanda Debris | **7** | - | X | AF** |
| Victoria | **99** | - | **142** | |
| San Sevaine Channel Drainage System | | | | |
| San Sevaine 1, 2, 3, & 4 | **18** | - | - | |
| San Sevaine 5 | **2** | - | - | |
| West Fontana Channel System | | | | |
| Hickory | **13** | - | **224** | |
| Banana | **9** | - | **85** | |
| Declez Channel Drainage System | | | | MZ-3 |
| RP3 Cells 1, 3, & 4 | **72** | **160** | - | **530** |
| RP3 Cell 2 | **31** | - | - | AF** |
| Declez | **56** | **117** | - | |
| Non-Replenishment Recharge** | | | | |
| Brooks (MVWD) MZ-1 | **(1)** | | | |
| Montclair (MVWD) MZ-1 | **(5)** | | | |
| Turner (SAWCO) MZ-2 | - | | | |
| | | | | |
| Month Total = 1,729 AF | **665** | **282** | **782** | March 2014 |
| Fiscal Year to Date Total Since July 1, 2013 = 14,220 AF | **3,503** | **713** | **10,004** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 5,475 AF | **2,135** | **713** | **2,627** | Calendar Year to Date |

SW : Storm Water, LR : Local Runoff (and GE, MVWD), MW : MWD Imported Water, RW : Recycled Water

- : No stormwater/local runoff, or basin not in use due to maintenance or testing.

X : Turnouts not available - to be installed during future projects.

N : No turnout planned for installation.

* : Data are preliminary based on the data available at the time of this report preparation.

** : Management Zone Subtotals have deducted from them any Non-Replenishment Recharge, which is recharge originating from pumped groundwater and is not new water.

# SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS

April 2014

| Drainage System | Recharge Volume (AF)* | | | Management |
|---|---|---|---|---|
| **Basin** | **SW/LR** | **MW** | **RW** | **Zone Subtotals** |
| San Antonio Channel Drainage System | | | | |
| College Heights | - | - | N | MZ-1 |
| Upland | **9** | - | N | **267** |
| Montclair 1, 2, 3 & 4 | **79** | - | N | AF** |
| Brooks | **14** | - | **65** | |
| West Cucamonga Channel Drainage System | | | | |
| 8th Street | **78** | - | **21** | |
| 7th Street | **1** | - | - | |
| Ely 1, 2, & 3 | **83** | - | **218** | |
| Minor Drainage | | | | |
| Grove | **39** | N | N | |
| Cucamonga and Deer Creek Channel Drainage Systems | | | | |
| Turner 1 & 2 | **61** | - | **105** | |
| Turner 3 & 4 | - | - | - | MZ-2 |
| Day Creek Channel Drainage System | | | | **1,231** |
| Lower Day | **10** | **18** | X | AF** |
| Etiwanda Channel Drainage System | | | | |
| Etiwanda Debris | **2** | - | X | |
| Victoria | **15** | - | **250** | |
| San Sevaine Channel Drainage System | | | | |
| San Sevaine 1, 2, 3, & 4 | **14** | - | - | |
| San Sevaine 5 | **3** | - | **2** | |
| West Fontana Channel System | | | | |
| Hickory | **23** | **10** | **379** | |
| Banana | **2** | - | **88** | |
| Declez Channel Drainage System | | | | MZ-3 |
| RP3 Cells 1, 3, & 4 | **36** | **38** | **49** | **751** |
| RP3 Cell 2 | **12** | - | - | AF** |
| Declez | **108** | **7** | - | |
| Non-Replenishment Recharge** | | | | |
| Brooks (MVWD) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | - | | | |
| Turner (SAWCO) MZ-2 | - | | | |
| | | | | |
| Month Total = 1,838 AF | **589** | **72** | **1,177** | April 2014 |
| Fiscal Year to Date Total Since July 1, 2013 = 16,058 AF | **4,092** | **785** | **11,181** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 7,313 AF | **2,724** | **785** | **3,804** | Calendar Year to Date |

SW : Storm Water, LR : Local Runoff (and GE, MVWD), MW : MWD Imported Water, RW : Recycled Water

- : No stormwater/local runoff, or basin not in use due to maintenance or testing.

X : Turnouts not available - to be installed during future projects.

N : No turnout planned for installation.

* : Data are preliminary based on the data available at the time of this report preparation.

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# SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS

May 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| **San Antonio Channel Drainage System** | | | | |
| College Heights | **-** | - | N | MZ-1 |
| Upland | - | - | N | **101** |
| Montclair 1, 2, 3 & 4 | **20** | - | N | AF** |
| Brooks | - | - | - | |
| **West Cucamonga Channel Drainage System** | | | | |
| 8th Street | **26** | - | **65** | |
| 7th Street | - | - | - | |
| Ely 1, 2, & 3 | **9** | - | **241** | |
| **Minor Drainage** | | | | |
| Grove | **2** | N | N | |
| **Cucamonga and Deer Creek Channel Drainage Systems** | | | | |
| Turner 1 & 2 | **21** | - | **136** | |
| Turner 3 & 4 | **23** | - | **168** | |
| **Day Creek Channel Drainage System** | | | | |
| Lower Day | **1** | **11** | X | MZ-2 |
| **Etiwanda Channel Drainage System** | | | | **1,165** |
| Etiwanda Debris | - | - | X | AF** |
| Victoria | **2** | - | **214** | |
| **San Sevaine Channel Drainage System** | | | | |
| San Sevaine 1, 2, 3, & 4 | - | - | - | |
| San Sevaine 5 | - | - | **12** | |
| **West Fontana Channel System** | | | | |
| Hickory | **33** | - | **292** | |
| Banana | - | - | **194** | |
| **Declez Channel Drainage System** | | | | MZ-3 |
| RP3 Cells 1, 3, & 4 | - | - | - | **198** |
| RP3 Cell 2 | **3** | - | - | AF** |
| Declez | **1** | - | - | |
| **Non-Replenishment Recharge**** | | | | |
| Brooks (MVWD) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | **(10)** | | | |
| Turner (SAWCO) MZ-2 | - | | | |
| | | | | |
| Month Total = 1,464 AF | **131** | **11** | **1,322** | May 2014 |
| Fiscal Year to Date Total Since July 1, 2013 = 17,521 AF | **4,223** | **795** | **12,503** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 8,776 AF | **2,855** | **795** | **5,126** | Calendar Year to Date |

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X : Turnouts not available - to be installed during future projects.

N : No turnout planned for installation.

* : Data are preliminary based on the data available at the time of this report preparation.

** : Management Zone Subtotals have deducted from them any Non-Replenishment Recharge, which is recharge originating from pumped groundwater and is not new water.

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# SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS

June 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| **San Antonio Channel Drainage System** | | | | |
| College Heights | - | - | N | MZ-1 |
| Upland | - | - | N | **124** |
| Montclair 1, 2, 3 & 4 | **6** | - | N | AF** |
| Brooks | **19** | - | **48** | |
| **West Cucamonga Channel Drainage System** | | | | |
| 8th Street | **24** | - | **52** | |
| 7th Street | - | - | - | |
| Ely 1, 2, & 3 | **15** | - | **186** | |
| **Minor Drainage** | | | | |
| Grove | **2** | N | N | |
| **Cucamonga and Deer Creek Channel Drainage Systems** | | | | |
| Turner 1 & 2 | **23** | - | **32** | MZ-2 |
| Turner 3 & 4 | **12** | - | **54** | **672** |
| **Day Creek Channel Drainage System** | | | | AF** |
| Lower Day | - | - | X | |
| **Etiwanda Channel Drainage System** | | | | |
| Etiwanda Debris | - | - | X | |
| Victoria | **2** | - | **144** | |
| **San Sevaine Channel Drainage System** | | | | |
| San Sevaine 1, 2, 3, & 4 | - | - | - | |
| San Sevaine 5 | - | - | - | |
| **West Fontana Channel System** | | | | |
| Hickory | **2** | - | **212** | |
| Banana | - | - | **190** | |
| **Declez Channel Drainage System** | | | | MZ-3 |
| RP3 Cells 1, 3, & 4 | **3** | - | **172** | **370** |
| RP3 Cell 2 | **3** | - | - | AF** |
| Declez | **2** | - | - | |
| **Non-Replenishment Recharge**** | | | | |
| Brooks (MVWD) MZ-1 | **(19)** | | | |
| Montclair (MVWD) MZ-1 | **(6)** | | | |
| Turner (CVWD) MZ-2 | **(12)** | | | |
| | | | | |
| Month Total = 1,166 AF | **76** | **0** | **1,090** | June 2014 |
| Fiscal Year to Date Total Since July 1, 2013 = 18,687 AF | **4,299** | **795** | **13,593** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 9,942 AF | **2,931** | **795** | **6,216** | Calendar Year to Date |

SW : Storm Water, LR : Local Runoff (and GE, MVWD), MW : MWD Imported Water, RW : Recycled Water

- \- : No stormwater/local runoff, or basin not in use due to maintenance or testing.
- X : Turnouts not available - to be installed during future projects.
- N : No turnout planned for installation.
- * : Data are preliminary based on the data available at the time of this report preparation.
- ** : Management Zone Subtotals have deducted from them any Non-Replenishment Recharge, which is recharge originating from pumped groundwater and is not new water.

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## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS
July 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| **San Antonio Channel Drainage System** | | | | |
| College Heights | - | - | N | |
| Upland | - | - | N | MZ-1 |
| Montclair 1, 2, 3 & 4 | **17** | - | N | **105** |
| Brooks | - | - | **72** | AF** |
| **West Cucamonga Channel Drainage System** | | | | |
| 8th Street | **25** | - | **8** | |
| 7th Street | - | - | - | |
| Ely 1, 2, & 3 | **16** | - | **101** | |
| **Minor Drainage** | | | | |
| Grove | **2** | N | N | |
| **Cucamonga and Deer Creek Channel Drainage Systems** | | | | |
| Turner 1 & 2 | - | - | - | |
| Turner 3 & 4 | **11** | - | - | MZ-2 |
| **Day Creek Channel Drainage System** | | | | **341** |
| Lower Day | - | - | X | AF** |
| **Etiwanda Channel Drainage System** | | | | |
| Etiwanda Debris | - | - | X | |
| Victoria | **2** | - | **91** | |
| **San Sevaine Channel Drainage System** | | | | |
| San Sevaine 1, 2, 3, & 4 | - | - | - | |
| San Sevaine 5 | - | - | - | |
| **West Fontana Channel System** | | | | |
| Hickory | - | - | **118** | |
| Banana | - | - | - | |
| **Declez Channel Drainage System** | | | | MZ-3 |
| RP3 Cells 1,3, & 4 | **6** | - | **184** | **195** |
| RP3 Cell 2 | **3** | - | - | AF** |
| Declez | **2** | - | - | |
| **Non-Replenishment Recharge**** | | | | |
| Brooks (MVWD) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | **(17)** | | | |
| Turner (CVWD) MZ-2 | - | | | |
| | | | | |
| Month Total = 641 AF | **67** | **0** | **574** | July 2014 |
| Fiscal Year to Date Total Since July 1, 2014 = 641 AF | **67** | **0** | **574** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 10,583 AF | **2,998** | **795** | **6,790** | Calendar Year to Date |

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X : Turnouts not available - to be installed during future projects.

N : No turnout planned for installation.

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## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS
August 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| **San Antonio Channel Drainage System** | | | | |
| College Heights | - | - | N | MZ-1 |
| Upland | - | - | N | **166** |
| Montclair 1, 2, 3 & 4 | **3** | - | N | AF** |
| Brooks | **7** | - | **141** | |
| **West Cucamonga Channel Drainage System** | | | | |
| 8th Street | **15** | - | **8** | |
| 7th Street | - | - | - | |
| Ely 1, 2, & 3 | **16** | - | **8** | |
| **Minor Drainage** | | | | |
| Grove | **4** | N | N | |
| **Cucamonga and Deer Creek Channel Drainage Systems** | | | | |
| Turner 1 & 2 | **76** | - | **205** | |
| Turner 3 & 4 | - | - | - | **MZ-2** |
| **Day Creek Channel Drainage System** | | | | **485** |
| Lower Day | **4** | - | X | AF** |
| **Etiwanda Channel Drainage System** | | | | |
| Etiwanda Debris | **2** | - | X | |
| Victoria | **5** | - | **107** | |
| **San Sevaine Channel Drainage System** | | | | |
| San Sevaine 1, 2, 3, & 4 | **6** | - | - | |
| San Sevaine 5 | - | - | - | |
| **West Fontana Channel System** | | | | |
| Hickory | - | - | **82** | |
| Banana | - | - | **82** | |
| **Declez Channel Drainage System** | | | | MZ-3 |
| RP3 Cells 1,3, & 4 | **18** | - | **192** | **369** |
| RP3 Cell 2 | **5** | - | - | AF** |
| Declez | **72** | - | - | |
| **Non-Replenishment Recharge**** | | | | |
| Brooks (MVWD) MZ-1 | **(7)** | | | |
| Montclair (MVWD) MZ-1 | **(1)** | | | |
| Turner (CVWD) MZ-2 | **(30)** | | | |
| | | | | |
| Month Total = 1,020 AF | **195** | - | **825** | August 2014 |
| Fiscal Year to Date Total Since July 1, 2014 = 1,661 AF | **262** | - | **1,399** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 11,603 AF | **3,193** | **795** | **7,615** | Calendar Year to Date |

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## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS
September 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| San Antonio Channel Drainage System | | | | |
| College Heights | - | - | N | MZ-1 |
| Upland | - | - | N | **204** |
| Montclair 1, 2, 3 & 4 | **2** | - | N | AF** |
| Brooks | **1** | - | **157** | |
| West Cucamonga Channel Drainage System | | | | |
| 8th Street | **14** | - | **32** | |
| 7th Street | - | - | - | |
| Ely 1, 2, & 3 | **15** | - | **121** | |
| Minor Drainage | | | | |
| Grove | **5** | N | N | |
| Cucamonga and Deer Creek Channel Drainage Systems | | | | |
| Turner 1 & 2 | **54** | - | **128** | |
| Turner 3 & 4 | - | - | - | MZ-2 |
| Day Creek Channel Drainage System | | | | **719** |
| Lower Day | **1** | - | X | AF** |
| Etiwanda Channel Drainage System | | | | |
| Etiwanda Debris | - | - | X | |
| Victoria | **2** | - | **155** | |
| San Sevaine Channel Drainage System | | | | |
| San Sevaine 1, 2, 3, & 4 | **1** | - | - | |
| San Sevaine 5 | - | - | **1** | |
| West Fontana Channel System | | | | |
| Hickory | - | - | **236** | |
| Banana | - | - | **72** | |
| Declez Channel Drainage System | | | | MZ-3 |
| RP3 Cells 1,3, & 4 | **24** | - | **243** | **385** |
| RP3 Cell 2 | **16** | - | - | AF** |
| Declez | **30** | - | - | |
| Non-Replenishment Recharge** | | | | |
| Brooks (MVWD) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | **(2)** | | | |
| Turner (CVWD) MZ-2 | - | | | |
| | | | | |
| Month Total = 1,308 AF | **163** | - | **1,145** | September 2014 |
| Fiscal Year to Date Total Since July 1, 2014 = 2,969 AF | **425** | - | **2,544** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 12,911 AF | **3,356** | **795** | **8,760** | Calendar Year to Date |

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- X : Turnouts not available - to be installed during future projects.
- N : No turnout planned for installation.
- * : Data are preliminary based on the data available at the time of this report preparation.
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## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS

October 2014

| Drainage System | Recharge Volume (AF)* | | | Management |
|---|---|---|---|---|
| **Basin** | **SW/LR** | **MW** | **RW** | **Zone Subtotals** |
| San Antonio Channel Drainage System | | | | MZ-1 **56** AF** |
| College Heights | - | - | N | |
| Upland | - | - | N | |
| Montclair 1, 2, 3 & 4 | **10** | - | N | |
| Brooks | **6** | - | **56** | |
| West Cucamonga Channel Drainage System | | | | |
| 8th Street | - | - | - | |
| 7th Street | - | - | - | |
| Ely 1, 2, & 3 | **16** | - | **286** | MZ-2 **709** AF** |
| Minor Drainage | | | | |
| Grove | **9** | N | N | |
| Cucamonga and Deer Creek Channel Drainage Systems | | | | |
| Turner 1 & 2 | **39** | - | **63** | |
| Turner 3 & 4 | - | - | - | |
| Day Creek Channel Drainage System | | | | |
| Lower Day | - | - | X | |
| Etiwanda Channel Drainage System | | | | |
| Etiwanda Debris | - | - | X | |
| Victoria | **3** | - | **75** | |
| San Sevaine Channel Drainage System | | | | |
| San Sevaine 1, 2, 3, & 4 | - | - | - | |
| San Sevaine 5 | - | - | - | |
| West Fontana Channel System | | | | |
| Hickory | - | - | **226** | |
| Banana | - | - | **206** | MZ-3 **569** AF** |
| Declez Channel Drainage System | | | | |
| RP3 Cells 1,3, & 4 | **16** | - | **335** | |
| RP3 Cell 2 | **9** | - | - | |
| Declez | **3** | - | - | |
| Non-Replenishment Recharge Deduct ** | | | | |
| Brooks (MVWD) MZ-1 | **(6)** | | | |
| Montclair (MVWD) MZ-1 | **(10)** | | | |
| Turner (CVWD) MZ-2 | **(8)** | | | |
| Upland | - | | | |
| Month Total = 1,334 AF | **87** | **0** | **1,247** | October 2014 |
| Fiscal Year to Date Total Since July 1, 2014 = 4,303 AF | **512** | **0** | **3,791** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 14,245 AF | **3,443** | **795** | **10,007** | Calendar Year to Date |

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X : Turnouts not available - to be installed during future projects.

N : No turnout planned for installation.

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## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS

November 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| **San Antonio Channel Drainage System** | | | | |
| College Heights | - | - | N | MZ-1 |
| Upland | **48** | - | N | **288** |
| Montclair 1, 2, 3 & 4 | **30** | - | N | AF** |
| Brooks | **28** | - | **37** | |
| **West Cucamonga Channel Drainage System** | | | | |
| 8th Street | **140** | - | - | |
| 7th Street | **6** | - | - | |
| Ely 1, 2, & 3 | **170** | - | **70** | |
| **Minor Drainage** | | | | |
| Grove | **53** | N | N | |
| **Cucamonga and Deer Creek Channel Drainage Systems** | | | | |
| Turner 1 & 2 | **108** | - | **58** | |
| Turner 3 & 4 | - | - | - | MZ-2 |
| **Day Creek Channel Drainage System** | | | | **837** |
| Lower Day | **25** | - | X | AF** |
| **Etiwanda Channel Drainage System** | | | | |
| Etiwanda Debris | **2** | - | X | |
| Victoria | **57** | - | **4** | |
| **San Sevaine Channel Drainage System** | | | | |
| San Sevaine 1, 2, 3, & 4 | **15** | - | - | |
| San Sevaine 5 | **3** | - | - | |
| **West Fontana Channel System** | | | | |
| Hickory | - | - | **272** | |
| Banana | **7** | - | **173** | |
| **Declez Channel Drainage System** | | | | MZ-3 |
| RP3 Cells 1,3, & 4 | **100** | - | **250** | **642** |
| RP3 Cell 2 | **12** | - | - | AF** |
| Declez | **100** | - | - | |
| **Non-Replenishment Recharge**** | | | | |
| Upland (SAWCo) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | **(1)** | | | |
| Turner (SAWCO) MZ-2 | - | | | |
| | | | | |
| Month Total = 1,767 AF | **903** | **0** | **864** | November 2014 |
| Fiscal Year to Date Total Since July 1, 2014 = 6,070 AF | **1,415** | **0** | **4,655** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 16,012 AF | **4,346** | **795** | **10,871** | Calendar Year to Date |

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X : Turnouts not available - to be installed during future projects.

N : No turnout planned for installation.

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## SUMMARY OF CHINO BASIN GROUNDWATER RECHARGE OPERATIONS
December 2014

| Drainage System / Basin | Recharge Volume (AF)* SW/LR | MW | RW | Management Zone Subtotals |
|---|---|---|---|---|
| **San Antonio Channel Drainage System** | | | | |
| College Heights | - | - | N | MZ-1 |
| Upland | **186** | - | N | **897** |
| Montclair 1, 2, 3 & 4 | **267** | - | N | AF** |
| Brooks | **95** | - | - | |
| **West Cucamonga Channel Drainage System** | | | | |
| 8th Street | **199** | - | - | |
| 7th Street | **154** | - | - | |
| Ely 1, 2, & 3 | **392** | - | **5** | |
| **Minor Drainage** | | | | |
| Grove | **202** | N | N | |
| **Cucamonga and Deer Creek Channel Drainage Systems** | | | | |
| Turner 1 & 2 | **255** | - | **2** | |
| Turner 3 & 4 | **348** | - | - | MZ-2 |
| **Day Creek Channel Drainage System** | | | | **2,097** |
| Lower Day | **241** | - | X | AF** |
| **Etiwanda Channel Drainage System** | | | | |
| Etiwanda Debris | **23** | - | X | |
| Victoria | **153** | - | - | |
| **San Sevaine Channel Drainage System** | | | | |
| San Sevaine 1, 2, 3, & 4 | **112** | - | - | |
| San Sevaine 5 | **135** | - | - | |
| **West Fontana Channel System** | | | | |
| Hickory | **185** | - | **46** | |
| Banana | **145** | - | **67** | |
| **Declez Channel Drainage System** | | | | MZ-3 |
| RP3 Cells 1,3, & 4 | **373** | - | **6** | **952** |
| RP3 Cell 2 | **46** | - | - | AF** |
| Declez | **315** | - | - | |
| **Non-Replenishment Recharge**** | | | | |
| Upland (SAWCo) MZ-1 | - | | | |
| Montclair (MVWD) MZ-1 | **(4)** | | | |
| Turner (CVWD) MZ-2 | **(2)** | | | |
| | | | | |
| Month Total = 3,946 AF | **3,820** | **0** | **126** | December 2014 |
| Fiscal Year to Date Total Since July 1, 2014 = 10,016 AF | **5,235** | **0** | **4,781** | Fiscal Year to Date |
| Calendar Year to Date Total Since Jan. 1, 2014 = 19,958 AF | **8,166** | **795** | **10,997** | Calendar Year to Date |

SW : Storm Water, LR : Local Runoff (and GE, MVWD), MW : MWD Imported Water, RW : Recycled Water

- \- : No stormwater/local runoff, or basin not in use due to maintenance or testing.
- X : Turnouts not available - to be installed during future projects.
- N : No turnout planned for installation.
- * : Data are preliminary based on the data available at the time of this report preparation.
- ** : Management Zone Subtotals have deducted from them any Non-Replenishment Recharge, which is recharge originating from pumped groundwater and is not new water.

Printed: Mar. 11, 15 ver 1

# APPENDIX C

# RWC MANAGEMENT PLANS

# RWC Management Plan for 8th Street Basins

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | 10 | 29. | 0. | | 29. | 2,926 | 224. | 1,278 | 4204 | 30% | START-UP |
| | Aug '08 | 11 | 15. | 0. | | 15. | 2,941 | 128. | 1,406 | 4347 | 32% | |
| | Sep '08 | 12 | 15. | 0. | | 15. | 2,956 | 0. | 1,406 | 4362 | 32% | |
| | Oct '08 | 13 | 16. | 0. | | 16. | 2,972 | 0. | 1,406 | 4378 | 32% | |
| | Nov '08 | 14 | 137. | 0. | | 137. | 3,109 | 0. | 1,406 | 4515 | 31% | |
| | Dec '08 | 15 | 352. | 0. | | 352. | 3,461 | 0. | 1,406 | 4867 | 29% | |
| | Jan '09 | 16 | 35. | 0. | | 35. | 3,496 | 0. | 1,406 | 4902 | 29% | |
| | Feb '09 | 17 | 458. | 0. | | 458. | 3,954 | 0. | 1,406 | 5360 | 26% | |
| | Mar '09 | 18 | 21. | 0. | | 21. | 3,975 | 0. | 1,406 | 5381 | 26% | HIST. |
| | Apr '09 | 19 | 15. | 0. | | 15. | 3,990 | 0. | 1,406 | 5396 | 26% | |
| | May '09 | 20 | 16. | 0. | | 16. | 4,006 | 0. | 1,406 | 5412 | 26% | |
| | Jun '09 | 21 | 0. | 0. | | 0. | 4,006 | 0. | 1,406 | 5412 | 26% | |
| 2009/10 | Jul '09 | 22 | 19. | 0. | | 19. | 4,025 | 0. | 1,406 | 5431 | 26% | |
| | Aug '09 | 23 | 33. | 0. | | 33. | 4,058 | 24. | 1,430 | 5488 | 26% | |
| | Sep '09 | 24 | 18. | 0. | | 18. | 4,076 | 0. | 1,430 | 5506 | 26% | |
| | Oct '09 | 25 | 74. | 0. | 310.2 | 384.2 | 4,461 | 0. | 1,430 | 5891 | 24% | ADDED SUP DATA |
| | Nov '09 | 26 | 90. | 3. | 310.2 | 403.2 | 4,864 | 133. | 1,563 | 6427 | 24% | |
| | Dec '09 | 27 | 303. | 0. | 310.2 | 613.2 | 5,477 | 93. | 1,656 | 7133 | 23% | |
| | Jan '10 | 28 | 387. | 0. | 310.2 | 697.2 | 6,174 | 102. | 1,758 | 7932 | 22% | |
| | Feb '10 | 29 | 474. | 3. | 310.2 | 787.2 | 6,961 | 0. | 1,758 | 8719 | 20% | |
| | Mar '10 | 30 | 73. | 0. | 310.2 | 383.2 | 7,345 | 114. | 1,872 | 9217 | 20% | |
| | Apr '10 | 31 | 206. | 0. | 310.2 | 516.2 | 7,861 | 100. | 1,972 | 9833 | 20% | |
| | May '10 | 32 | 34. | 0. | 310.2 | 344.2 | 8,205 | 199. | 2,171 | 10376 | 21% | |
| | Jun '10 | 33 | 33. | 0. | 310.2 | 343.2 | 8,548 | 302. | 2,473 | 11021 | 22% | |
| 2010/11 | Jul '10 | 34 | 30. | 0. | 310.2 | 340.2 | 8,888 | 218. | 2,691 | 11580 | 23% | |
| | Aug '10 | 35 | 28. | 0. | 310.2 | 338.2 | 9,227 | 106. | 2,797 | 12024 | 23% | |
| | Sep '10 | 36 | 36. | 0. | 310.2 | 346.2 | 9,573 | 177. | 2,974 | 12547 | 24% | |
| | Oct '10 | 37 | 89. | 0. | 310.2 | 399.2 | 9,972 | 288. | 3,262 | 13234 | 25% | |
| | Nov '10 | 38 | 187. | 0. | 310.2 | 497.2 | 10,469 | 163. | 3,425 | 13894 | 25% | |
| | Dec '10 | 39 | 499. | 0. | 310.2 | 809.2 | 11,278 | 20. | 3,445 | 14724 | 23% | HISTORICAL |
| | Jan '11 | 40 | 110. | 0. | 310.2 | 420.2 | 11,699 | 167. | 3,612 | 15311 | 24% | |
| | Feb '11 | 41 | 276. | 0. | 310.2 | 586.2 | 12,285 | 83. | 3,695 | 15980 | 23% | |
| | Mar '11 | 42 | 250. | 0. | 310.2 | 560.2 | 12,845 | 23. | 3,718 | 16563 | 22% | |
| | Apr '11 | 43 | 24. | 0. | 310.2 | 334.2 | 13,179 | 181. | 3,899 | 17078 | 23% | |
| | May '11 | 44 | 33. | 218. | 310.2 | 561.2 | 13,740 | 243. | 4,142 | 17883 | 23% | |
| | Jun '11 | 45 | 21. | 325.3 | 310.2 | 656.5 | 14,397 | 202. | 4,344 | 18741 | 23% | |
| 2011/12 | Jul '11 | 46 | 10. | 190.6 | 310.2 | 510.8 | 14,908 | 88. | 4,432 | 19340 | 23% | |
| | Aug '11 | 47 | 11. | 221.6 | 310.2 | 542.8 | 15,451 | 46. | 4,478 | 19929 | 22% | |
| | Sep '11 | 48 | 8. | 160. | 310.2 | 478.2 | 15,929 | 2. | 4,480 | 20409 | 22% | |
| | Oct '11 | 49 | 43. | 0. | 310.2 | 353.2 | 16,282 | 0. | 4,480 | 20762 | 22% | |
| | Nov '11 | 50 | 138. | 0. | 310.2 | 448.2 | 16,730 | 0. | 4,480 | 21210 | 21% | |
| | Dec '11 | 51 | 76. | 0. | 310.2 | 386.2 | 17,116 | 0. | 4,480 | 21597 | 21% | |
| | Jan '12 | 52 | 57. | 0. | 310.2 | 367.2 | 17,484 | 27. | 4,507 | 21991 | 20% | |
| | Feb '12 | 53 | 154. | 0. | 310.2 | 464.2 | 17,948 | 0. | 4,507 | 22455 | 20% | |
| | Mar '12 | 54 | 281. | 0. | 310.2 | 591.2 | 18,539 | 0. | 4,507 | 23046 | 20% | |
| | Apr '12 | 55 | 223. | 0. | 310.2 | 533.2 | 19,072 | 34. | 4,541 | 23613 | 19% | |
| | May '12 | 56 | 25. | 0. | 310.2 | 335.2 | 19,407 | 256. | 4,797 | 24205 | 20% | |
| | Jun '12 | 57 | 21. | 0. | 310.2 | 331.2 | 19,739 | 188. | 4,985 | 24724 | 20% | |
| 2012/13 | Jul '12 | 58 | 20. | 0. | 310.2 | 330.2 | 20,069 | 137. | 5,122 | 25191 | 20% | |
| | Aug '12 | 59 | 21. | 0. | 310.2 | 331.2 | 20,400 | 0. | 5,122 | 25522 | 20% | |
| | Sep '12 | 60 | 33. | 0. | 310.2 | 343.2 | 20,743 | 124. | 5,246 | 25989 | 20% | |
| | Oct '12 | 61 | 29. | 0. | 310.2 | 339.2 | 21,083 | 309. | 5,555 | 26638 | 21% | |
| | Nov '12 | 62 | 66. | 0. | 310.2 | 376.2 | 21,459 | 248. | 5,803 | 27262 | 21% | |
| | Dec '12 | 63 | 278. | 0. | 310.2 | 588.2 | 22,047 | 103. | 5,906 | 27953 | 21% | |
| | Jan '13 | 64 | 70. | 0. | 310.2 | 380.2 | 22,427 | 230. | 6,136 | 28563 | 21% | |
| | Feb '13 | 65 | 90. | 0. | 310.2 | 400.2 | 22,827 | 226. | 6,362 | 29189 | 22% | |
| | Mar '13 | 66 | 65. | 0. | 310.2 | 375.2 | 23,203 | 240. | 6,602 | 29805 | 22% | |
| | Apr '13 | 67 | 24. | 0. | 310.2 | 334.2 | 23,537 | 152. | 6,754 | 30291 | 22% | |
| | May '13 | 68 | 43. | 0. | 310.2 | 353.2 | 23,890 | 221. | 6,975 | 30865 | 23% | |
| | Jun '13 | 69 | 12. | 0. | 310.2 | 322.2 | 24,212 | 271. | 7,246 | 31458 | 23% | |
| 2013/14 | Jul '13 | 70 | 13. | 0. | 310.2 | 323.2 | 24,535 | 186. | 7,432 | 31968 | 23% | |
| | Aug '13 | 71 | 13. | 0. | 310.2 | 323.2 | 24,859 | 118. | 7,550 | 32409 | 23% | |
| | Sep '13 | 72 | 11. | 0. | 310.2 | 321.2 | 25,180 | 150. | 7,700 | 32880 | 23% | |
| | Oct '13 | 73 | 48. | 0. | 310.2 | 358.2 | 25,538 | 239. | 7,939 | 33477 | 24% | |
| | Nov '13 | 74 | 49. | 0. | 310.2 | 359.2 | 25,897 | 249. | 8,188 | 34085 | 24% | |
| | Dec '13 | 75 | 46. | 0. | 310.2 | 356.2 | 26,253 | 121. | 8,309 | 34563 | 24% | |
| | Jan '14 | 76 | 27. | 0. | 310.2 | 337.2 | 26,591 | 108. | 8,417 | 35008 | 24% | |
| | Feb '14 | 77 | 59. | 0. | 310.2 | 369.2 | 26,960 | 88. | 8,505 | 35465 | 24% | |
| | Mar '14 | 78 | 46. | 5.4 | 310.2 | 361.6 | 27,321 | 26. | 8,531 | 35853 | 24% | |
| | Apr '14 | 79 | 79. | 0. | 310.2 | 389.2 | 27,711 | 21. | 8,552 | 36263 | 24% | |
| | May '14 | 80 | 26. | 0. | 310.2 | 336.2 | 28,047 | 65. | 8,617 | 36664 | 24% | |
| | Jun '14 | 81 | 24. | 0. | 310.2 | 334.2 | 28,381 | 52. | 8,669 | 37050 | 23% | |

# RWC Management Plan for 8th Street Basins

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 82 | 25. | 0. | 310.2 | 335.2 | 28,716 | 8. | 8,677 | 37393 | 23% | HIST |
| | Aug '14 | 83 | 15. | 0. | 310.2 | 325.2 | 29,041 | 8. | 8,685 | 37727 | 23% | |
| | Sep '14 | 84 | 14. | 0. | 310.2 | 324.2 | 29,366 | 32. | 8,717 | 38083 | 23% | |
| | Oct '14 | 85 | 0. | 0. | 310.2 | 310.2 | 29,676 | 0. | 8,717 | 38393 | 23% | |
| | Nov '14 | 86 | 146. | 0. | 310.2 | 456.2 | 30,132 | 0. | 8,717 | 38849 | 22% | |
| | Dec '14 | 87 | 353. | 0. | 310.2 | 663.2 | 30,795 | 0. | 8,717 | 39512 | 22% | |
| | Jan '15 | 88 | 110. | 0. | 310.2 | 420.2 | 31,216 | 0. | 8,717 | 39933 | 22% | |
| | Feb '15 | 89 | 42. | 0. | 310.2 | 352.2 | 31,568 | 0. | 8,717 | 40285 | 22% | |
| | Mar '15 | 90 | 125. | | 310.2 | 435.2 | 32,003 | 0. | 8,717 | 40720 | 21% | PLANNED |
| | Apr '15 | 91 | 100. | | 310.2 | 410.2 | 32,413 | 175. | 8,892 | 41305 | 22% | |
| | May '15 | 92 | 40. | | 310.2 | 350.2 | 32,763 | 100. | 8,992 | 41756 | 22% | |
| | Jun '15 | 93 | 20. | | 310.2 | 330.2 | 33,094 | 0. | 8,992 | 42086 | 21% | |
| 2015/16 | Jul '15 | 94 | 17. | | 310.2 | 327.2 | 33,421 | 0. | 8,992 | 42413 | 21% | |
| | Aug '15 | 95 | 16. | | 310.2 | 326.2 | 33,747 | 230. | 9,222 | 42969 | 21% | |
| | Sep '15 | 96 | 23. | | 310.2 | 333.2 | 34,020 | 230. | 9,452 | 43472 | 22% | |
| | Oct '15 | 97 | 51. | | 310.2 | 361.2 | 34,249 | 230. | 9,682 | 43931 | 22% | |
| | Nov '15 | 98 | 100. | | 310.2 | 410.2 | 34,599 | 150. | 9,832 | 44431 | 22% | |
| | Dec '15 | 99 | 227. | | 310.2 | 537.2 | 35,076 | 0. | 9,832 | 44908 | 22% | |
| | Jan '16 | 100 | 131. | | 310.2 | 441.2 | 35,401 | 50. | 9,882 | 45284 | 22% | |
| | Feb '16 | 101 | 206. | | 310.2 | 516.2 | 35,675 | 50. | 9,932 | 45607 | 22% | |
| | Mar '16 | 102 | 125. | | 310.2 | 435.2 | 35,785 | 125. | 10,057 | 45842 | 22% | |
| | Apr '16 | 103 | 100. | | 310.2 | 410.2 | 35,965 | 175. | 10,232 | 46197 | 22% | |
| | May '16 | 104 | 40. | | 310.2 | 350.2 | 36,265 | 230. | 10,462 | 46727 | 22% | |
| | Jun '16 | 105 | 20. | | 310.2 | 330.2 | 36,580 | 0. | 10,462 | 47043 | 22% | |
| 2016/17 | Jul '16 | 106 | 17. | | 310.2 | 327.2 | 36,896 | 0. | 10,462 | 47358 | 22% | |
| | Aug '16 | 107 | 16. | | 310.2 | 326.2 | 37,216 | 230. | 10,692 | 47908 | 22% | |
| | Sep '16 | 108 | 23. | | 310.2 | 333.2 | 37,527 | 230. | 10,922 | 48449 | 23% | |
| | Oct '16 | 109 | 51. | | 310.2 | 361.2 | 37,848 | 230. | 11,152 | 49000 | 23% | |
| | Nov '16 | 110 | 100. | | 310.2 | 410.2 | 38,216 | 150. | 11,302 | 49518 | 23% | |
| | Dec '16 | 111 | 227. | | 310.2 | 537.2 | 38,674 | 0. | 11,302 | 49976 | 23% | |
| | Jan '17 | 112 | 131. | | 310.2 | 441.2 | 39,056 | 50. | 11,352 | 50408 | 23% | |
| | Feb '17 | 113 | 206. | | 310.2 | 516.2 | 39,405 | 50. | 11,402 | 50807 | 22% | |
| | Mar '17 | 114 | 125. | | 310.2 | 435.2 | 39,802 | 125. | 11,527 | 51329 | 22% | |
| | Apr '17 | 115 | 100. | | 310.2 | 410.2 | 40,123 | 175. | 11,702 | 51825 | 23% | |
| | May '17 | 116 | 40. | | 310.2 | 350.2 | 40,431 | 230. | 11,932 | 52363 | 23% | |
| | Jun '17 | 117 | 20. | | 310.2 | 330.2 | 40,719 | 0. | 11,932 | 52651 | 23% | |
| 2017/18 | Jul '17 | 118 | 17. | | 310.2 | 327.2 | 41,030 | 0. | 11,932 | 52963 | 23% | |
| | Aug '17 | 119 | 16. | | 310.2 | 326.2 | 41,341 | 230. | 12,162 | 53503 | 23% | |
| | Sep '17 | 120 | 23. | | 310.2 | 333.2 | 41,657 | 230. | 12,264 | 53921 | 23% | |
| | Oct '17 | 121 | 51. | | 310.2 | 361.2 | 41,976 | 230. | 12,385 | 54361 | 23% | |
| | Nov '17 | 122 | 100. | | 310.2 | 410.2 | 42,305 | 150. | 12,374 | 54679 | 23% | |
| | Dec '17 | 123 | 227. | | 310.2 | 537.2 | 42,619 | 0. | 12,374 | 54993 | 23% | |
| | Jan '18 | 124 | 131. | | 310.2 | 441.2 | 42,725 | 50. | 12,423 | 55148 | 23% | |
| | Feb '18 | 125 | 206. | | 310.2 | 516.2 | 43,143 | 50. | 12,316 | 55459 | 22% | |
| | Mar '18 | 126 | 125. | | 310.2 | 435.2 | 43,557 | 125. | 12,277 | 55834 | 22% | |
| | Apr '18 | 127 | 100. | | 310.2 | 410.2 | 43,956 | 175. | 12,362 | 56318 | 22% | |
| | May '18 | 128 | 40. | | 310.2 | 350.2 | 44,217 | 230. | 12,434 | 56651 | 22% | |
| | Jun '18 | 129 | 20. | | 310.2 | 330.2 | 44,532 | 0. | 12,348 | 56880 | 22% | |
| 2018/19 | Jul '18 | 130 | 17. | | 310.2 | 327.2 | 44,830 | 0. | 12,124 | 56954 | 21% | |
| | Aug '18 | 131 | 16. | | 310.2 | 326.2 | 45,141 | 230. | 12,226 | 57367 | 21% | |
| | Sep '18 | 132 | 23. | | 310.2 | 333.2 | 45,459 | 230. | 12,456 | 57915 | 22% | |
| | Oct '18 | 133 | 51. | | 310.2 | 361.2 | 45,805 | 230. | 12,686 | 58491 | 22% | |
| | Nov '18 | 134 | 100. | | 310.2 | 410.2 | 46,078 | 150. | 12,836 | 58914 | 22% | |
| | Dec '18 | 135 | 227. | | 310.2 | 537.2 | 46,263 | 0. | 12,836 | 59099 | 22% | |
| | Jan '19 | 136 | 131. | | 310.2 | 441.2 | 46,669 | 50. | 12,886 | 59555 | 22% | |
| | Feb '19 | 137 | 206. | | 310.2 | 516.2 | 46,727 | 50. | 12,936 | 59663 | 22% | |
| | Mar '19 | 138 | 125. | | 310.2 | 435.2 | 47,142 | 125. | 13,061 | 60203 | 22% | |
| | Apr '19 | 139 | 100. | | 310.2 | 410.2 | 47,537 | 175. | 13,236 | 60773 | 22% | |
| | May '19 | 140 | 40. | | 310.2 | 350.2 | 47,871 | 230. | 13,466 | 61337 | 22% | |
| | Jun '19 | 141 | 20. | | 310.2 | 330.2 | 48,201 | 0. | 13,466 | 61667 | 22% | |
| 2019/20 | Jul '19 | 142 | 17. | | 310.2 | 327.2 | 48,509 | 0. | 13,466 | 61975 | 22% | |
| | Aug '19 | 143 | 16. | | 310.2 | 326.2 | 48,803 | 230. | 13,672 | 62475 | 22% | |
| | Sep '19 | 144 | 23. | | 310.2 | 333.2 | 49,118 | 230. | 13,902 | 63020 | 22% | |
| | Oct '19 | 145 | 51. | | 310.2 | 361.2 | 49,095 | 230. | 14,132 | 63227 | 22% | |
| | Nov '19 | 146 | 100. | | 310.2 | 410.2 | 49,102 | 150. | 14,149 | 63251 | 22% | |
| | Dec '19 | 147 | 227. | | 310.2 | 537.2 | 49,026 | 0. | 14,056 | 63082 | 22% | |
| | Jan '20 | 148 | 131. | | 310.2 | 441.2 | 48,770 | 50. | 14,004 | 62774 | 22% | |
| | Feb '20 | 149 | 206. | | 310.2 | 516.2 | 48,499 | 50. | 14,054 | 62553 | 22% | |
| | Mar '20 | 150 | 125. | | 310.2 | 435.2 | 48,551 | 125. | 14,065 | 62616 | 22% | |
| | Apr '20 | 151 | 100. | | 310.2 | 410.2 | 48,445 | 175. | 14,140 | 62585 | 23% | |
| | May '20 | 152 | 40. | | 310.2 | 350.2 | 48,451 | 230. | 14,171 | 62622 | 23% | |
| | Jun '20 | 153 | 20. | | 310.2 | 330.2 | 48,438 | 0. | 13,869 | 62307 | 22% | |

## RWC Management Plan for 8th Street Basins

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/21 | Jul '20 | 154 | 17. | | 310.2 | 327.2 | 48,425 | 0. | 13,651 | 62076 | 22% | PLANNED |
| | Aug '20 | 155 | 16. | | 310.2 | 326.2 | 48,413 | 230. | 13,775 | 62188 | 22% | |
| | Sep '20 | 156 | 23. | | 310.2 | 333.2 | 48,400 | 230. | 13,828 | 62228 | 22% | |
| | Oct '20 | 157 | 51. | | 310.2 | 361.2 | 48,362 | 230. | 13,770 | 62132 | 22% | |
| | Nov '20 | 158 | 100. | | 310.2 | 410.2 | 48,275 | 150. | 13,757 | 62032 | 22% | |
| | Dec '20 | 159 | 227. | | 310.2 | 537.2 | 48,003 | 0. | 13,737 | 61740 | 22% | |
| | Jan '21 | 160 | 131. | | 310.2 | 441.2 | 48,024 | 50. | 13,620 | 61644 | 22% | |
| | Feb '21 | 161 | 206. | | 310.2 | 516.2 | 47,954 | 50. | 13,587 | 61541 | 22% | |
| | Mar '21 | 162 | 125. | | 310.2 | 435.2 | 47,829 | 125. | 13,689 | 61518 | 22% | |
| | Apr '21 | 163 | 100. | | 310.2 | 410.2 | 47,905 | 175. | 13,683 | 61588 | 22% | |
| | May '21 | 164 | 40. | | 310.2 | 350.2 | 47,694 | 230. | 13,670 | 61364 | 22% | |
| | Jun '21 | 165 | 20. | | 310.2 | 330.2 | 47,368 | 0. | 13,468 | 60836 | 22% | |
| 2021/22 | Jul '21 | 166 | 17. | | 310.2 | 327.2 | 47,184 | 0. | 13,380 | 60564 | 22% | |
| | Aug '21 | 167 | 16. | | 310.2 | 326.2 | 46,967 | 230. | 13,564 | 60531 | 22% | |
| | Sep '21 | 168 | 23. | | 310.2 | 333.2 | 46,822 | 230. | 13,792 | 60614 | 23% | |
| | Oct '21 | 169 | 51. | | 310.2 | 361.2 | 46,830 | 230. | 14,022 | 60852 | 23% | |
| | Nov '21 | 170 | 100. | | 310.2 | 410.2 | 46,792 | 150. | 14,172 | 60964 | 23% | |
| | Dec '21 | 171 | 227. | | 310.2 | 537.2 | 46,943 | 0. | 14,172 | 61115 | 23% | |
| | Jan '22 | 172 | 131. | | 310.2 | 441.2 | 47,017 | 50. | 14,195 | 61212 | 23% | |
| | Feb '22 | 173 | 206. | | 310.2 | 516.2 | 47,069 | 50. | 14,245 | 61314 | 23% | |
| | Mar '22 | 174 | 125. | | 310.2 | 435.2 | 46,913 | 125. | 14,370 | 61283 | 23% | |
| | Apr '22 | 175 | 100. | | 310.2 | 410.2 | 46,790 | 175. | 14,511 | 61301 | 24% | |
| | May '22 | 176 | 40. | | 310.2 | 350.2 | 46,805 | 230. | 14,485 | 61290 | 24% | |
| | Jun '22 | 177 | 20. | | 310.2 | 330.2 | 46,804 | 0. | 14,297 | 61101 | 23% | |
| 2022/23 | Jul '22 | 178 | 17. | | 310.2 | 327.2 | 46,801 | 0. | 14,160 | 60961 | 23% | |
| | Aug '22 | 179 | 16. | | 310.2 | 326.2 | 46,796 | 230. | 14,390 | 61186 | 24% | |
| | Sep '22 | 180 | 23. | | 310.2 | 333.2 | 46,786 | 230. | 14,496 | 61282 | 24% | |
| | Oct '22 | 181 | 51. | | 310.2 | 361.2 | 46,808 | 230. | 14,417 | 61225 | 24% | |
| | Nov '22 | 182 | 100. | | 310.2 | 410.2 | 46,842 | 150. | 14,319 | 61161 | 23% | |
| | Dec '22 | 183 | 227. | | 310.2 | 537.2 | 46,791 | 0. | 14,216 | 61007 | 23% | |
| | Jan '23 | 184 | 131. | | 310.2 | 441.2 | 46,852 | 50. | 14,036 | 60888 | 23% | |
| | Feb '23 | 185 | 206. | | 310.2 | 516.2 | 46,968 | 50. | 13,860 | 60828 | 23% | |
| | Mar '23 | 186 | 125. | | 310.2 | 435.2 | 47,028 | 125. | 13,745 | 60773 | 23% | |
| | Apr '23 | 187 | 100. | | 310.2 | 410.2 | 47,104 | 175. | 13,768 | 60872 | 23% | |
| | May '23 | 188 | 40. | | 310.2 | 350.2 | 47,101 | 230. | 13,777 | 60878 | 23% | |
| | Jun '23 | 189 | 20. | | 310.2 | 330.2 | 47,109 | 0. | 13,506 | 60615 | 22% | |
| 2023/24 | Jul '23 | 190 | 17. | | 310.2 | 327.2 | 47,113 | 0. | 13,320 | 60433 | 22% | |
| | Aug '23 | 191 | 16. | | 310.2 | 326.2 | 47,116 | 230. | 13,432 | 60548 | 22% | |
| | Sep '23 | 192 | 23. | | 310.2 | 333.2 | 47,128 | 230. | 13,512 | 60640 | 22% | |
| | Oct '23 | 193 | 51. | | 310.2 | 361.2 | 47,131 | 230. | 13,503 | 60634 | 22% | |
| | Nov '23 | 194 | 100. | | 310.2 | 410.2 | 47,182 | 150. | 13,404 | 60586 | 22% | |
| | Dec '23 | 195 | 227. | | 310.2 | 537.2 | 47,363 | 0. | 13,283 | 60646 | 22% | |
| | Jan '24 | 196 | 131. | | 310.2 | 441.2 | 47,467 | 50. | 13,225 | 60692 | 22% | |
| | Feb '24 | 197 | 206. | | 310.2 | 516.2 | 47,614 | 50. | 13,187 | 60801 | 22% | |
| | Mar '24 | 198 | 125. | | 310.2 | 435.2 | 47,688 | 125. | 13,286 | 60974 | 22% | |
| | Apr '24 | 199 | 100. | | 310.2 | 410.2 | 47,709 | 175. | 13,440 | 61149 | 22% | |
| | May '24 | 200 | 40. | | 310.2 | 350.2 | 47,723 | 230. | 13,605 | 61328 | 22% | |
| | Jun '24 | 201 | 20. | | 310.2 | 330.2 | 47,719 | 0. | 13,553 | 61272 | 22% | |

**Notes:**

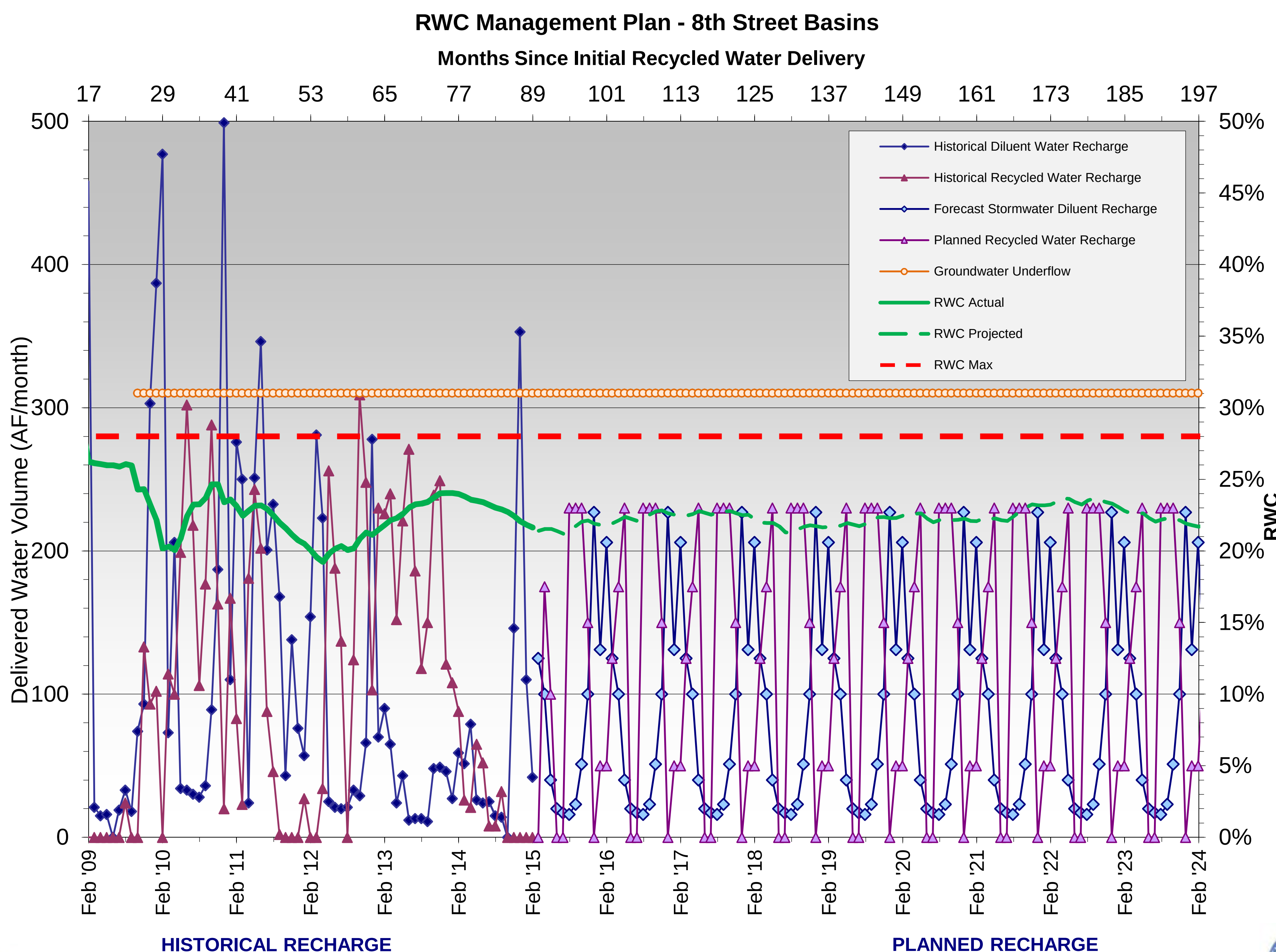
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan - 8th Street Basins
Months Since Initial Recycled Water Delivery
17
29
41
53
65
77
89
101
113
125
137
149
161
173
185
197
500
400
300
200
100
0
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Delivered Water Volume (AF/month)
RWC
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Diluent Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC Actual
RWC Projected
RWC Max
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

# RWC Management Plan for Banana Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | 36 | 31. | 0 | | 31. | 3,268.9 | 0. | 1,399.1 | 4668 | 30% | |
| | Aug '08 | 37 | 45. | 0 | | 45. | 3,313.9 | 0. | 1,399.1 | 4713 | 30% | |
| | Sep '08 | 38 | 34. | 0 | | 34. | 3,347.9 | 0. | 1,399.1 | 4747 | 29% | |
| | Oct '08 | 39 | 36. | 0 | | 36. | 3,383.9 | 0. | 1,399.1 | 4783 | 29% | |
| | Nov '08 | 40 | 50. | 0 | | 50. | 3,433.9 | 0. | 1,399.1 | 4833 | 29% | |
| | Dec '08 | 41 | 87. | 0 | | 87. | 3,520.9 | 0. | 1,399.1 | 4920 | 28% | |
| | Jan '09 | 42 | 5. | 0 | | 5. | 3,525.9 | 40. | 1,439.1 | 4965 | 29% | |
| | Feb '09 | 43 | 95. | 0 | | 95. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | |
| | Mar '09 | 44 | 0. | 0 | | 0. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | |
| | Apr '09 | 45 | 0. | 0 | | 0. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | |
| | May '09 | 46 | 0. | 0 | | 0. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | |
| | Jun '09 | 47 | 0. | 0 | | 0. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | |
| 2009/10 | Jul '09 | 48 | 0. | 0 | | 0. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | |
| | Aug '09 | 49 | 0. | 0 | | 0. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | |
| | Sep '09 | 50 | 0. | 0 | | 0. | 3,620.9 | 0. | 1,439.1 | 5060 | 28% | HISTORICAL |
| | Oct '09 | 51 | 15. | 0 | 151 | 166.3 | 3,787.2 | 129. | 1,568.1 | 5355 | 29% | |
| | Nov '09 | 52 | 0. | 0 | 151 | 151.3 | 3,938.5 | 181. | 1,749.1 | 5688 | 31% | |
| | Dec '09 | 53 | 75. | 0 | 151 | 226.3 | 4,164.8 | 67. | 1,816.1 | 5981 | 30% | |
| | Jan '10 | 54 | 100. | 0 | 151 | 251.3 | 4,416.1 | 75. | 1,891.1 | 6307 | 30% | |
| | Feb '10 | 55 | 143. | 0 | 151 | 294.3 | 4,710.4 | 0. | 1,891.1 | 6601 | 29% | |
| | Mar '10 | 56 | 17. | 0 | 151 | 168.3 | 4,878.7 | 0. | 1,891.1 | 6770 | 28% | |
| | Apr '10 | 57 | 66. | 0 | 151 | 217.3 | 5,096. | 140. | 2,031.1 | 7127 | 28% | |
| | May '10 | 58 | 0. | 0 | 151 | 151.3 | 5,247.3 | 177. | 2,208.1 | 7455 | 30% | |
| | Jun '10 | 59 | 0. | 0 | 151 | 151.3 | 5,398.6 | 129. | 2,337.1 | 7736 | 30% | |
| 2010/11 | Jul '10 | 60 | 0. | 0 | 151 | 151.3 | 5,550. | 77 | 2,414.1 | 7964 | 30% | |
| | Aug '10 | 61 | 0. | 0 | 151 | 151.3 | 5,701.3 | 54 | 2,468.1 | 8169 | 30% | |
| | Sep '10 | 62 | 0. | 0 | 151 | 151.3 | 5,852.6 | 59 | 2,527.1 | 8380 | 30% | |
| | Oct '10 | 63 | 5. | 0 | 151 | 156.3 | 5,980.6 | 48 | 2,575.1 | 8556 | 30% | |
| | Nov '10 | 64 | 16. | 0 | 151 | 167.3 | 6,135.2 | 29 | 2,604.1 | 8739 | 30% | |
| | Dec '10 | 65 | 51. | 0 | 151 | 202.3 | 6,337.5 | 0 | 2,604.1 | 8942 | 29% | |
| | Jan '11 | 66 | 10. | 0 | 151 | 161.3 | 6,411.9 | 0 | 2,604.1 | 9016 | 29% | |
| | Feb '11 | 67 | 26. | 0 | 151 | 177.3 | 6,467. | 0 | 2,604.1 | 9071 | 29% | |
| | Mar '11 | 68 | 0. | 0 | 151 | 151.3 | 6,539.8 | 0 | 2,604.1 | 9144 | 28% | |
| | Apr '11 | 69 | 0. | 0 | 151 | 151.3 | 6,630. | 0 | 2,604.1 | 9234 | 28% | |
| | May '11 | 70 | 0. | 0 | 151 | 151.3 | 6,781.3 | 0 | 2,604.1 | 9385 | 28% | |
| | Jun '11 | 71 | 0. | 0 | 151 | 151.3 | 6,932.6 | 0 | 2,604.1 | 9537 | 27% | |
| 2011/12 | Jul '11 | 72 | 31. | 0 | 151 | 182.3 | 7,102.7 | 0 | 2,604.1 | 9707 | 27% | |
| | Aug '11 | 73 | 0. | 0 | 151 | 151.3 | 7,254. | 135 | 2,739.1 | 9993 | 27% | |
| | Sep '11 | 74 | 0. | 0 | 151 | 151.3 | 7,405.3 | 395 | 3,134.1 | 10539 | 30% | |
| | Oct '11 | 75 | 20. | 0 | 151 | 171.3 | 7,576.7 | 404 | 3,538.1 | 11115 | 32% | |
| | Nov '11 | 76 | 30. | 0 | 151 | 181.3 | 7,718.7 | 161 | 3,699.1 | 11418 | 32% | |
| | Dec '11 | 77 | 18. | 0 | 151 | 169.3 | 7,871.3 | 245 | 3,944.1 | 11815 | 33% | |
| | Jan '12 | 78 | 48. | 0 | 151 | 199.3 | 8,020.5 | 161. | 4,105.1 | 12126 | 34% | |
| | Feb '12 | 79 | 21. | 0 | 151 | 172.3 | 8,171.9 | 167. | 4,272.1 | 12444 | 34% | |
| | Mar '12 | 80 | 44. | 0 | 151 | 195.3 | 8,336.2 | 72 | 4,344.1 | 12680 | 34% | |
| | Apr '12 | 81 | 35. | 0 | 151 | 186.3 | 8,509.4 | 51 | 4,395.1 | 12904 | 34% | |
| | May '12 | 82 | 0. | 0 | 151 | 151.3 | 8,659.9 | 45 | 4,440.1 | 13100 | 34% | |
| | Jun '12 | 83 | 0. | 0 | 151 | 151.3 | 8,811.2 | 79 | 4,519.1 | 13330 | 34% | |
| 2012/13 | Jul '12 | 84 | 0. | 0 | 151 | 151.3 | 8,963 | 41 | 4,560 | 13,523 | 34% | |
| | Aug '12 | 85 | 0. | 0 | 151 | 151.3 | 9,114 | 2 | 4,562 | 13,676 | 33% | |
| | Sep '12 | 86 | 0. | 0 | 151 | 151.3 | 9,265 | 188 | 4,750 | 14,015 | 34% | |
| | Oct '12 | 87 | 11. | 0 | 151 | 162.3 | 9,427 | 103 | 4,853 | 14,281 | 34% | |
| | Nov '12 | 88 | 5. | 0 | 151 | 156.3 | 9,545 | 120 | 4,973 | 14,518 | 34% | |
| | Dec '12 | 89 | 49. | 0 | 151 | 200.3 | 9,686 | 15 | 4,988 | 14,674 | 34% | |
| | Jan '13 | 90 | 18. | 0 | 151 | 169.3 | 9,855 | 28 | 5,016 | 14,871 | 34% | |
| | Feb '13 | 91 | 20. | 0 | 151 | 171.3 | 9,946 | 2 | 5,018 | 14,964 | 34% | |
| | Mar '13 | 92 | 8. | 0 | 151 | 159.3 | 10,066 | 42 | 5,060 | 15,126 | 33% | |
| | Apr '13 | 93 | 0. | 0 | 151 | 151.3 | 10,131 | 55 | 5,115 | 15,246 | 34% | |
| | May '13 | 94 | 3. | 0 | 151 | 154.3 | 10,223 | 39 | 5,154 | 15,377 | 34% | |
| | Jun '13 | 95 | 0. | 0 | 151 | 151.3 | 10,375 | 35 | 5,189 | 15,564 | 33% | |
| 2013/14 | Jul '13 | 96 | 0. | 0 | 151 | 151.3 | 10,526 | 15 | 5,204 | 15,730 | 33% | |
| | Aug '13 | 97 | 0. | 0 | 151 | 151.3 | 10,677 | 12 | 5,216 | 15,893 | 33% | |
| | Sep '13 | 98 | 0. | 0 | 151 | 151.3 | 10,829 | 0 | 5,216 | 16,045 | 33% | |
| | Oct '13 | 99 | 0. | 0 | 151 | 151.3 | 10,980 | 385 | 5,601 | 16,581 | 34% | |
| | Nov '13 | 100 | 22. | 0 | 151 | 173.3 | 11,119 | 102 | 5,703 | 16,822 | 34% | |
| | Dec '13 | 101 | 6. | 0 | 151 | 157.3 | 11,239 | 0 | 5,703 | 16,942 | 34% | |
| | Jan '14 | 102 | 9. | 8 | 151 | 168.6 | 11,403 | 0 | 5,703 | 17,106 | 33% | |
| | Feb '14 | 103 | 39. | 16 | 151 | 206.3 | 11,526 | 0 | 5,703 | 17,229 | 33% | |
| | Mar '14 | 104 | 9. | 0 | 151 | 160.3 | 11,658 | 85 | 5,788 | 17,446 | 33% | |
| | Apr '14 | 105 | 2. | 0 | 151 | 153.3 | 11,811 | 88 | 5,876 | 17,687 | 33% | |
| | May '14 | 106 | 0. | 0 | 151 | 151.3 | 11,963 | 194 | 6,070 | 18,033 | 34% | |
| | Jun '14 | 107 | 0. | 0 | 151 | 151.3 | 12,114 | 190 | 6,260 | 18,374 | 34% | |

## RWC Management Plan for Banana Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 108 | 0. | 0 | 151 | 151.3 | 12,265.2 | 0 | 6,260.1 | 18525 | 34% | HIST |
| | Aug '14 | 109 | 0. | 0 | 151 | 151.3 | 12,416.5 | 82. | 6,342.1 | 18759 | 34% | |
| | Sep '14 | 110 | 0. | 0 | 151 | 151.3 | 12,567.8 | 72. | 6,414.1 | 18982 | 34% | |
| | Oct '14 | 111 | 0. | 0 | 151 | 151.3 | 12,656.3 | 206. | 6,620.1 | 19276 | 34% | |
| | Nov '14 | 112 | 7. | 0 | 151 | 158.3 | 12,797.6 | 173. | 6,793.1 | 19591 | 35% | |
| | Dec '14 | 113 | 145. | 0 | 151 | 296.3 | 13,068.6 | 67. | 6,860.1 | 19929 | 34% | |
| | Jan '15 | 114 | 24. | 0 | 151 | 175.3 | 13,150.3 | 144. | 7,004.1 | 20154 | 35% | |
| | Feb '15 | 115 | 16. | 0 | 151 | 167.3 | 13,206.8 | 47. | 7,051.1 | 20258 | 35% | |
| | Mar '15 | 116 | 21. | | 151 | 172.3 | 13,354.2 | 100. | 7,151.1 | 20505 | 35% | PLANNED |
| | Apr '15 | 117 | 25. | | 151 | 176.3 | 13,511.2 | 0. | 7,151.1 | 20662 | 35% | |
| | May '15 | 118 | 16. | | 151 | 167.3 | 13,663.9 | 100. | 7,251.1 | 20915 | 35% | |
| | Jun '15 | 119 | 1. | | 151 | 152.3 | 13,816.2 | 100. | 7,351.1 | 21167 | 35% | |
| 2015/16 | Jul '15 | 120 | 6. | | 151 | 157.3 | 13,781 | 100 | 7,431 | 21,212 | 35% | |
| | Aug '15 | 121 | 4. | | 151 | 155.3 | 13,937 | 0 | 7,177 | 21,114 | 34% | |
| | Sep '15 | 122 | 3. | | 151 | 154.3 | 14,091 | 0 | 7,049 | 21,139 | 33% | |
| | Oct '15 | 123 | 15. | | 151 | 166.3 | 14,228 | 100 | 7,123 | 21,352 | 33% | |
| | Nov '15 | 124 | 18. | | 151 | 169.3 | 14,398 | 100 | 7,215 | 21,613 | 33% | |
| | Dec '15 | 125 | 47. | | 151 | 198.3 | 14,577 | 100 | 7,305 | 21,882 | 33% | |
| | Jan '16 | 126 | 37. | | 151 | 188.3 | 14,759 | 100 | 7,355 | 22,114 | 33% | |
| | Feb '16 | 127 | 71. | | 151 | 222.3 | 14,946 | 100 | 7,400 | 22,346 | 33% | |
| | Mar '16 | 128 | 21. | | 151 | 172.3 | 15,063 | 100 | 7,500 | 22,563 | 33% | |
| | Apr '16 | 129 | 25. | | 151 | 176.3 | 15,204 | 0 | 7,500 | 22,703 | 33% | |
| | May '16 | 130 | 16. | | 151 | 167.3 | 15,314 | 150 | 7,650 | 22,964 | 33% | |
| | Jun '16 | 131 | 1. | | 151 | 152.3 | 15,466 | 150 | 7,753 | 23,219 | 33% | |
| 2016/2017 | Jul '16 | 132 | 6. | | 151 | 157.3 | 15,624 | 100 | 7,788 | 23,412 | 33% | |
| | Aug '16 | 133 | 4. | | 151 | 155.3 | 15,779 | 0 | 7,703 | 23,482 | 33% | |
| | Sep '16 | 134 | 3. | | 151 | 154.3 | 15,933 | 0 | 7,325 | 23,259 | 31% | |
| | Oct '16 | 135 | 15. | | 151 | 166.3 | 16,025 | 100 | 7,376 | 23,401 | 32% | |
| | Nov '16 | 136 | 18. | | 151 | 169.3 | 15,960 | 100 | 7,469 | 23,429 | 32% | |
| | Dec '16 | 137 | 47. | | 151 | 198.3 | 15,957 | 100 | 7,519 | 23,476 | 32% | |
| | Jan '17 | 138 | 37. | | 151 | 188.3 | 15,814 | 100 | 7,619 | 23,433 | 33% | |
| | Feb '17 | 139 | 71. | | 151 | 222.3 | 15,963 | 100 | 7,719 | 23,682 | 33% | |
| | Mar '17 | 140 | 21. | | 151 | 172.3 | 16,082 | 100 | 7,819 | 23,901 | 33% | |
| | Apr '17 | 141 | 25. | | 151 | 176.3 | 16,229 | 0 | 7,815 | 24,044 | 33% | |
| | May '17 | 142 | 16. | | 151 | 167.3 | 16,360 | 150 | 7,959 | 24,319 | 33% | |
| | Jun '17 | 143 | 1. | | 151 | 152.3 | 16,512 | 150 | 8,109 | 24,621 | 33% | |
| 2017/2018 | Jul '17 | 144 | 6. | | 151 | 157.3 | 16,669 | 100 | 8,209 | 24,878 | 33% | |
| | Aug '17 | 145 | 4. | | 151 | 155.3 | 16,824 | 0 | 8,209 | 25,033 | 33% | |
| | Sep '17 | 146 | 3. | | 151 | 154.3 | 16,976 | 0 | 8,209 | 25,185 | 33% | |
| | Oct '17 | 147 | 15. | | 151 | 166.3 | 17,140 | 100 | 8,309 | 25,449 | 33% | |
| | Nov '17 | 148 | 18. | | 151 | 169.3 | 17,274 | 100 | 8,409 | 25,683 | 33% | |
| | Dec '17 | 149 | 47. | | 151 | 198.3 | 17,451 | 100 | 8,509 | 25,960 | 33% | |
| | Jan '18 | 150 | 37. | | 151 | 188.3 | 17,509 | 100 | 8,609 | 26,118 | 33% | |
| | Feb '18 | 151 | 71. | | 151 | 222.3 | 17,656 | 100 | 8,709 | 26,365 | 33% | |
| | Mar '18 | 152 | 21. | | 151 | 172.3 | 17,829 | 100 | 8,809 | 26,638 | 33% | |
| | Apr '18 | 153 | 25. | | 151 | 176.3 | 18,005 | 0 | 8,762 | 26,767 | 33% | |
| | May '18 | 154 | 16. | | 151 | 167.3 | 18,169 | 150 | 8,874 | 27,043 | 33% | |
| | Jun '18 | 155 | 1. | | 151 | 152.3 | 18,313 | 150 | 8,952 | 27,265 | 33% | |
| 2018/2019 | Jul '18 | 156 | 6. | | 151 | 157.3 | 18,440 | 100 | 9,052 | 27,492 | 33% | |
| | Aug '18 | 157 | 4. | | 151 | 155.3 | 18,550 | 0 | 9,052 | 27,602 | 33% | |
| | Sep '18 | 158 | 3. | | 151 | 154.3 | 18,670 | 0 | 9,052 | 27,722 | 33% | |
| | Oct '18 | 159 | 15. | | 151 | 166.3 | 18,801 | 100 | 9,152 | 27,953 | 33% | |
| | Nov '18 | 160 | 18. | | 151 | 169.3 | 18,920 | 100 | 9,252 | 28,172 | 33% | |
| | Dec '18 | 161 | 47. | | 151 | 198.3 | 19,031 | 100 | 9,352 | 28,383 | 33% | |
| | Jan '19 | 162 | 37. | | 151 | 188.3 | 19,215 | 100 | 9,412 | 28,627 | 33% | |
| | Feb '19 | 163 | 71. | | 151 | 222.3 | 19,342 | 100 | 9,512 | 28,854 | 33% | |
| | Mar '19 | 164 | 21. | | 151 | 172.3 | 19,514 | 100 | 9,612 | 29,126 | 33% | |
| | Apr '19 | 165 | 25. | | 151 | 176.3 | 19,691 | 0 | 9,612 | 29,303 | 33% | |
| | May '19 | 166 | 16. | | 151 | 167.3 | 19,858 | 150 | 9,762 | 29,620 | 33% | |
| | Jun '19 | 167 | 1. | | 151 | 152.3 | 20,010 | 150 | 9,912 | 29,922 | 33% | |
| 2019/2020 | Jul '19 | 168 | 6. | | 151 | 157.3 | 20,167 | 100 | 10,012 | 30,179 | 33% | |
| | Aug '19 | 169 | 4. | | 151 | 155.3 | 20,323 | 0 | 10,012 | 30,335 | 33% | |
| | Sep '19 | 170 | 3. | | 151 | 154.3 | 20,477 | 0 | 10,012 | 30,489 | 33% | |
| | Oct '19 | 171 | 15. | | 151 | 166.3 | 20,477 | 100 | 9,983 | 30,460 | 33% | |
| | Nov '19 | 172 | 18. | | 151 | 169.3 | 20,495 | 100 | 9,902 | 30,397 | 33% | |
| | Dec '19 | 173 | 47. | | 151 | 198.3 | 20,467 | 100 | 9,935 | 30,402 | 33% | |
| | Jan '20 | 174 | 37. | | 151 | 188.3 | 20,404 | 100 | 9,960 | 30,364 | 33% | |
| | Feb '20 | 175 | 71. | | 151 | 222.3 | 20,332 | 100 | 10,060 | 30,392 | 33% | |
| | Mar '20 | 176 | 21. | | 151 | 172.3 | 20,336 | 100 | 10,160 | 30,496 | 33% | |
| | Apr '20 | 177 | 25. | | 151 | 176.3 | 20,295 | 0 | 10,020 | 30,315 | 33% | |
| | May '20 | 178 | 16. | | 151 | 167.3 | 20,311 | 150 | 9,993 | 30,304 | 33% | |
| | Jun '20 | 179 | 1. | | 151 | 152.3 | 20,312 | 150 | 10,014 | 30,326 | 33% | |

## RWC Management Plan for Banana Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/2021 | Jul '20 | 180 | 6. | | 151 | 157.3 | 20,318 | 100 | 10,037 | 30,355 | 33% | PLANNED |
| | Aug '20 | 181 | 4. | | 151 | 155.3 | 20,322 | 0 | 9,983 | 30,305 | 33% | |
| | Sep '20 | 182 | 3. | | 151 | 154.3 | 20,325 | 0 | 9,924 | 30,249 | 33% | |
| | Oct '20 | 183 | 15. | | 151 | 166.3 | 20,335 | 100 | 9,976 | 30,311 | 33% | |
| | Nov '20 | 184 | 18. | | 151 | 169.3 | 20,337 | 100 | 10,047 | 30,384 | 33% | |
| | Dec '20 | 185 | 47. | | 151 | 198.3 | 20,333 | 100 | 10,147 | 30,480 | 33% | |
| | Jan '21 | 186 | 37. | | 151 | 188.3 | 20,360 | 100 | 10,247 | 30,607 | 33% | |
| | Feb '21 | 187 | 71. | | 151 | 222.3 | 20,405 | 100 | 10,347 | 30,752 | 34% | |
| | Mar '21 | 188 | 21. | | 151 | 172.3 | 20,426 | 100 | 10,447 | 30,873 | 34% | |
| | Apr '21 | 189 | 25. | | 151 | 176.3 | 20,451 | 0 | 10,447 | 30,898 | 34% | |
| | May '21 | 190 | 16. | | 151 | 167.3 | 20,467 | 150 | 10,597 | 31,064 | 34% | |
| | Jun '21 | 191 | 1. | | 151 | 152.3 | 20,468 | 150 | 10,747 | 31,215 | 34% | |
| 2021/2022 | Jul '21 | 192 | 6. | | 151 | 157.3 | 20,443 | 100 | 10,847 | 31,290 | 35% | |
| | Aug '21 | 193 | 4. | | 151 | 155.3 | 20,447 | 0 | 10,712 | 31,159 | 34% | |
| | Sep '21 | 194 | 3. | | 151 | 154.3 | 20,450 | 0 | 10,317 | 30,767 | 34% | |
| | Oct '21 | 195 | 15. | | 151 | 166.3 | 20,445 | 100 | 10,013 | 30,458 | 33% | |
| | Nov '21 | 196 | 18. | | 151 | 169.3 | 20,433 | 100 | 9,952 | 30,385 | 33% | |
| | Dec '21 | 197 | 47. | | 151 | 198.3 | 20,462 | 100 | 9,807 | 30,269 | 32% | |
| | Jan '22 | 198 | 37. | | 151 | 188.3 | 20,451 | 100 | 9,746 | 30,197 | 32% | |
| | Feb '22 | 199 | 71. | | 151 | 222.3 | 20,501 | 100 | 9,679 | 30,180 | 32% | |
| | Mar '22 | 200 | 21. | | 151 | 172.3 | 20,478 | 100 | 9,707 | 30,185 | 32% | |
| | Apr '22 | 201 | 25. | | 151 | 176.3 | 20,468 | 0 | 9,656 | 30,124 | 32% | |
| | May '22 | 202 | 16. | | 151 | 167.3 | 20,484 | 150 | 9,761 | 30,245 | 32% | |
| | Jun '22 | 203 | 1. | | 151 | 152.3 | 20,485 | 150 | 9,832 | 30,317 | 32% | |
| 2022/2023 | Jul '22 | 204 | 6. | | 151 | 157.3 | 20,491 | 100 | 9,891 | 30,382 | 33% | |
| | Aug '22 | 205 | 4. | | 151 | 155.3 | 20,495 | 0 | 9,889 | 30,384 | 33% | |
| | Sep '22 | 206 | 3. | | 151 | 154.3 | 20,498 | 0 | 9,701 | 30,199 | 32% | |
| | Oct '22 | 207 | 15. | | 151 | 166.3 | 20,502 | 100 | 9,698 | 30,200 | 32% | |
| | Nov '22 | 208 | 18. | | 151 | 169.3 | 20,515 | 100 | 9,678 | 30,193 | 32% | |
| | Dec '22 | 209 | 47. | | 151 | 198.3 | 20,513 | 100 | 9,763 | 30,276 | 32% | |
| | Jan '23 | 210 | 37. | | 151 | 188.3 | 20,532 | 100 | 9,835 | 30,367 | 32% | |
| | Feb '23 | 211 | 71. | | 151 | 222.3 | 20,583 | 100 | 9,933 | 30,516 | 33% | |
| | Mar '23 | 212 | 21. | | 151 | 172.3 | 20,596 | 100 | 9,991 | 30,587 | 33% | |
| | Apr '23 | 213 | 25. | | 151 | 176.3 | 20,621 | 0 | 9,936 | 30,557 | 33% | |
| | May '23 | 214 | 16. | | 151 | 167.3 | 20,634 | 150 | 10,047 | 30,681 | 33% | |
| | Jun '23 | 215 | 1. | | 151 | 152.3 | 20,635 | 150 | 10,162 | 30,797 | 33% | |
| 2023/2024 | Jul '23 | 216 | 6. | | 151 | 157.3 | 20,641 | 100 | 10,247 | 30,888 | 33% | |
| | Aug '23 | 217 | 4. | | 151 | 155.3 | 20,645 | 0 | 10,235 | 30,880 | 33% | |
| | Sep '23 | 218 | 3. | | 151 | 154.3 | 20,648 | 0 | 10,235 | 30,883 | 33% | |
| | Oct '23 | 219 | 15. | | 151 | 166.3 | 20,663 | 100 | 9,950 | 30,613 | 33% | |
| | Nov '23 | 220 | 18. | | 151 | 169.3 | 20,659 | 100 | 9,948 | 30,607 | 33% | |
| | Dec '23 | 221 | 47. | | 151 | 198.3 | 20,700 | 100 | 10,048 | 30,748 | 33% | |
| | Jan '24 | 222 | 37. | | 151 | 188.3 | 20,720 | 100 | 10,148 | 30,868 | 33% | |
| | Feb '24 | 223 | 71. | | 151 | 222.3 | 20,736 | 100 | 10,248 | 30,984 | 33% | |
| | Mar '24 | 224 | 21. | | 151 | 172.3 | 20,748 | 100 | 10,263 | 31,011 | 33% | |
| | Apr '24 | 225 | 25. | | 151 | 176.3 | 20,771 | 0 | 10,175 | 30,946 | 33% | |
| | May '24 | 226 | 16. | | 151 | 167.3 | 20,787 | 150 | 10,131 | 30,918 | 33% | |
| | Jun '24 | 227 | 1. | | 151 | 152.3 | 20,788 | 150 | 10,091 | 30,879 | 33% | |

**Notes:**

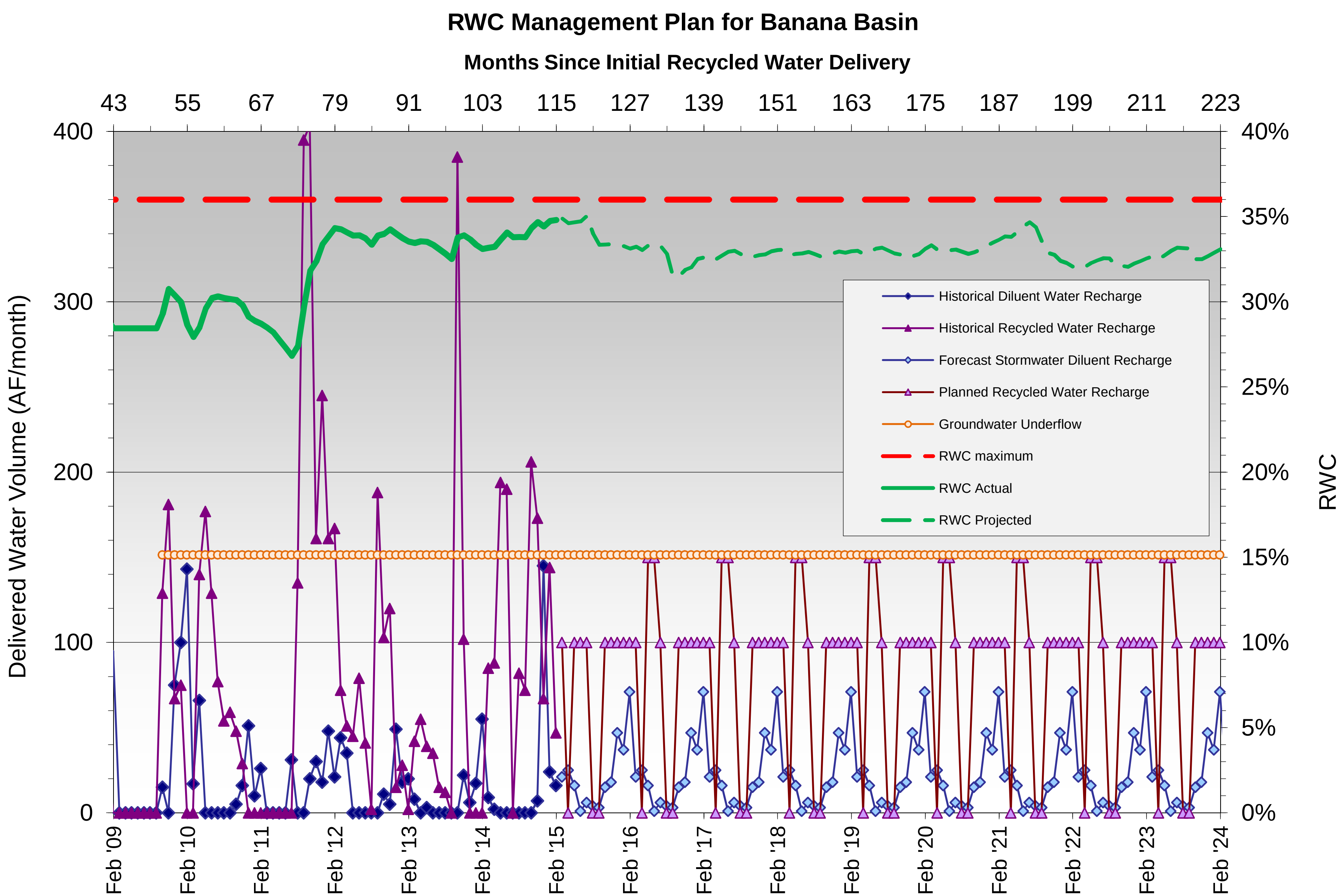
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period




HISTORICAL RECHARGE

PLANNED RECHARGE

# RWC Management Plan for Brooks Street Basins

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | -1 | 3. | 0. | | 3. | 5999 | 0. | 0 | 5999 | 0% | |
| | Aug '08 | 0 | 16. | 0. | | 16. | 6015 | 117. | 117 | 6132 | 2% | START - UP |
| | Sep '08 | 1 | 0. | 0. | | 0. | 6015 | 86. | 203 | 6218 | 3% | |
| | Oct '08 | 2 | 0. | 0. | | 0. | 6015 | 166. | 369 | 6384 | 6% | |
| | Nov '08 | 3 | 23. | 0. | | 23. | 6038 | 103. | 472 | 6510 | 7% | |
| | Dec '08 | 4 | 162. | 0. | | 162. | 6200 | 88. | 560 | 6760 | 8% | |
| | Jan '09 | 5 | 25. | 0. | | 25. | 6225 | 277. | 837 | 7062 | 12% | |
| | Feb '09 | 6 | 208. | 0. | | 208. | 6433 | 20. | 857 | 7290 | 12% | |
| | Mar '09 | 7 | 30. | 0. | | 30. | 6463 | 159. | 1016 | 7479 | 14% | |
| | Apr '09 | 8 | 1. | 0. | | 1. | 6464 | 296. | 1312 | 7776 | 17% | |
| | May '09 | 9 | 17. | 0. | | 17. | 6481 | 115. | 1427 | 7908 | 18% | |
| | Jun '09 | 10 | 0. | 0. | | 0. | 6481 | 178. | 1605 | 8086 | 20% | |
| 2009/10 | Jul '09 | 11 | 1. | 0. | | 1. | 6482 | 6. | 1611 | 8093 | 20% | SUP |
| | Aug '09 | 12 | 0. | 0. | | 0. | 6482 | 8. | 1619 | 8101 | 20% | |
| | Sep '09 | 13 | 0. | 0. | | 0. | 6482 | 0. | 1619 | 8101 | 20% | |
| | Oct '09 | 14 | 13. | 0. | 509.2 | 522.2 | 7004 | 184. | 1803 | 8807 | 20% | |
| | Nov '09 | 15 | 4. | 0. | 509.2 | 513.2 | 7518 | 246. | 2049 | 9567 | 21% | |
| | Dec '09 | 16 | 129. | 0. | 509.2 | 638.2 | 8156 | 144. | 2193 | 10349 | 21% | |
| | Jan '10 | 17 | 251. | 0. | 509.2 | 760.2 | 8916 | 74. | 2267 | 11183 | 20% | HISTORICAL |
| | Feb '10 | 18 | 215. | 0. | 509.2 | 724.2 | 9640 | 54. | 2321 | 11961 | 19% | |
| | Mar '10 | 19 | 27. | 0. | 509.2 | 536.2 | 10177 | 180. | 2501 | 12678 | 20% | |
| | Apr '10 | 20 | 23. | 0. | 509.2 | 532.2 | 10709 | 235. | 2736 | 13445 | 20% | |
| | May '10 | 21 | 2. | 0. | 509.2 | 511.2 | 11220 | 356. | 3092 | 14312 | 22% | |
| | Jun '10 | 22 | 1. | 0. | 509.2 | 510.2 | 11730 | 208. | 3300 | 15030 | 22% | |
| 2010/11 | Jul '10 | 23 | 1. | 0. | 509.2 | 510.2 | 12240 | 147. | 3447 | 15687 | 22% | |
| | Aug '10 | 24 | 18. | 0. | 509.2 | 527.2 | 12768 | 275. | 3722 | 16490 | 23% | |
| | Sep '10 | 25 | 1. | 0. | 509.2 | 510.2 | 13278 | 141. | 3863 | 17141 | 23% | |
| | Oct '10 | 26 | 24. | 0. | 509.2 | 533.2 | 13811 | 130. | 3993 | 17804 | 22% | |
| | Nov '10 | 27 | 44. | 0. | 509.2 | 553.2 | 14364 | 87. | 4080 | 18444 | 22% | |
| | Dec '10 | 28 | 282. | 0. | 509.2 | 791.2 | 15156 | 34. | 4114 | 19270 | 21% | |
| | Jan '11 | 29 | 112. | 0. | 509.2 | 621.2 | 15777 | 0. | 4114 | 19891 | 21% | |
| | Feb '11 | 30 | 164. | 0. | 509.2 | 673.2 | 16450 | 0. | 4114 | 20564 | 20% | |
| | Mar '11 | 31 | 142. | 0. | 509.2 | 651.2 | 17101 | 0. | 4114 | 21215 | 19% | |
| | Apr '11 | 32 | 1. | 0. | 509.2 | 510.2 | 17611 | 174. | 4288 | 21899 | 20% | |
| | May '11 | 33 | 10. | 0. | 509.2 | 519.2 | 18131 | 162. | 4450 | 22581 | 20% | |
| | Jun '11 | 34 | 1. | 0. | 509.2 | 510.2 | 18641 | 223. | 4673 | 23314 | 20% | |
| 2011/12 | Jul '11 | 35 | 2. | 235.6 | 509.2 | 746.8 | 19388 | 0. | 4673 | 24061 | 19% | |
| | Aug '11 | 36 | 2. | 183.4 | 509.2 | 694.6 | 20082 | 0. | 4673 | 24755 | 19% | |
| | Sep '11 | 37 | 12. | 141.5 | 509.2 | 662.7 | 20745 | 0. | 4673 | 25418 | 18% | |
| | Oct '11 | 38 | 18. | 0. | 509.2 | 527.2 | 21272 | 80. | 4753 | 26025 | 18% | |
| | Nov '11 | 39 | 50. | 0. | 509.2 | 559.2 | 21832 | 36. | 4789 | 26621 | 18% | |
| | Dec '11 | 40 | 16. | 0. | 509.2 | 525.2 | 22357 | 98. | 4887 | 27244 | 18% | |
| | Jan '12 | 41 | 45. | 0. | 509.2 | 554.2 | 22911 | 142. | 5029 | 27940 | 18% | |
| | Feb '12 | 42 | 50. | 0. | 509.2 | 559.2 | 23470 | 77. | 5106 | 28576 | 18% | |
| | Mar '12 | 43 | 103. | 0. | 509.2 | 612.2 | 24082 | 85. | 5191 | 29273 | 18% | |
| | Apr '12 | 44 | 64. | 0. | 509.2 | 573.2 | 24656 | 32. | 5223 | 29879 | 17% | |
| | May '12 | 45 | 1. | 0. | 509.2 | 510.2 | 25166 | 125. | 5348 | 30514 | 18% | |
| | Jun '12 | 46 | 0. | 0. | 509.2 | 509.2 | 25675 | 161. | 5509 | 31184 | 18% | |
| 2012/13 | Jul '12 | 47 | 1. | 0. | 509.2 | 510.2 | 26185 | 33. | 5542 | 31727 | 17% | |
| | Aug '12 | 48 | 2. | 0. | 509.2 | 511.2 | 26697 | 39. | 5581 | 32278 | 17% | |
| | Sep '12 | 49 | 2. | 0. | 509.2 | 511.2 | 27208 | 51. | 5632 | 32840 | 17% | |
| | Oct '12 | 50 | 0. | 0. | 509.2 | 509.2 | 27717 | 0. | 5632 | 33349 | 17% | |
| | Nov '12 | 51 | 0. | 0. | 509.2 | 509.2 | 28226 | 0. | 5632 | 33858 | 17% | |
| | Dec '12 | 52 | 0. | 0. | 509.2 | 509.2 | 28735 | 0. | 5632 | 34367 | 16% | |
| | Jan '13 | 53 | 35. | 0. | 509.2 | 544.2 | 29280 | 342. | 5974 | 35254 | 17% | |
| | Feb '13 | 54 | 26. | 0. | 509.2 | 535.2 | 29815 | 299. | 6273 | 36088 | 17% | |
| | Mar '13 | 55 | 32. | 0. | 509.2 | 541.2 | 30356 | 238. | 6511 | 36867 | 18% | |
| | Apr '13 | 56 | 0. | 0. | 509.2 | 509.2 | 30865 | 231. | 6742 | 37607 | 18% | |
| | May '13 | 57 | 17. | 0. | 509.2 | 526.2 | 31392 | 152. | 6894 | 38286 | 18% | |
| | Jun '13 | 58 | 1. | 0. | 509.2 | 510.2 | 31902 | 120. | 7014 | 38916 | 18% | |
| 2013/14 | Jul '13 | 59 | 1. | 0. | 509.2 | 510.2 | 32412 | 169. | 7183 | 39595 | 18% | |
| | Aug '13 | 60 | 1. | 0. | 509.2 | 510.2 | 32922 | 197. | 7380 | 40302 | 18% | |
| | Sep '13 | 61 | 28. | 0. | 509.2 | 537.2 | 33459 | 182. | 7562 | 41021 | 18% | |
| | Oct '13 | 62 | 23. | 0. | 509.2 | 532.2 | 33992 | 108. | 7670 | 41662 | 18% | |
| | Nov '13 | 63 | 4. | 0. | 509.2 | 513.2 | 34505 | 94. | 7764 | 42269 | 18% | |
| | Dec '13 | 64 | 8. | 0. | 509.2 | 517.2 | 35022 | 104. | 7868 | 42890 | 18% | |
| | Jan '14 | 65 | 3. | 0. | 509.2 | 512.2 | 35534 | 109. | 7977 | 43511 | 18% | |
| | Feb '14 | 66 | 47. | 0. | 509.2 | 556.2 | 36091 | 102. | 8079 | 44170 | 18% | |
| | Mar '14 | 67 | 12. | 0. | 509.2 | 521.2 | 36612 | 130. | 8209 | 44821 | 18% | |
| | Apr '14 | 68 | 14. | 0. | 509.2 | 523.2 | 37135 | 65. | 8274 | 45409 | 18% | |
| | May '14 | 69 | 0. | 0. | 509.2 | 509.2 | 37644 | 0. | 8274 | 45918 | 18% | |
| | Jun '14 | 70 | 19. | 0. | 509.2 | 528.2 | 38172 | 48. | 8322 | 46494 | 18% | |

# RWC Management Plan for Brooks Street Basins

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 71 | 0. | 0. | 509.2 | 509.2 | 38682 | 72. | 8394 | 47076 | 18% | HIST |
| | Aug '14 | 72 | 7. | 0. | 509.2 | 516.2 | 39198 | 141. | 8535 | 47733 | 18% | |
| | Sep '14 | 73 | 1. | 0. | 509.2 | 510.2 | 39708 | 157. | 8692 | 48400 | 18% | |
| | Oct '14 | 74 | 6. | 0. | 509.2 | 515.2 | 40223 | 56. | 8748 | 48971 | 18% | |
| | Nov '14 | 75 | 28. | 0. | 509.2 | 537.2 | 40761 | 37. | 8785 | 49546 | 18% | |
| | Dec '14 | 76 | 95. | 0. | 509.2 | 604.2 | 41365 | 0. | 8785 | 50150 | 18% | |
| | Jan '15 | 77 | 19. | 0. | 509.2 | 528.2 | 41893 | 10. | 8795 | 50688 | 17% | |
| | Feb '15 | 78 | 27. | 0. | 509.2 | 536.2 | 42429 | 92. | 8887 | 51316 | 17% | |
| | Mar '15 | 79 | 63. | | 509.2 | 572.2 | 43002 | 100. | 8987 | 51989 | 17% | PLANNED |
| | Apr '15 | 80 | 41. | | 509.2 | 550.2 | 43552 | 175. | 9162 | 52714 | 17% | |
| | May '15 | 81 | 12. | | 509.2 | 521.2 | 44073 | 250. | 9412 | 53485 | 18% | |
| | Jun '15 | 82 | 3. | | 509.2 | 512.2 | 44585 | 275. | 9687 | 54272 | 18% | |
| 2015/16 | Jul '15 | 83 | 4. | | 509.2 | 513.2 | 45066 | 75. | 9762 | 54828 | 18% | |
| | Aug '15 | 84 | 7. | | 509.2 | 516.2 | 45407 | 0. | 9762 | 55169 | 18% | |
| | Sep '15 | 85 | 9. | | 509.2 | 518.2 | 45241 | 75. | 9837 | 55078 | 18% | |
| | Oct '15 | 86 | 14. | | 509.2 | 523.2 | 45637 | 75. | 9912 | 55549 | 18% | |
| | Nov '15 | 87 | 27. | | 509.2 | 536.2 | 45783 | 75. | 9987 | 55770 | 18% | |
| | Dec '15 | 88 | 80. | | 509.2 | 589.2 | 46009 | 75. | 10062 | 56071 | 18% | |
| | Jan '16 | 89 | 81. | | 509.2 | 590.2 | 46343 | 0. | 10062 | 56405 | 18% | |
| | Feb '16 | 90 | 101. | | 509.2 | 610.2 | 46560 | 0. | 10062 | 56622 | 18% | |
| | Mar '16 | 91 | 63. | | 509.2 | 572.2 | 46918 | 100. | 10162 | 57080 | 18% | |
| | Apr '16 | 92 | 41. | | 509.2 | 550.2 | 47206 | 175. | 10337 | 57543 | 18% | |
| | May '16 | 93 | 12. | | 509.2 | 521.2 | 47427 | 250. | 10587 | 58014 | 18% | |
| | Jun '16 | 94 | 3. | | 509.2 | 512.2 | 47568 | 275. | 10862 | 58430 | 19% | |
| 2016/17 | Jul '16 | 95 | 4. | | 509.2 | 513.2 | 47875 | 75. | 10937 | 58812 | 19% | |
| | Aug '16 | 96 | 7. | | 509.2 | 516.2 | 48240 | 0. | 10937 | 59177 | 18% | |
| | Sep '16 | 97 | 9. | | 509.2 | 518.2 | 48416 | 75. | 11012 | 59428 | 19% | |
| | Oct '16 | 98 | 14. | | 509.2 | 523.2 | 48632 | 75. | 11087 | 59719 | 19% | |
| | Nov '16 | 99 | 27. | | 509.2 | 536.2 | 48881 | 75. | 11162 | 60043 | 19% | |
| | Dec '16 | 100 | 80. | | 509.2 | 589.2 | 49208 | 75. | 11237 | 60445 | 19% | |
| | Jan '17 | 101 | 81. | | 509.2 | 590.2 | 49686 | 0. | 11237 | 60923 | 18% | |
| | Feb '17 | 102 | 101. | | 509.2 | 610.2 | 50167 | 0. | 11237 | 61404 | 18% | |
| | Mar '17 | 103 | 63. | | 509.2 | 572.2 | 50736 | 100. | 11337 | 62073 | 18% | |
| | Apr '17 | 104 | 41. | | 509.2 | 550.2 | 51184 | 175. | 11512 | 62696 | 18% | |
| | May '17 | 105 | 12. | | 509.2 | 521.2 | 51701 | 250. | 11762 | 63463 | 19% | |
| | Jun '17 | 106 | 3. | | 509.2 | 512.2 | 52211 | 275. | 12037 | 64248 | 19% | |
| 2017/18 | Jul '17 | 107 | 4. | | 509.2 | 513.2 | 52725 | 75. | 12112 | 64837 | 19% | |
| | Aug '17 | 108 | 7. | | 509.2 | 516.2 | 53241 | 0. | 12112 | 65353 | 19% | |
| | Sep '17 | 109 | 9. | | 509.2 | 518.2 | 53734 | 75. | 12187 | 65921 | 18% | |
| | Oct '17 | 110 | 14. | | 509.2 | 523.2 | 54222 | 75. | 12262 | 66484 | 18% | |
| | Nov '17 | 111 | 27. | | 509.2 | 536.2 | 54735 | 75. | 12337 | 67072 | 18% | |
| | Dec '17 | 112 | 80. | | 509.2 | 589.2 | 55282 | 75. | 12412 | 67694 | 18% | |
| | Jan '18 | 113 | 81. | | 509.2 | 590.2 | 55590 | 0. | 12412 | 68002 | 18% | |
| | Feb '18 | 114 | 101. | | 509.2 | 610.2 | 56150 | 0. | 12412 | 68562 | 18% | |
| | Mar '18 | 115 | 63. | | 509.2 | 572.2 | 56713 | 100. | 12512 | 69225 | 18% | |
| | Apr '18 | 116 | 41. | | 509.2 | 550.2 | 57260 | 175. | 12687 | 69947 | 18% | |
| | May '18 | 117 | 12. | | 509.2 | 521.2 | 57738 | 250. | 12937 | 70675 | 18% | |
| | Jun '18 | 118 | 3. | | 509.2 | 512.2 | 58247 | 275. | 13212 | 71459 | 18% | |
| 2018/19 | Jul '18 | 119 | 4. | | 509.2 | 513.2 | 58757 | 75. | 13287 | 72044 | 18% | |
| | Aug '18 | 120 | 7. | | 509.2 | 516.2 | 59258 | 0. | 13170 | 72428 | 18% | |
| | Sep '18 | 121 | 9. | | 509.2 | 518.2 | 59776 | 75. | 13159 | 72935 | 18% | |
| | Oct '18 | 122 | 14. | | 509.2 | 523.2 | 60299 | 75. | 13068 | 73367 | 18% | |
| | Nov '18 | 123 | 27. | | 509.2 | 536.2 | 60812 | 75. | 13040 | 73852 | 18% | |
| | Dec '18 | 124 | 80. | | 509.2 | 589.2 | 61239 | 75. | 13027 | 74266 | 18% | |
| | Jan '19 | 125 | 81. | | 509.2 | 590.2 | 61805 | 0. | 12750 | 74555 | 17% | |
| | Feb '19 | 126 | 101. | | 509.2 | 610.2 | 62207 | 0. | 12730 | 74937 | 17% | |
| | Mar '19 | 127 | 63. | | 509.2 | 572.2 | 62749 | 100. | 12671 | 75420 | 17% | |
| | Apr '19 | 128 | 41. | | 509.2 | 550.2 | 63298 | 175. | 12550 | 75848 | 17% | |
| | May '19 | 129 | 12. | | 509.2 | 521.2 | 63803 | 250. | 12685 | 76488 | 17% | |
| | Jun '19 | 130 | 3. | | 509.2 | 512.2 | 64315 | 275. | 12782 | 77097 | 17% | |
| 2019/20 | Jul '19 | 131 | 4. | | 509.2 | 513.2 | 64827 | 75. | 12851 | 77678 | 17% | |
| | Aug '19 | 132 | 7. | | 509.2 | 516.2 | 65343 | 0. | 12843 | 78186 | 16% | |
| | Sep '19 | 133 | 9. | | 509.2 | 518.2 | 65861 | 75. | 12918 | 78779 | 16% | |
| | Oct '19 | 134 | 14. | | 509.2 | 523.2 | 65862 | 75. | 12809 | 78671 | 16% | |
| | Nov '19 | 135 | 27. | | 509.2 | 536.2 | 65885 | 75. | 12638 | 78523 | 16% | |
| | Dec '19 | 136 | 80. | | 509.2 | 589.2 | 65836 | 75. | 12569 | 78405 | 16% | |
| | Jan '20 | 137 | 81. | | 509.2 | 590.2 | 65666 | 0. | 12495 | 78161 | 16% | |
| | Feb '20 | 138 | 101. | | 509.2 | 610.2 | 65552 | 0. | 12441 | 77993 | 16% | |
| | Mar '20 | 139 | 63. | | 509.2 | 572.2 | 65588 | 100. | 12361 | 77949 | 16% | |
| | Apr '20 | 140 | 41. | | 509.2 | 550.2 | 65606 | 175. | 12301 | 77907 | 16% | |
| | May '20 | 141 | 12. | | 509.2 | 521.2 | 65616 | 250. | 12195 | 77811 | 16% | |
| | Jun '20 | 142 | 3. | | 509.2 | 512.2 | 65618 | 275. | 12262 | 77880 | 16% | |

## RWC Management Plan for Brooks Street Basins

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/21 | Jul '20 | 143 | 4. | | 509.2 | 513.2 | 65621 | 75. | 12190 | 77811 | 16% | PLANNED |
| | Aug '20 | 144 | 7. | | 509.2 | 516.2 | 65610 | 0. | 11915 | 77525 | 15% | |
| | Sep '20 | 145 | 9. | | 509.2 | 518.2 | 65618 | 75. | 11849 | 77467 | 15% | |
| | Oct '20 | 146 | 14. | | 509.2 | 523.2 | 65608 | 75. | 11794 | 77402 | 15% | |
| | Nov '20 | 147 | 27. | | 509.2 | 536.2 | 65591 | 75. | 11782 | 77373 | 15% | |
| | Dec '20 | 148 | 80. | | 509.2 | 589.2 | 65389 | 75. | 11823 | 77212 | 15% | |
| | Jan '21 | 149 | 81. | | 509.2 | 590.2 | 65358 | 0. | 11823 | 77181 | 15% | |
| | Feb '21 | 150 | 101. | | 509.2 | 610.2 | 65295 | 0. | 11823 | 77118 | 15% | |
| | Mar '21 | 151 | 63. | | 509.2 | 572.2 | 65216 | 100. | 11923 | 77139 | 15% | |
| | Apr '21 | 152 | 41. | | 509.2 | 550.2 | 65256 | 175. | 11924 | 77180 | 15% | |
| | May '21 | 153 | 12. | | 509.2 | 521.2 | 65258 | 250. | 12012 | 77270 | 16% | |
| | Jun '21 | 154 | 3. | | 509.2 | 512.2 | 65260 | 275. | 12064 | 77324 | 16% | |
| 2021/22 | Jul '21 | 155 | 4. | | 509.2 | 513.2 | 65027 | 75. | 12139 | 77166 | 16% | |
| | Aug '21 | 156 | 7. | | 509.2 | 516.2 | 64848 | 0. | 12139 | 76987 | 16% | |
| | Sep '21 | 157 | 9. | | 509.2 | 518.2 | 64704 | 75. | 12214 | 76918 | 16% | |
| | Oct '21 | 158 | 14. | | 509.2 | 523.2 | 64700 | 75. | 12209 | 76909 | 16% | |
| | Nov '21 | 159 | 27. | | 509.2 | 536.2 | 64677 | 75. | 12248 | 76925 | 16% | |
| | Dec '21 | 160 | 80. | | 509.2 | 589.2 | 64741 | 75. | 12225 | 76966 | 16% | |
| | Jan '22 | 161 | 81. | | 509.2 | 590.2 | 64777 | 0. | 12083 | 76860 | 16% | |
| | Feb '22 | 162 | 101. | | 509.2 | 610.2 | 64828 | 0. | 12006 | 76834 | 16% | |
| | Mar '22 | 163 | 63. | | 509.2 | 572.2 | 64788 | 100. | 12021 | 76809 | 16% | |
| | Apr '22 | 164 | 41. | | 509.2 | 550.2 | 64765 | 175. | 12164 | 76929 | 16% | |
| | May '22 | 165 | 12. | | 509.2 | 521.2 | 64776 | 250. | 12289 | 77065 | 16% | |
| | Jun '22 | 166 | 3. | | 509.2 | 512.2 | 64779 | 275. | 12403 | 77182 | 16% | |
| 2022/23 | Jul '22 | 167 | 4. | | 509.2 | 513.2 | 64782 | 75. | 12445 | 77227 | 16% | |
| | Aug '22 | 168 | 7. | | 509.2 | 516.2 | 64787 | 0. | 12406 | 77193 | 16% | |
| | Sep '22 | 169 | 9. | | 509.2 | 518.2 | 64794 | 75. | 12430 | 77224 | 16% | |
| | Oct '22 | 170 | 14. | | 509.2 | 523.2 | 64808 | 75. | 12505 | 77313 | 16% | |
| | Nov '22 | 171 | 27. | | 509.2 | 536.2 | 64835 | 75. | 12580 | 77415 | 16% | |
| | Dec '22 | 172 | 80. | | 509.2 | 589.2 | 64915 | 75. | 12655 | 77570 | 16% | |
| | Jan '23 | 173 | 81. | | 509.2 | 590.2 | 64961 | 0. | 12313 | 77274 | 16% | |
| | Feb '23 | 174 | 101. | | 509.2 | 610.2 | 65036 | 0. | 12014 | 77050 | 16% | |
| | Mar '23 | 175 | 63. | | 509.2 | 572.2 | 65067 | 100. | 11876 | 76943 | 15% | |
| | Apr '23 | 176 | 41. | | 509.2 | 550.2 | 65108 | 175. | 11820 | 76928 | 15% | |
| | May '23 | 177 | 12. | | 509.2 | 521.2 | 65103 | 250. | 11918 | 77021 | 15% | |
| | Jun '23 | 178 | 3. | | 509.2 | 512.2 | 65105 | 275. | 12073 | 77178 | 16% | |
| 2023/24 | Jul '23 | 179 | 4. | | 509.2 | 513.2 | 65108 | 75. | 11979 | 77087 | 16% | |
| | Aug '23 | 180 | 7. | | 509.2 | 516.2 | 65114 | 0. | 11782 | 76896 | 15% | |
| | Sep '23 | 181 | 9. | | 509.2 | 518.2 | 65095 | 75. | 11675 | 76770 | 15% | |
| | Oct '23 | 182 | 14. | | 509.2 | 523.2 | 65086 | 75. | 11642 | 76728 | 15% | |
| | Nov '23 | 183 | 27. | | 509.2 | 536.2 | 65109 | 75. | 11623 | 76732 | 15% | |
| | Dec '23 | 184 | 80. | | 509.2 | 589.2 | 65181 | 75. | 11594 | 76775 | 15% | |
| | Jan '24 | 185 | 81. | | 509.2 | 590.2 | 65259 | 0. | 11485 | 76744 | 15% | |
| | Feb '24 | 186 | 101. | | 509.2 | 610.2 | 65313 | 0. | 11383 | 76696 | 15% | |
| | Mar '24 | 187 | 63. | | 509.2 | 572.2 | 65364 | 100. | 11353 | 76717 | 15% | |
| | Apr '24 | 188 | 41. | | 509.2 | 550.2 | 65391 | 175. | 11463 | 76854 | 15% | |
| | May '24 | 189 | 12. | | 509.2 | 521.2 | 65403 | 250. | 11713 | 77116 | 15% | |
| | Jun '24 | 190 | 3. | | 509.2 | 512.2 | 65387 | 275. | 11940 | 77327 | 15% | |

**Notes:**

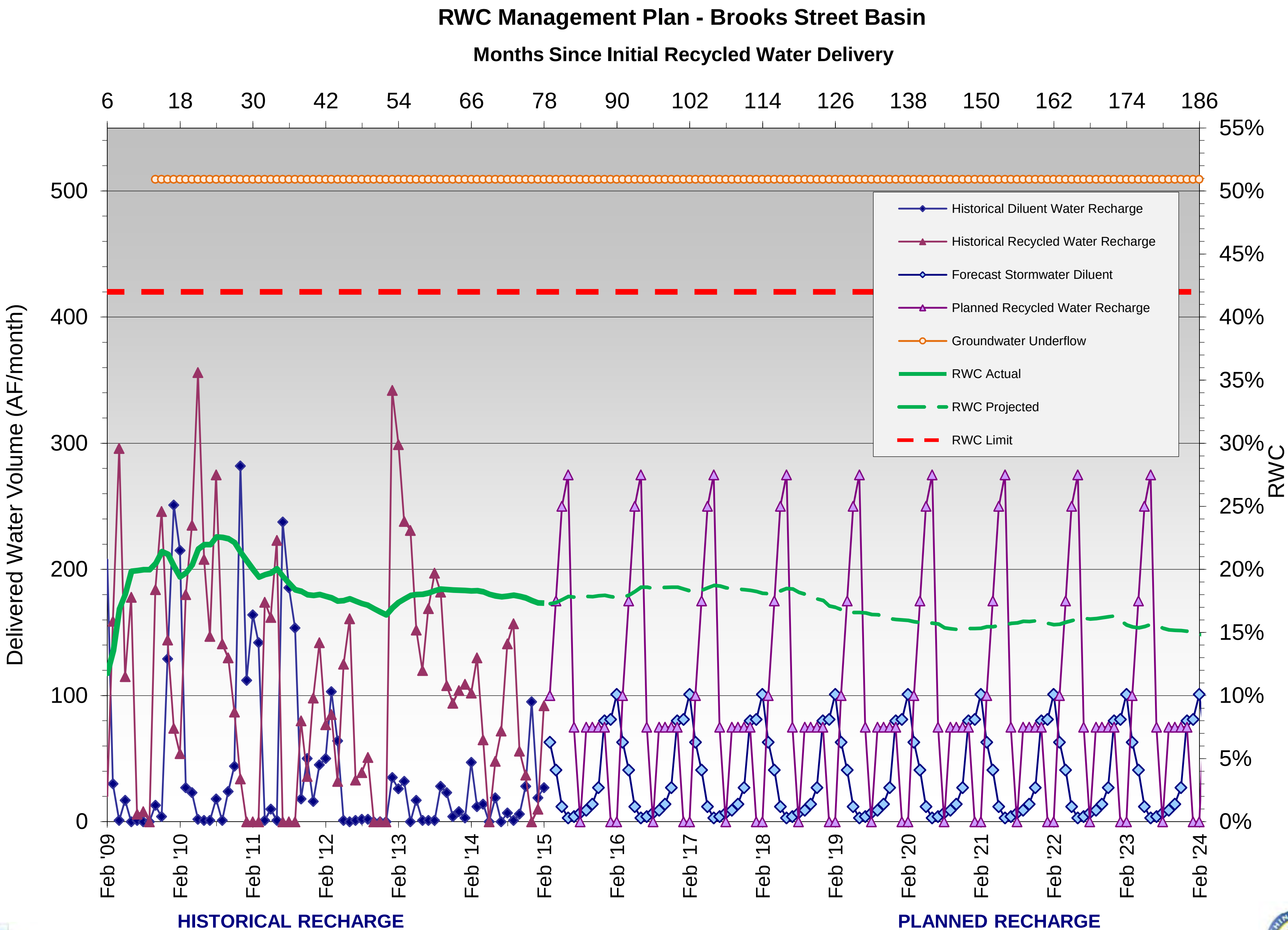
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan - Brooks Street Basin
Months Since Initial Recycled Water Delivery
6
18
30
42
54
66
78
90
102
114
126
138
150
162
174
186
Delivered Water Volume (AF/month)
0
100
200
300
400
500
RWC
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
50%
55%
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Diluent
Planned Recycled Water Recharge
Groundwater Underflow
RWC Actual
RWC Projected
RWC Limit
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

# RWC Management Plan for Ely Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/2009 | Jul '08 | 106 | 17 | 0 | | 17 | 16,176 | 67 | 3,083 | 19,259 | 16% | HISTORICAL |
| | Aug '08 | 107 | 8 | 0 | | 8 | 16,075 | 0 | 3,083 | 19,158 | 16% | |
| | Sep '08 | 108 | 5 | 0 | | 5 | 15,952 | 0 | 3,083 | 19,035 | 16% | |
| | Oct '08 | 109 | 17 | 0 | | 17 | 15,908 | 135 | 3,218 | 19,126 | 17% | |
| | Nov '08 | 110 | 114 | 0 | | 114 | 15,937 | 88 | 3,306 | 19,243 | 17% | |
| | Dec '08 | 111 | 287 | 0 | | 287 | 16,112 | 0 | 3,306 | 19,418 | 17% | |
| | Jan '09 | 112 | 38 | 0 | | 38 | 15,938 | 39 | 3,345 | 19,283 | 17% | |
| | Feb '09 | 113 | 409 | 0 | | 409 | 16,210 | 9 | 3,354 | 19,564 | 17% | |
| | Mar '09 | 114 | 48 | 0 | | 48 | 16,095 | 0 | 3,354 | 19,449 | 17% | |
| | Apr '09 | 115 | 135 | 0 | | 135 | 15,915 | 15 | 3,369 | 19,284 | 17% | |
| | May '09 | 116 | 68 | 0 | | 68 | 15,885 | 11 | 3,380 | 19,265 | 18% | |
| | Jun '09 | 117 | 24 | 0 | | 24 | 15,871 | 0 | 3,380 | 19,251 | 18% | |
| 2009/2010 | Jul '09 | 118 | 0 | 0 | | 0 | 15,858 | 0 | 3,380 | 19,238 | 18% | |
| | Aug '09 | 119 | 21 | 0 | | 21 | 15,804 | 0 | 3,380 | 19,184 | 18% | |
| | Sep '09 | 120 | 202 | 0 | | 202 | 15,932 | 24 | 3,318 | 19,250 | 17% | |
| | Oct '09 | 121 | 187 | 0 | 286 | 473 | 16,342 | 102 | 3,255 | 19,597 | 17% | |
| | Nov '09 | 122 | 282 | 0 | 286 | 568 | 16,904 | 120 | 3,259 | 20,163 | 16% | |
| | Dec '09 | 123 | 242 | 0 | 286 | 528 | 17,395 | 0 | 3,147 | 20,541 | 15% | |
| | Jan '10 | 124 | 319 | 0 | 286 | 605 | 17,881 | 0 | 3,119 | 21,000 | 15% | |
| | Feb '10 | 125 | 221 | 0 | 286 | 507 | 18,058 | 0 | 3,119 | 21,178 | 15% | |
| | Mar '10 | 126 | 104 | 0 | 286 | 390 | 18,129 | 0 | 3,119 | 21,248 | 15% | |
| | Apr '10 | 127 | 394 | 0 | 286 | 680 | 18,504 | 0 | 3,119 | 21,623 | 14% | |
| | May '10 | 128 | 98 | 0 | 286 | 384 | 18,757 | 0 | 3,119 | 21,876 | 14% | |
| | Jun '10 | 129 | 0 | 0 | 286 | 286 | 18,926 | 0 | 3,119 | 22,046 | 14% | |
| 2010/2011 | Jul '10 | 130 | 0 | 0 | 286 | 286 | 19,154 | 0 | 3,054 | 22,208 | 14% | |
| | Aug '10 | 131 | 0 | 0 | 286 | 286 | 19,434 | 0 | 2,909 | 22,342 | 13% | |
| | Sep '10 | 132 | 0 | 0 | 286 | 286 | 19,711 | 0 | 2,774 | 22,485 | 12% | |
| | Oct '10 | 133 | 29 | 0 | 286 | 315 | 19,876 | 114 | 2,762 | 22,638 | 12% | |
| | Nov '10 | 134 | 127 | 0 | 286 | 413 | 20,204 | 120 | 2,882 | 23,086 | 12% | |
| | Dec '10 | 135 | 572 | 0 | 286 | 858 | 20,946 | 12 | 2,894 | 23,840 | 12% | |
| | Jan '11 | 136 | 104 | 0 | 286 | 390 | 21,006 | 0 | 2,894 | 23,900 | 12% | |
| | Feb '11 | 137 | 323 | 0 | 286 | 609 | 21,285 | 43 | 2,937 | 24,223 | 12% | |
| | Mar '11 | 138 | 236 | 0 | 286 | 522 | 21,698 | 0 | 2,937 | 24,635 | 12% | |
| | Apr '11 | 139 | 3 | 0 | 286 | 289 | 21,712 | 107 | 3,044 | 24,757 | 12% | |
| | May '11 | 140 | 13 | 0 | 286 | 299 | 21,908 | 155 | 3,199 | 25,107 | 13% | |
| | Jun '11 | 141 | 8 | 83 | 286 | 377 | 22,272 | 206 | 3,376 | 25,648 | 13% | |
| 2011/2012 | Jul '11 | 142 | 18 | 285 | 286 | 589 | 22,847 | 176 | 3,552 | 26,399 | 13% | |
| | Aug '11 | 143 | 16 | 275 | 286 | 577 | 23,414 | 141 | 3,662 | 27,076 | 14% | |
| | Sep '11 | 144 | 19 | 325 | 286 | 630 | 24,018 | 6 | 3,490 | 27,508 | 13% | |
| | Oct '11 | 145 | 215 | 0 | 286 | 501 | 24,443 | 0 | 3,304 | 27,746 | 12% | |
| | Nov '11 | 146 | 211 | 0 | 286 | 497 | 24,611 | 0 | 3,194 | 27,806 | 11% | |
| | Dec '11 | 147 | 36 | 0 | 286 | 322 | 24,820 | 0 | 3,194 | 28,015 | 11% | |
| | Jan '12 | 148 | 89 | 0 | 286 | 375 | 25,018 | 64 | 3,258 | 28,276 | 12% | |
| | Feb '12 | 149 | 95 | 0 | 286 | 381 | 25,293 | 6 | 3,264 | 28,557 | 11% | |
| | Mar '12 | 150 | 247 | 0 | 286 | 533 | 25,607 | 0 | 3,264 | 28,872 | 11% | |
| | Apr '12 | 151 | 135 | 0 | 286 | 421 | 25,908 | 0 | 3,264 | 29,172 | 11% | |
| | May '12 | 152 | 3 | 0 | 286 | 289 | 26,111 | 0 | 3,264 | 29,375 | 11% | |
| | Jun '12 | 153 | 12 | 0 | 286 | 298 | 26,393 | 0 | 3,264 | 29,658 | 11% | |
| 2012/2013 | Jul '12 | 154 | 7 | 0 | 286 | 293 | 26,571 | 0 | 3,264 | 29,835 | 11% | |
| | Aug '12 | 155 | 7 | 0 | 286 | 293 | 26,728 | 0 | 3,264 | 29,992 | 11% | |
| | Sep '12 | 156 | 5 | 0 | 286 | 291 | 26,922 | 0 | 3,264 | 30,187 | 11% | |
| | Oct '12 | 157 | 5 | 0 | 286 | 291 | 27,034 | 0 | 3,264 | 30,298 | 11% | |
| | Nov '12 | 158 | 9 | 0 | 286 | 295 | 26,999 | 80 | 3,344 | 30,343 | 11% | |
| | Dec '12 | 159 | 335 | 0 | 286 | 621 | 27,290 | 67 | 3,411 | 30,702 | 11% | |
| | Jan '13 | 160 | 72 | 0 | 286 | 358 | 27,472 | 145 | 3,556 | 31,028 | 11% | |
| | Feb '13 | 161 | 37 | 0 | 286 | 323 | 27,465 | 225 | 3,781 | 31,246 | 12% | |
| | Mar '13 | 162 | 63 | 0 | 286 | 349 | 27,484 | 314 | 4,095 | 31,580 | 13% | |
| | Apr '13 | 163 | 1 | 0 | 286 | 287 | 27,441 | 79 | 4,174 | 31,616 | 13% | |
| | May '13 | 164 | 23 | 0 | 286 | 309 | 27,420 | 259 | 4,403 | 31,824 | 14% | |
| | Jun '13 | 165 | 4 | 0 | 286 | 290 | 27,599 | 209 | 4,458 | 32,057 | 14% | |
| 2013/2014 | Jul '13 | 166 | 6 | 0 | 286 | 292 | 27,786 | 157 | 4,615 | 32,401 | 14% | |
| | Aug '13 | 167 | 4 | 0 | 286 | 290 | 28,044 | 334 | 4,949 | 32,993 | 15% | |
| | Sep '13 | 168 | 6 | 0 | 286 | 292 | 28,325 | 457 | 5,406 | 33,731 | 16% | |
| | Oct '13 | 169 | 0 | 0 | 286 | 286 | 28,600 | 358 | 5,764 | 34,364 | 17% | |
| | Nov '13 | 170 | 21 | 0 | 286 | 307 | 28,803 | 421 | 6,185 | 34,988 | 18% | |
| | Dec '13 | 171 | 24 | 0 | 286 | 310 | 28,920 | 413 | 6,598 | 35,518 | 19% | |
| | Jan '14 | 172 | 8 | 0 | 286 | 294 | 29,181 | 211 | 6,809 | 35,990 | 19% | |
| | Feb '14 | 173 | 294 | 0 | 286 | 580 | 29,431 | 194 | 7,003 | 36,434 | 19% | |
| | Mar '14 | 174 | 63 | 0 | 286 | 349 | 29,606 | 108 | 7,111 | 36,717 | 19% | |
| | Apr '14 | 175 | 83 | 0 | 286 | 369 | 29,907 | 218 | 7,329 | 37,236 | 20% | |
| | May '14 | 176 | 9 | 0 | 286 | 295 | 30,185 | 241 | 7,565 | 37,750 | 20% | |
| | Jun '14 | 177 | 15 | 0 | 286 | 301 | 30,473 | 186 | 7,707 | 38,181 | 20% | |

# RWC Management Plan for Ely Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/2015 | Jul '14 | 178 | 16 | 0 | 286 | 302 | 30,761 | 101 | 7,762 | 38,524 | 20% | HIST |
| | Aug '14 | 179 | 16 | 0 | 286 | 302 | 30,969 | 8 | 7,722 | 38,692 | 20% | |
| | Sep '14 | 180 | 15 | 0 | 286 | 301 | 31,092 | 121 | 7,802 | 38,894 | 20% | |
| | Oct '14 | 181 | 16 | 0 | 286 | 302 | 31,064 | 286 | 8,065 | 39,129 | 21% | |
| | Nov '14 | 182 | 170 | 0 | 286 | 456 | 31,190 | 70 | 8,135 | 39,326 | 21% | |
| | Dec '14 | 183 | 392 | 0 | 286 | 678 | 31,539 | 5 | 8,140 | 39,679 | 21% | |
| | Jan '15 | 184 | 44 | 0 | 286 | 330 | 31,539 | 183 | 8,323 | 39,862 | 21% | |
| | Feb '15 | 185 | 72 | 0 | 286 | 358 | 31,567 | 222 | 8,545 | 40,112 | 21% | |
| | Mar '15 | 186 | 178 | | 286 | 464 | 31,793 | 50 | 8,595 | 40,388 | 21% | PLANNED |
| | Apr '15 | 187 | 182 | | 286 | 468 | 32,086 | 50 | 8,645 | 40,731 | 21% | |
| | May '15 | 188 | 90 | | 286 | 376 | 32,322 | 125 | 8,770 | 41,093 | 21% | |
| | Jun '15 | 189 | 35 | | 286 | 321 | 32,641 | 175 | 8,945 | 41,586 | 22% | |
| 2015/2016 | Jul '15 | 190 | 46 | | 286 | 332 | 32,973 | 180 | 9,125 | 42,098 | 22% | |
| | Aug '15 | 191 | 42 | | 286 | 328 | 33,301 | 180 | 9,305 | 42,606 | 22% | |
| | Sep '15 | 192 | 62 | | 286 | 348 | 33,649 | 180 | 9,485 | 43,135 | 22% | |
| | Oct '15 | 193 | 97 | | 286 | 383 | 33,834 | 100 | 9,553 | 43,387 | 22% | |
| | Nov '15 | 194 | 153 | | 286 | 439 | 34,258 | 60 | 9,613 | 43,872 | 22% | |
| | Dec '15 | 195 | 215 | | 286 | 501 | 34,652 | 0 | 9,578 | 44,230 | 22% | |
| | Jan '16 | 196 | 192 | | 286 | 478 | 34,940 | 0 | 9,558 | 44,498 | 21% | |
| | Feb '16 | 197 | 235 | | 286 | 521 | 35,194 | 0 | 9,483 | 44,677 | 21% | |
| | Mar '16 | 198 | 178 | | 286 | 464 | 35,320 | 50 | 9,533 | 44,853 | 21% | |
| | Apr '16 | 199 | 182 | | 286 | 468 | 35,426 | 50 | 9,583 | 45,009 | 21% | |
| | May '16 | 200 | 90 | | 286 | 376 | 35,767 | 125 | 9,708 | 45,475 | 21% | |
| | Jun '16 | 201 | 35 | | 286 | 321 | 36,062 | 175 | 9,857 | 45,919 | 21% | |
| 2016/2017 | Jul '16 | 202 | 46 | | 286 | 332 | 36,361 | 180 | 9,996 | 46,357 | 22% | |
| | Aug '16 | 203 | 42 | | 286 | 328 | 36,679 | 180 | 10,170 | 46,849 | 22% | |
| | Sep '16 | 204 | 62 | | 286 | 348 | 36,987 | 180 | 10,267 | 47,254 | 22% | |
| | Oct '16 | 205 | 97 | | 286 | 383 | 37,316 | 100 | 10,336 | 47,652 | 22% | |
| | Nov '16 | 206 | 153 | | 286 | 439 | 37,692 | 60 | 10,346 | 48,038 | 22% | |
| | Dec '16 | 207 | 215 | | 286 | 501 | 38,108 | 0 | 10,304 | 48,412 | 21% | |
| | Jan '17 | 208 | 192 | | 286 | 478 | 38,491 | 0 | 10,247 | 48,737 | 21% | |
| | Feb '17 | 209 | 235 | | 286 | 521 | 38,862 | 0 | 10,224 | 49,086 | 21% | |
| | Mar '17 | 210 | 178 | | 286 | 464 | 39,309 | 50 | 10,229 | 49,538 | 21% | |
| | Apr '17 | 211 | 182 | | 286 | 468 | 39,719 | 50 | 10,238 | 49,957 | 20% | |
| | May '17 | 212 | 90 | | 286 | 376 | 40,081 | 125 | 10,323 | 50,404 | 20% | |
| | Jun '17 | 213 | 35 | | 286 | 321 | 40,384 | 175 | 10,491 | 50,875 | 21% | |
| 2017/2018 | Jul '17 | 214 | 46 | | 286 | 332 | 40,690 | 180 | 10,671 | 51,361 | 21% | |
| | Aug '17 | 215 | 42 | | 286 | 328 | 40,989 | 180 | 10,851 | 51,840 | 21% | |
| | Sep '17 | 216 | 62 | | 286 | 348 | 41,303 | 180 | 11,031 | 52,334 | 21% | |
| | Oct '17 | 217 | 97 | | 286 | 383 | 41,653 | 100 | 11,131 | 52,784 | 21% | |
| | Nov '17 | 218 | 153 | | 286 | 439 | 41,926 | 60 | 11,104 | 53,030 | 21% | |
| | Dec '17 | 219 | 215 | | 286 | 501 | 42,170 | 0 | 11,051 | 53,221 | 21% | |
| | Jan '18 | 220 | 192 | | 286 | 478 | 41,855 | 0 | 11,051 | 52,906 | 21% | |
| | Feb '18 | 221 | 235 | | 286 | 521 | 42,143 | 0 | 11,051 | 53,194 | 21% | |
| | Mar '18 | 222 | 178 | | 286 | 464 | 42,587 | 50 | 10,985 | 53,572 | 21% | |
| | Apr '18 | 223 | 182 | | 286 | 468 | 43,026 | 50 | 10,919 | 53,945 | 20% | |
| | May '18 | 224 | 90 | | 286 | 376 | 43,372 | 125 | 10,957 | 54,329 | 20% | |
| | Jun '18 | 225 | 35 | | 286 | 321 | 43,675 | 175 | 11,132 | 54,807 | 20% | |
| 2018/2019 | Jul '18 | 226 | 46 | | 286 | 332 | 43,990 | 180 | 11,245 | 55,235 | 20% | |
| | Aug '18 | 227 | 42 | | 286 | 328 | 44,310 | 180 | 11,425 | 55,735 | 20% | |
| | Sep '18 | 228 | 62 | | 286 | 348 | 44,653 | 180 | 11,605 | 56,258 | 21% | |
| | Oct '18 | 229 | 97 | | 286 | 383 | 45,020 | 100 | 11,570 | 56,590 | 20% | |
| | Nov '18 | 230 | 153 | | 286 | 439 | 45,345 | 60 | 11,542 | 56,887 | 20% | |
| | Dec '18 | 231 | 215 | | 286 | 501 | 45,559 | 0 | 11,542 | 57,101 | 20% | |
| | Jan '19 | 232 | 192 | | 286 | 478 | 45,999 | 0 | 11,503 | 57,502 | 20% | |
| | Feb '19 | 233 | 235 | | 286 | 521 | 46,111 | 0 | 11,494 | 57,605 | 20% | |
| | Mar '19 | 234 | 178 | | 286 | 464 | 46,528 | 50 | 11,544 | 58,072 | 20% | |
| | Apr '19 | 235 | 182 | | 286 | 468 | 46,861 | 50 | 11,579 | 58,440 | 20% | |
| | May '19 | 236 | 90 | | 286 | 376 | 47,169 | 125 | 11,693 | 58,862 | 20% | |
| | Jun '19 | 237 | 35 | | 286 | 321 | 47,466 | 175 | 11,868 | 59,334 | 20% | |
| 2019/2020 | Jul '19 | 238 | 46 | | 286 | 332 | 47,798 | 180 | 12,048 | 59,846 | 20% | |
| | Aug '19 | 239 | 42 | | 286 | 328 | 48,105 | 180 | 12,228 | 60,333 | 20% | |
| | Sep '19 | 240 | 62 | | 286 | 348 | 48,252 | 180 | 12,384 | 60,636 | 20% | |
| | Oct '19 | 241 | 97 | | 286 | 383 | 48,162 | 100 | 12,382 | 60,544 | 20% | |
| | Nov '19 | 242 | 153 | | 286 | 439 | 48,033 | 60 | 12,322 | 60,355 | 20% | |
| | Dec '19 | 243 | 215 | | 286 | 501 | 48,006 | 0 | 12,322 | 60,328 | 20% | |
| | Jan '20 | 244 | 192 | | 286 | 478 | 47,879 | 0 | 12,322 | 60,201 | 20% | |
| | Feb '20 | 245 | 235 | | 286 | 521 | 47,893 | 0 | 12,322 | 60,215 | 20% | |
| | Mar '20 | 246 | 178 | | 286 | 464 | 47,967 | 50 | 12,372 | 60,339 | 21% | |
| | Apr '20 | 247 | 182 | | 286 | 468 | 47,755 | 50 | 12,422 | 60,177 | 21% | |
| | May '20 | 248 | 90 | | 286 | 376 | 47,747 | 125 | 12,547 | 60,294 | 21% | |
| | Jun '20 | 249 | 35 | | 286 | 321 | 47,782 | 175 | 12,722 | 60,504 | 21% | |

## RWC Management Plan for Ely Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/2021 | Jul '20 | 250 | 46 | | 286 | 332 | 47,828 | 180 | 12,902 | 60,730 | 21% | PLANNED |
| | Aug '20 | 251 | 42 | | 286 | 328 | 47,870 | 180 | 13,082 | 60,952 | 21% | |
| | Sep '20 | 252 | 62 | | 286 | 348 | 47,932 | 180 | 13,262 | 61,194 | 22% | |
| | Oct '20 | 253 | 97 | | 286 | 383 | 48,000 | 100 | 13,248 | 61,248 | 22% | |
| | Nov '20 | 254 | 153 | | 286 | 439 | 48,026 | 60 | 13,188 | 61,214 | 22% | |
| | Dec '20 | 255 | 215 | | 286 | 501 | 47,669 | 0 | 13,176 | 60,845 | 22% | |
| | Jan '21 | 256 | 192 | | 286 | 478 | 47,757 | 0 | 13,176 | 60,933 | 22% | |
| | Feb '21 | 257 | 235 | | 286 | 521 | 47,669 | 0 | 13,133 | 60,802 | 22% | |
| | Mar '21 | 258 | 178 | | 286 | 464 | 47,611 | 50 | 13,183 | 60,794 | 22% | |
| | Apr '21 | 259 | 182 | | 286 | 468 | 47,790 | 50 | 13,126 | 60,916 | 22% | |
| | May '21 | 260 | 90 | | 286 | 376 | 47,867 | 125 | 13,096 | 60,963 | 21% | |
| | Jun '21 | 261 | 35 | | 286 | 321 | 47,811 | 175 | 13,065 | 60,876 | 21% | |
| 2021/2022 | Jul '21 | 262 | 46 | | 286 | 332 | 47,554 | 180 | 13,069 | 60,623 | 22% | |
| | Aug '21 | 263 | 42 | | 286 | 328 | 47,305 | 180 | 13,108 | 60,413 | 22% | |
| | Sep '21 | 264 | 62 | | 286 | 348 | 47,023 | 180 | 13,282 | 60,305 | 22% | |
| | Oct '21 | 265 | 97 | | 286 | 383 | 46,905 | 100 | 13,382 | 60,287 | 22% | |
| | Nov '21 | 266 | 153 | | 286 | 439 | 46,847 | 60 | 13,442 | 60,289 | 22% | |
| | Dec '21 | 267 | 215 | | 286 | 501 | 47,026 | 0 | 13,442 | 60,468 | 22% | |
| | Jan '22 | 268 | 192 | | 286 | 478 | 47,129 | 0 | 13,378 | 60,507 | 22% | |
| | Feb '22 | 269 | 235 | | 286 | 521 | 47,269 | 0 | 13,372 | 60,641 | 22% | |
| | Mar '22 | 270 | 178 | | 286 | 464 | 47,200 | 50 | 13,422 | 60,622 | 22% | |
| | Apr '22 | 271 | 182 | | 286 | 468 | 47,247 | 50 | 13,472 | 60,719 | 22% | |
| | May '22 | 272 | 90 | | 286 | 376 | 47,334 | 125 | 13,597 | 60,931 | 22% | |
| | Jun '22 | 273 | 35 | | 286 | 321 | 47,357 | 175 | 13,772 | 61,129 | 23% | |
| 2022/2023 | Jul '22 | 274 | 46 | | 286 | 332 | 47,396 | 180 | 13,952 | 61,348 | 23% | |
| | Aug '22 | 275 | 42 | | 286 | 328 | 47,431 | 180 | 14,132 | 61,563 | 23% | |
| | Sep '22 | 276 | 62 | | 286 | 348 | 47,488 | 180 | 14,312 | 61,800 | 23% | |
| | Oct '22 | 277 | 97 | | 286 | 383 | 47,580 | 100 | 14,412 | 61,992 | 23% | |
| | Nov '22 | 278 | 153 | | 286 | 439 | 47,724 | 60 | 14,392 | 62,116 | 23% | |
| | Dec '22 | 279 | 215 | | 286 | 501 | 47,604 | 0 | 14,325 | 61,929 | 23% | |
| | Jan '23 | 280 | 192 | | 286 | 478 | 47,724 | 0 | 14,180 | 61,904 | 23% | |
| | Feb '23 | 281 | 235 | | 286 | 521 | 47,922 | 0 | 13,955 | 61,877 | 23% | |
| | Mar '23 | 282 | 178 | | 286 | 464 | 48,037 | 50 | 13,691 | 61,728 | 22% | |
| | Apr '23 | 283 | 182 | | 286 | 468 | 48,218 | 50 | 13,662 | 61,880 | 22% | |
| | May '23 | 284 | 90 | | 286 | 376 | 48,285 | 125 | 13,528 | 61,813 | 22% | |
| | Jun '23 | 285 | 35 | | 286 | 321 | 48,316 | 175 | 13,494 | 61,810 | 22% | |
| 2023/2024 | Jul '23 | 286 | 46 | | 286 | 332 | 48,356 | 180 | 13,517 | 61,873 | 22% | |
| | Aug '23 | 287 | 42 | | 286 | 328 | 48,394 | 180 | 13,363 | 61,757 | 22% | |
| | Sep '23 | 288 | 62 | | 286 | 348 | 48,450 | 180 | 13,086 | 61,536 | 21% | |
| | Oct '23 | 289 | 97 | | 286 | 383 | 48,547 | 100 | 12,828 | 61,375 | 21% | |
| | Nov '23 | 290 | 153 | | 286 | 439 | 48,679 | 60 | 12,467 | 61,146 | 20% | |
| | Dec '23 | 291 | 215 | | 286 | 501 | 48,870 | 0 | 12,054 | 60,924 | 20% | |
| | Jan '24 | 292 | 192 | | 286 | 478 | 49,054 | 0 | 11,843 | 60,897 | 19% | |
| | Feb '24 | 293 | 235 | | 286 | 521 | 48,995 | 0 | 11,649 | 60,644 | 19% | |
| | Mar '24 | 294 | 178 | | 286 | 464 | 49,110 | 50 | 11,591 | 60,701 | 19% | |
| | Apr '24 | 295 | 182 | | 286 | 468 | 49,209 | 50 | 11,423 | 60,632 | 19% | |
| | May '24 | 296 | 90 | | 286 | 376 | 49,290 | 125 | 11,307 | 60,597 | 19% | |
| | Jun '24 | 297 | 35 | | 286 | 321 | 49,310 | 175 | 11,296 | 60,606 | 19% | |

**Notes:**

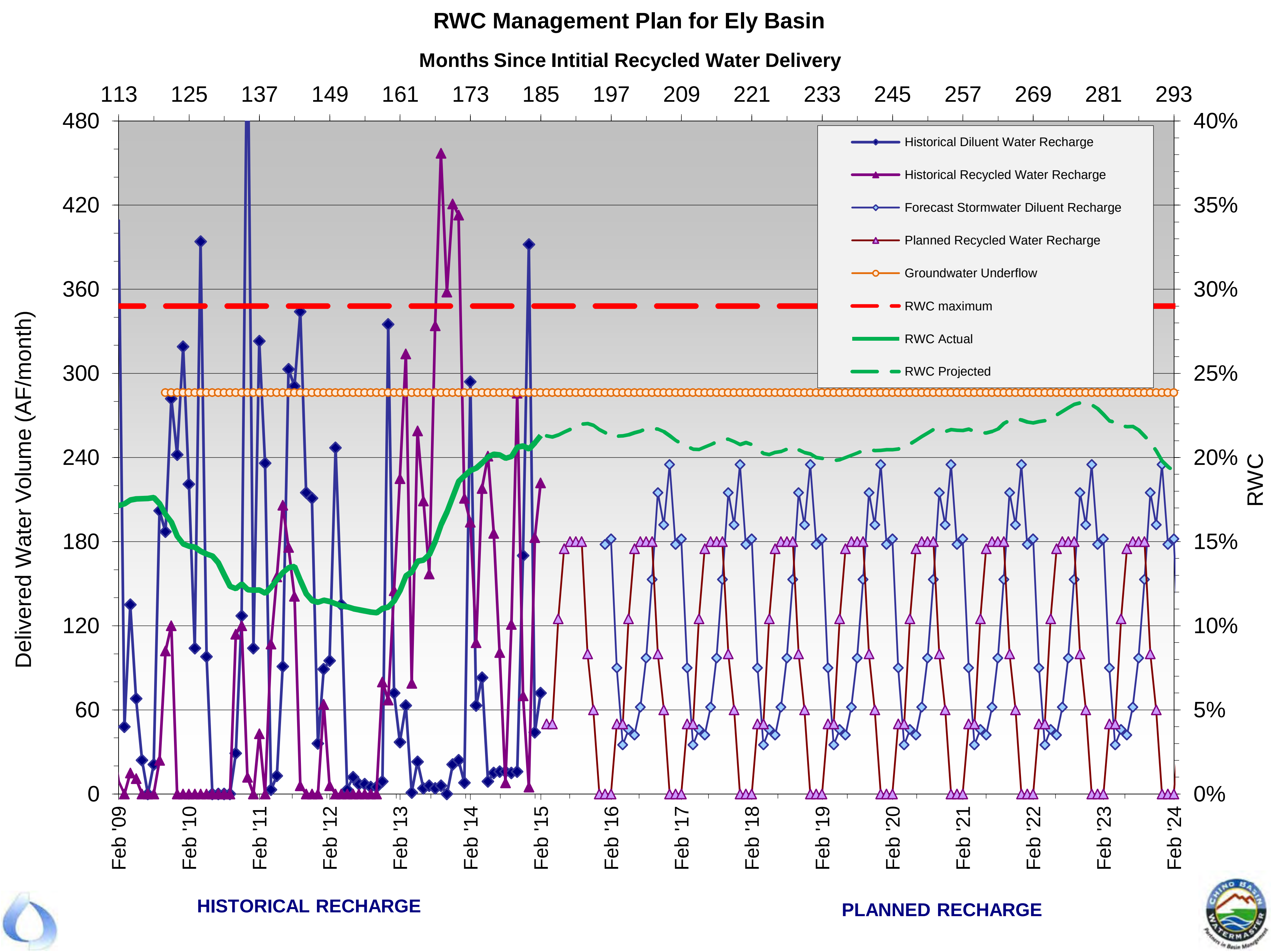
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan for Ely Basin
Months Since Intitial Recycled Water Delivery
113
125
137
149
161
173
185
197
209
221
233
245
257
269
281
293
Delivered Water Volume (AF/month)
480
420
360
300
240
180
120
60
0
40%
35%
30%
25%
20%
15%
10%
5%
0%
RWC
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Diluent Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC maximum
RWC Actual
RWC Projected
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

# RWC Management Plan for Hickory Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | 34 | 18. | 0. | | 18. | 4519 | 0. | 1731.1 | 6250 | 28% | HISTORICAL |
| | Aug '08 | 35 | 6. | 0. | | 6. | 4525 | 0. | 1731.1 | 6256 | 28% | |
| | Sep '08 | 36 | 3. | 0. | | 3. | 4528 | 0. | 1731.1 | 6259 | 28% | |
| | Oct '08 | 37 | 3. | 0. | | 3. | 4531 | 0. | 1731.1 | 6262 | 28% | |
| | Nov '08 | 38 | 3. | 0. | | 3. | 4534 | 0. | 1731.1 | 6265 | 28% | |
| | Dec '08 | 39 | 35. | 0. | | 35. | 4569 | 0. | 1731.1 | 6300 | 27% | |
| | Jan '09 | 40 | 0. | 0. | | 0. | 4569 | 0. | 1731.1 | 6300 | 27% | |
| | Feb '09 | 41 | 63. | 0. | | 63. | 4632 | 23. | 1754.1 | 6386 | 27% | |
| | Mar '09 | 42 | 31. | 0. | | 31. | 4663 | 23. | 1777.1 | 6440 | 28% | |
| | Apr '09 | 43 | 8. | 0. | | 8. | 4671 | 0. | 1777.1 | 6448 | 28% | |
| | May '09 | 44 | 18. | 0. | | 18. | 4689 | 0. | 1777.1 | 6466 | 27% | |
| | Jun '09 | 45 | 3. | 0. | | 3. | 4692 | 0. | 1777.1 | 6469 | 27% | |
| 2009/10 | Jul '09 | 46 | 9. | 0. | | 9. | 4701 | 0. | 1777.1 | 6478 | 27% | |
| | Aug '09 | 47 | 4. | 0. | | 4. | 4705 | 0. | 1777.1 | 6482 | 27% | |
| | Sep '09 | 48 | 3. | 0. | | 3. | 4708 | 34. | 1811.1 | 6519 | 28% | |
| | Oct '09 | 49 | 24. | 7. | 266.6 | 297.6 | 5006 | 189. | 2000.1 | 7006 | 29% | |
| | Nov '09 | 50 | 26. | 0. | 266.6 | 292.6 | 5298 | 243. | 2243.1 | 7542 | 30% | |
| | Dec '09 | 51 | 158. | 0. | 266.6 | 424.6 | 5723 | 93. | 2336.1 | 8059 | 29% | |
| | Jan '10 | 52 | 214. | 0. | 266.6 | 480.6 | 6204 | 19. | 2355.1 | 8559 | 28% | |
| | Feb '10 | 53 | 200. | 0. | 266.6 | 466.6 | 6670 | 0. | 2355.1 | 9025 | 26% | |
| | Mar '10 | 54 | 16. | 0. | 266.6 | 282.6 | 6953 | 61. | 2416.1 | 9369 | 26% | |
| | Apr '10 | 55 | 46. | 0. | 266.6 | 312.6 | 7265 | 56. | 2472.1 | 9738 | 25% | |
| | May '10 | 56 | 0. | 0. | 266.6 | 266.6 | 7532 | 111. | 2583.1 | 10115 | 26% | |
| | Jun '10 | 57 | 0. | 0. | 266.6 | 266.6 | 7799 | 50. | 2633.1 | 10432 | 25% | |
| 2010/11 | Jul '10 | 58 | 0. | 0. | 266.6 | 266.6 | 8065 | 21. | 2654.1 | 10719 | 25% | |
| | Aug '10 | 59 | 0. | 0. | 266.6 | 266.6 | 8332 | 28. | 2682.1 | 11014 | 24% | |
| | Sep '10 | 60 | 12. | 0. | 266.6 | 278.6 | 8611 | 285. | 2967.1 | 11578 | 26% | |
| | Oct '10 | 61 | 13. | 0. | 266.6 | 279.6 | 8888 | 94. | 3061.1 | 11950 | 26% | |
| | Nov '10 | 62 | 36. | 0. | 266.6 | 302.6 | 9191 | 51. | 3112.1 | 12303 | 25% | |
| | Dec '10 | 63 | 149. | 0. | 266.6 | 415.6 | 9607 | 0. | 3112.1 | 12719 | 24% | |
| | Jan '11 | 64 | 12. | 0. | 266.6 | 278.6 | 9875 | 50. | 3162.1 | 13037 | 24% | |
| | Feb '11 | 65 | 79. | 0. | 266.6 | 345.6 | 10208 | 37. | 3199.1 | 13407 | 24% | |
| | Mar '11 | 66 | 70. | 0. | 266.6 | 336.6 | 10538 | 0. | 3199.1 | 13737 | 23% | |
| | Apr '11 | 67 | 0. | 0. | 266.6 | 266.6 | 10799 | 52. | 3251.1 | 14050 | 23% | |
| | May '11 | 68 | 0. | 2. | 266.6 | 268.6 | 11067 | 84. | 3335.1 | 14403 | 23% | |
| | Jun '11 | 69 | 0. | 8. | 266.6 | 274.6 | 11342 | 74. | 3409.1 | 14751 | 23% | |
| 2011/12 | Jul '11 | 70 | 0. | 0. | 266.6 | 266.6 | 11607 | 14. | 3423.1 | 15030 | 23% | |
| | Aug '11 | 71 | 4. | 68.1 | 266.6 | 338.7 | 11946 | 0. | 3423.1 | 15369 | 22% | |
| | Sep '11 | 72 | 32. | 447.2 | 266.6 | 745.8 | 12692 | 20. | 3443.1 | 16135 | 21% | |
| | Oct '11 | 73 | 17. | 0. | 266.6 | 283.6 | 12975 | 35. | 3478.1 | 16453 | 21% | |
| | Nov '11 | 74 | 11. | 0. | 266.6 | 277.6 | 13192 | 202. | 3680.1 | 16872 | 22% | |
| | Dec '11 | 75 | 1. | 0. | 266.6 | 267.6 | 13457 | 226. | 3906.1 | 17364 | 22% | |
| | Jan '12 | 76 | 49. | 0. | 266.6 | 315.6 | 13738 | 16. | 3922.1 | 17660 | 22% | |
| | Feb '12 | 77 | 59. | 0. | 266.6 | 325.6 | 14063 | 83. | 4005.1 | 18068 | 22% | |
| | Mar '12 | 78 | 53. | 0. | 266.6 | 319.6 | 14379 | 79. | 4084.1 | 18463 | 22% | |
| | Apr '12 | 79 | 30. | 0. | 266.6 | 296.6 | 14674 | 66. | 4150.1 | 18824 | 22% | |
| | May '12 | 80 | 0. | 0. | 266.6 | 266.6 | 14941 | 40. | 4190.1 | 19131 | 22% | |
| | Jun '12 | 81 | 2. | 0. | 266.6 | 268.6 | 15209 | 2. | 4192.1 | 19402 | 22% | |
| 2012/13 | Jul '12 | 82 | 22. | 0. | 266.6 | 288.6 | 15498 | 57. | 4249.1 | 19747 | 22% | |
| | Aug '12 | 83 | 50. | 0. | 266.6 | 316.6 | 15815 | 44. | 4293.1 | 20108 | 21% | |
| | Sep '12 | 84 | 29. | 0. | 266.6 | 295.6 | 16110 | 0. | 4293.1 | 20403 | 21% | |
| | Oct '12 | 85 | 51. | 0. | 266.6 | 317.6 | 16428 | 0. | 4293.1 | 20721 | 21% | |
| | Nov '12 | 86 | 13. | 0. | 266.6 | 279.6 | 16626 | 177. | 4470.1 | 21096 | 21% | |
| | Dec '12 | 87 | 6. | 0. | 266.6 | 272.6 | 16777 | 144. | 4614.1 | 21391 | 22% | |
| | Jan '13 | 88 | 0. | 0. | 266.6 | 266.6 | 17043 | 115. | 4729.1 | 21773 | 22% | |
| | Feb '13 | 89 | 8. | 0. | 266.6 | 274.6 | 17172 | 3. | 4732.1 | 21904 | 22% | |
| | Mar '13 | 90 | 13. | 0. | 266.6 | 279.6 | 17346 | 147. | 4879.1 | 22225 | 22% | |
| | Apr '13 | 91 | 0. | 0. | 266.6 | 266.6 | 17523 | 71. | 4950.1 | 22474 | 22% | |
| | May '13 | 92 | 6. | 0. | 266.6 | 272.6 | 17789 | 0. | 4950.1 | 22739 | 22% | |
| | Jun '13 | 93 | 1. | 0 | 266.6 | 267.6 | 18057 | 116. | 5066.1 | 23123 | 22% | |
| 2013/14 | Jul '13 | 94 | 4. | 0 | 266.6 | 270.6 | 18327 | 201. | 5267.1 | 23594 | 22% | |
| | Aug '13 | 95 | 0. | 0 | 266.6 | 266.6 | 18594 | 11. | 5278.1 | 23872 | 22% | |
| | Sep '13 | 96 | 0. | 0 | 266.6 | 266.6 | 18860 | 0. | 5278.1 | 24139 | 22% | |
| | Oct '13 | 97 | 1. | 0 | 266.6 | 267.6 | 19128 | 1. | 5279.1 | 24407 | 22% | |
| | Nov '13 | 98 | 59. | 0 | 266.6 | 325.6 | 19449 | 339. | 5618.1 | 25067 | 22% | |
| | Dec '13 | 99 | 8. | 0 | 266.6 | 274.6 | 19688 | 108. | 5726.1 | 25415 | 23% | |
| | Jan '14 | 100 | 9. | 3 | 266.6 | 278.1 | 19966 | 86. | 5812.1 | 25778 | 23% | |
| | Feb '14 | 101 | 19. | 1 | 266.6 | 286.6 | 20124 | 67. | 5879.1 | 26003 | 23% | |
| | Mar '14 | 102 | 13. | 0 | 266.6 | 279.6 | 20349 | 224. | 6103.1 | 26452 | 23% | |
| | Apr '14 | 103 | 23. | 10 | 266.6 | 299.1 | 20648 | 379. | 6482.1 | 27130 | 24% | |
| | May '14 | 104 | 33. | 0 | 266.6 | 299.6 | 20947 | 292. | 6774.1 | 27721 | 24% | |
| | Jun '14 | 105 | 2. | 0 | 266.6 | 268.6 | 21216 | 212. | 6986.1 | 28202 | 25% | |

# RWC Management Plan for Hickory Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 106 | 0. | 0 | 266.6 | 266.6 | 21483 | 118. | 7104.1 | 28587 | 25% | HIST |
| | Aug '14 | 107 | 0. | 0 | 266.6 | 266.6 | 21749 | 82. | 7186.1 | 28935 | 25% | |
| | Sep '14 | 108 | 0. | 0 | 266.6 | 266.6 | 22016 | 236. | 7422.1 | 29438 | 25% | |
| | Oct '14 | 109 | 0. | 0 | 266.6 | 266.6 | 22165 | 226. | 7648.1 | 29813 | 26% | |
| | Nov '14 | 110 | 0. | 0 | 266.6 | 266.6 | 22429 | 272. | 7920.1 | 30350 | 26% | |
| | Dec '14 | 111 | 185. | 0 | 266.6 | 451.6 | 22842 | 46. | 7966.1 | 30808 | 26% | |
| | Jan '15 | 112 | 8. | 0 | 266.6 | 274.6 | 22967 | 194. | 8160.1 | 31127 | 26% | |
| | Feb '15 | 113 | 47. | 0 | 266.6 | 313.6 | 23153 | 180. | 8340.1 | 31493 | 26% | |
| | Mar '15 | 114 | 40. | | 266.6 | 306.6 | 23432 | 100. | 8440.1 | 31873 | 26% | |
| | Apr '15 | 115 | 30. | | 266.6 | 296.6 | 23725 | 175. | 8615.1 | 32340 | 27% | |
| | May '15 | 116 | 22. | | 266.6 | 288.6 | 23962 | 200. | 8815.1 | 32777 | 27% | |
| | Jun '15 | 117 | 18. | | 266.6 | 284.6 | 24027 | 225. | 9040.1 | 33068 | 27% | |
| 2015/16 | Jul '15 | 118 | 23. | | 266.6 | 289.6 | 24052 | 225. | 9265.1 | 33317 | 28% | |
| | Aug '15 | 119 | 22. | | 266.6 | 288.6 | 23853 | 225. | 9490.1 | 33343 | 28% | |
| | Sep '15 | 120 | 25. | | 266.6 | 291.6 | 24014 | 225. | 9576.3 | 33591 | 29% | |
| | Oct '15 | 121 | 27. | | 266.6 | 293.6 | 24286 | 175. | 9658.6 | 33945 | 28% | |
| | Nov '15 | 122 | 28. | | 266.6 | 294.6 | 24581 | 100. | 9666.3 | 34247 | 28% | |
| | Dec '15 | 123 | 69. | | 266.6 | 335.6 | 24909 | 0. | 9634.7 | 34543 | 28% | |
| | Jan '16 | 124 | 46. | | 266.6 | 312.6 | 25209 | 0. | 9551.8 | 34760 | 27% | |
| | Feb '16 | 125 | 81. | | 266.6 | 347.6 | 25522 | 0. | 9472.6 | 34994 | 27% | |
| | Mar '16 | 126 | 40. | | 266.6 | 306.6 | 25802 | 100. | 9572.6 | 35374 | 27% | |
| | Apr '16 | 127 | 30. | | 266.6 | 296.6 | 26055 | 175. | 9747.6 | 35802 | 27% | |
| | May '16 | 128 | 22. | | 266.6 | 288.6 | 26260 | 200. | 9947.6 | 36208 | 27% | |
| | Jun '16 | 129 | 18. | | 266.6 | 284.6 | 26501 | 225. | 10172.6 | 36673 | 28% | |
| 2016/2017 | Jul '16 | 130 | 23. | | 266.6 | 289.6 | 26661 | 225. | 10214.9 | 36876 | 28% | |
| | Aug '16 | 131 | 22. | | 266.6 | 288.6 | 26903 | 225. | 10259.9 | 37163 | 28% | |
| | Sep '16 | 132 | 25. | | 266.6 | 291.6 | 27105 | 225. | 10484.9 | 37590 | 28% | |
| | Oct '16 | 133 | 27. | | 266.6 | 293.6 | 27356 | 175. | 10516.2 | 37872 | 28% | |
| | Nov '16 | 134 | 28. | | 266.6 | 294.6 | 27592 | 100. | 10580.8 | 38173 | 28% | |
| | Dec '16 | 135 | 69. | | 266.6 | 335.6 | 27843 | 0. | 10580.8 | 38424 | 28% | PLANNED |
| | Jan '17 | 136 | 46. | | 266.6 | 312.6 | 28139 | 0. | 10580.8 | 38720 | 27% | |
| | Feb '17 | 137 | 81. | | 266.6 | 347.6 | 28447 | 0. | 10538.8 | 38986 | 27% | |
| | Mar '17 | 138 | 40. | | 266.6 | 306.6 | 28719 | 100. | 10638.8 | 39358 | 27% | |
| | Apr '17 | 139 | 30. | | 266.6 | 296.6 | 28965 | 175. | 10750.8 | 39716 | 27% | |
| | May '17 | 140 | 22. | | 266.6 | 288.6 | 29196 | 200. | 10950.8 | 40147 | 27% | |
| | Jun '17 | 141 | 18. | | 266.6 | 284.6 | 29391 | 225. | 11175.8 | 40566 | 28% | |
| 2017/2018 | Jul '17 | 142 | 23. | | 266.6 | 289.6 | 29587 | 225. | 11259.8 | 40847 | 28% | |
| | Aug '17 | 143 | 22. | | 266.6 | 288.6 | 29783 | 225. | 11406.8 | 41190 | 28% | |
| | Sep '17 | 144 | 25. | | 266.6 | 291.6 | 29982 | 225. | 11616.8 | 41599 | 28% | |
| | Oct '17 | 145 | 27. | | 266.6 | 293.6 | 30203 | 175. | 11769. | 41972 | 28% | |
| | Nov '17 | 146 | 28. | | 266.6 | 294.6 | 30396 | 100. | 11771. | 42167 | 28% | |
| | Dec '17 | 147 | 69. | | 266.6 | 335.6 | 30629 | 0. | 11771. | 42400 | 28% | |
| | Jan '18 | 148 | 46. | | 266.6 | 312.6 | 30816 | 0. | 11771. | 42587 | 28% | |
| | Feb '18 | 149 | 81. | | 266.6 | 347.6 | 31066 | 0. | 11732. | 42798 | 27% | |
| | Mar '18 | 150 | 40. | | 266.6 | 306.6 | 31329 | 100. | 11752. | 43081 | 27% | |
| | Apr '18 | 151 | 30. | | 266.6 | 296.6 | 31562 | 175. | 11920. | 43482 | 27% | |
| | May '18 | 152 | 22. | | 266.6 | 288.6 | 31811 | 200. | 12034. | 43845 | 27% | |
| | Jun '18 | 153 | 18. | | 266.6 | 284.6 | 32072 | 225. | 12259. | 44331 | 28% | |
| 2018/2019 | Jul '18 | 154 | 23. | | 266.6 | 289.6 | 32343 | 225. | 12484. | 44827 | 28% | |
| | Aug '18 | 155 | 22. | | 266.6 | 288.6 | 32626 | 225. | 12709. | 45335 | 28% | |
| | Sep '18 | 156 | 25. | | 266.6 | 291.6 | 32915 | 225. | 12934. | 45849 | 28% | |
| | Oct '18 | 157 | 27. | | 266.6 | 293.6 | 33205 | 175. | 13109. | 46314 | 28% | |
| | Nov '18 | 158 | 28. | | 266.6 | 294.6 | 33497 | 100. | 13209. | 46706 | 28% | |
| | Dec '18 | 159 | 69. | | 266.6 | 335.6 | 33797 | 0. | 13209. | 47006 | 28% | |
| | Jan '19 | 160 | 46. | | 266.6 | 312.6 | 34110 | 0. | 13209. | 47319 | 28% | |
| | Feb '19 | 161 | 81. | | 266.6 | 347.6 | 34395 | 0. | 13186. | 47581 | 28% | |
| | Mar '19 | 162 | 40. | | 266.6 | 306.6 | 34670 | 100. | 13263. | 47933 | 28% | |
| | Apr '19 | 163 | 30. | | 266.6 | 296.6 | 34959 | 175. | 13438. | 48397 | 28% | |
| | May '19 | 164 | 22. | | 266.6 | 288.6 | 35229 | 200. | 13638. | 48867 | 28% | |
| | Jun '19 | 165 | 18. | | 266.6 | 284.6 | 35511 | 225. | 13863. | 49374 | 28% | |
| 2019/2020 | Jul '19 | 166 | 23. | | 266.6 | 289.6 | 35792 | 225. | 14088. | 49880 | 28% | |
| | Aug '19 | 167 | 22. | | 266.6 | 288.6 | 36076 | 225. | 14313. | 50389 | 28% | |
| | Sep '19 | 168 | 25. | | 266.6 | 291.6 | 36365 | 225. | 14504. | 50869 | 29% | |
| | Oct '19 | 169 | 27. | | 266.6 | 293.6 | 36361 | 175. | 14490. | 50851 | 28% | |
| | Nov '19 | 170 | 28. | | 266.6 | 294.6 | 36363 | 100. | 14347. | 50710 | 28% | |
| | Dec '19 | 171 | 69. | | 266.6 | 335.6 | 36274 | 0. | 14254. | 50528 | 28% | |
| | Jan '20 | 172 | 46. | | 266.6 | 312.6 | 36106 | 0. | 14235. | 50341 | 28% | |
| | Feb '20 | 173 | 81. | | 266.6 | 347.6 | 35987 | 0. | 14235. | 50222 | 28% | |
| | Mar '20 | 174 | 40. | | 266.6 | 306.6 | 36011 | 100. | 14274. | 50285 | 28% | |
| | Apr '20 | 175 | 30. | | 266.6 | 296.6 | 35995 | 175. | 14393. | 50388 | 29% | |
| | May '20 | 176 | 22. | | 266.6 | 288.6 | 36017 | 200. | 14482. | 50499 | 29% | |
| | Jun '20 | 177 | 18. | | 266.6 | 284.6 | 36035 | 225. | 14657. | 50692 | 29% | |

# RWC Management Plan for Hickory Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/2021 | Jul '20 | 178 | 23. | | 266.6 | 289.6 | 36058 | 225. | 14861. | 50919 | 29% | PLANNED |
| | Aug '20 | 179 | 22. | | 266.6 | 288.6 | 36080 | 225. | 15058. | 51138 | 29% | |
| | Sep '20 | 180 | 25. | | 266.6 | 291.6 | 36093 | 225. | 14998. | 51091 | 29% | |
| | Oct '20 | 181 | 27. | | 266.6 | 293.6 | 36107 | 175. | 15079. | 51186 | 29% | |
| | Nov '20 | 182 | 28. | | 266.6 | 294.6 | 36099 | 100. | 15128. | 51227 | 30% | |
| | Dec '20 | 183 | 69. | | 266.6 | 335.6 | 36019 | 0. | 15128. | 51147 | 30% | |
| | Jan '21 | 184 | 46. | | 266.6 | 312.6 | 36053 | 0. | 15078. | 51131 | 29% | |
| | Feb '21 | 185 | 81. | | 266.6 | 347.6 | 36055 | 0. | 15041. | 51096 | 29% | |
| | Mar '21 | 186 | 40. | | 266.6 | 306.6 | 36025 | 100. | 15141. | 51166 | 30% | |
| | Apr '21 | 187 | 30. | | 266.6 | 296.6 | 36055 | 175. | 15264. | 51319 | 30% | |
| | May '21 | 188 | 22. | | 266.6 | 288.6 | 36075 | 200. | 15380. | 51455 | 30% | |
| | Jun '21 | 189 | 18. | | 266.6 | 284.6 | 36085 | 225. | 15531. | 51616 | 30% | |
| 2021/2022 | Jul '21 | 190 | 23. | | 266.6 | 289.6 | 36108 | 225. | 15742. | 51850 | 30% | |
| | Aug '21 | 191 | 22. | | 266.6 | 288.6 | 36058 | 225. | 15967. | 52025 | 31% | |
| | Sep '21 | 192 | 25. | | 266.6 | 291.6 | 35604 | 225. | 16172. | 51776 | 31% | |
| | Oct '21 | 193 | 27. | | 266.6 | 293.6 | 35614 | 175. | 16312. | 51926 | 31% | |
| | Nov '21 | 194 | 28. | | 266.6 | 294.6 | 35631 | 100. | 16210. | 51841 | 31% | |
| | Dec '21 | 195 | 69. | | 266.6 | 335.6 | 35699 | 0. | 15984. | 51683 | 31% | |
| | Jan '22 | 196 | 46. | | 266.6 | 312.6 | 35696 | 0. | 15968. | 51664 | 31% | |
| | Feb '22 | 197 | 81. | | 266.6 | 347.6 | 35718 | 0. | 15885. | 51603 | 31% | |
| | Mar '22 | 198 | 40. | | 266.6 | 306.6 | 35705 | 100. | 15906. | 51611 | 31% | |
| | Apr '22 | 199 | 30. | | 266.6 | 296.6 | 35705 | 175. | 16015. | 51720 | 31% | |
| | May '22 | 200 | 22. | | 266.6 | 288.6 | 35727 | 200. | 16175. | 51902 | 31% | |
| | Jun '22 | 201 | 18. | | 266.6 | 284.6 | 35743 | 225. | 16398. | 52141 | 31% | |
| 2022/2023 | Jul '22 | 202 | 23. | | 266.6 | 289.6 | 35744 | 225. | 16566. | 52310 | 32% | |
| | Aug '22 | 203 | 22. | | 266.6 | 288.6 | 35716 | 225. | 16747. | 52463 | 32% | |
| | Sep '22 | 204 | 25. | | 266.6 | 291.6 | 35712 | 225. | 16972. | 52684 | 32% | |
| | Oct '22 | 205 | 27. | | 266.6 | 293.6 | 35688 | 175. | 17147. | 52835 | 32% | |
| | Nov '22 | 206 | 28. | | 266.6 | 294.6 | 35703 | 100. | 17070. | 52773 | 32% | |
| | Dec '22 | 207 | 69. | | 266.6 | 335.6 | 35766 | 0. | 16926. | 52692 | 32% | |
| | Jan '23 | 208 | 46. | | 266.6 | 312.6 | 35812 | 0. | 16811. | 52623 | 32% | |
| | Feb '23 | 209 | 81. | | 266.6 | 347.6 | 35885 | 0. | 16808. | 52693 | 32% | |
| | Mar '23 | 210 | 40. | | 266.6 | 306.6 | 35912 | 100. | 16761. | 52673 | 32% | |
| | Apr '23 | 211 | 30. | | 266.6 | 296.6 | 35942 | 175. | 16865. | 52807 | 32% | |
| | May '23 | 212 | 22. | | 266.6 | 288.6 | 35958 | 200. | 17065. | 53023 | 32% | |
| | Jun '23 | 213 | 18. | | 266.6 | 284.6 | 35975 | 225. | 17174. | 53149 | 32% | |
| 2023/2024 | Jul '23 | 214 | 23. | | 266.6 | 289.6 | 35994 | 225. | 17198. | 53192 | 32% | |
| | Aug '23 | 215 | 22. | | 266.6 | 288.6 | 36016 | 225. | 17412. | 53428 | 33% | |
| | Sep '23 | 216 | 25. | | 266.6 | 291.6 | 36041 | 225. | 17637. | 53678 | 33% | |
| | Oct '23 | 217 | 27. | | 266.6 | 293.6 | 36067 | 175. | 17811. | 53878 | 33% | |
| | Nov '23 | 218 | 28. | | 266.6 | 294.6 | 36036 | 100. | 17572. | 53608 | 33% | |
| | Dec '23 | 219 | 69. | | 266.6 | 335.6 | 36097 | 0. | 17464. | 53561 | 33% | |
| | Jan '24 | 220 | 46. | | 266.6 | 312.6 | 36131 | 0. | 17378. | 53509 | 32% | |
| | Feb '24 | 221 | 81. | | 266.6 | 347.6 | 36192 | 0. | 17311. | 53503 | 32% | |
| | Mar '24 | 222 | 40. | | 266.6 | 306.6 | 36219 | 100. | 17187. | 53406 | 32% | |
| | Apr '24 | 223 | 30. | | 266.6 | 296.6 | 36217 | 175. | 16983. | 53200 | 32% | |
| | May '24 | 224 | 22. | | 266.6 | 288.6 | 36206 | 200. | 16891. | 53097 | 32% | |
| | Jun '24 | 225 | 18. | | 266.6 | 284.6 | 36222 | 225. | 16904. | 53126 | 32% | |

**Notes:**

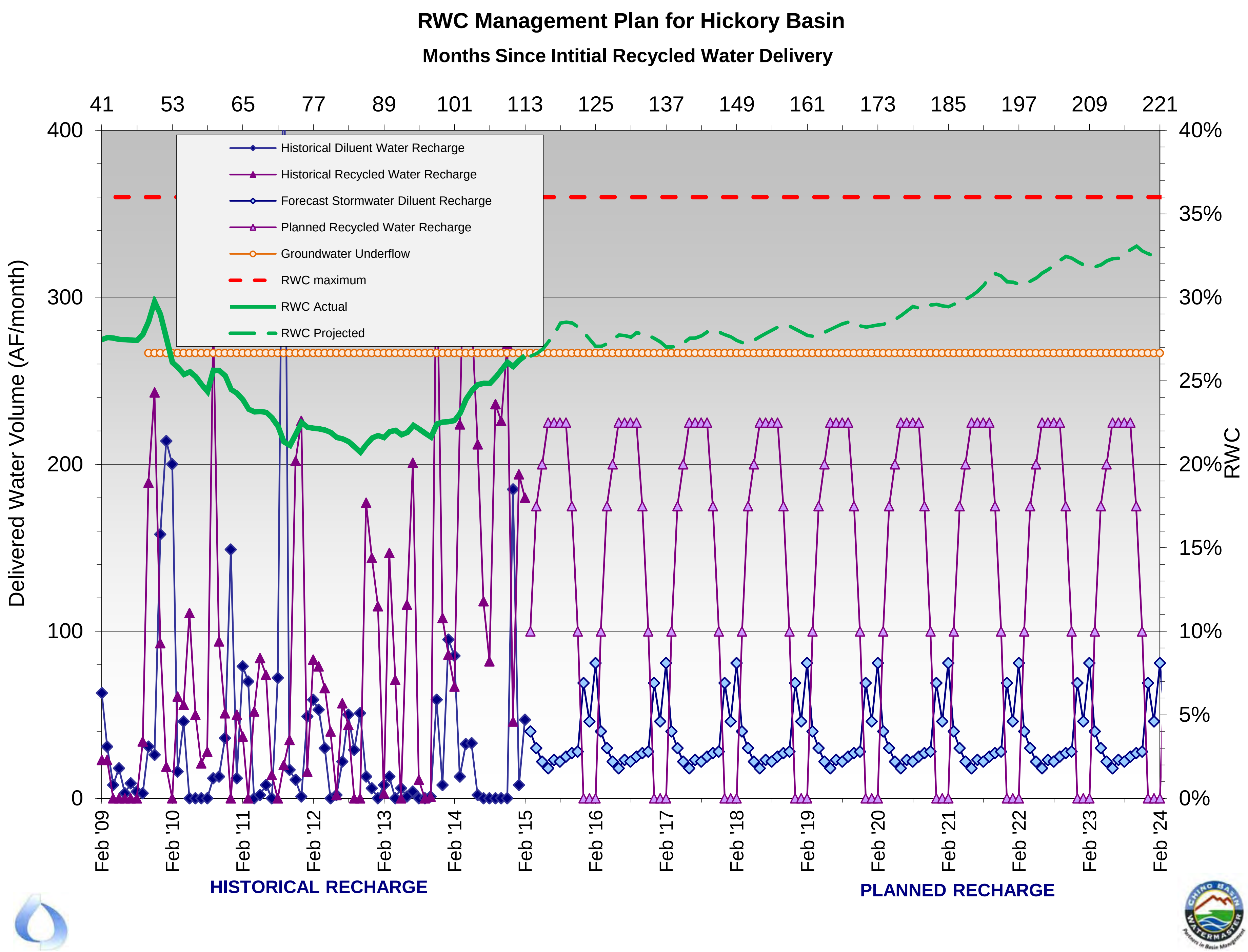
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan for Hickory Basin
Months Since Intitial Recycled Water Delivery
41
53
65
77
89
101
113
125
137
149
161
173
185
197
209
221
400
300
200
100
0
40%
35%
30%
25%
20%
15%
10%
5%
0%
Delivered Water Volume (AF/month)
RWC
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Diluent Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC maximum
RWC Actual
RWC Projected
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

# RWC Management Plan for RP3 Basins

**(120-month averaging period)**

***Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries***

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | -11 | 0. | 0. | | 0. | 1,514.7 | 0. | 0.0 | 1,514.7 | 0% | |
| | Aug '08 | -10 | 16. | 0. | | 16. | 1,530.7 | 0. | 0.0 | 1,530.7 | 0% | |
| | Sep '08 | -9 | 16. | 0. | | 16. | 1,546.7 | 0. | 0.0 | 1,546.7 | 0% | |
| | Oct '08 | -8 | 13. | 0. | | 13. | 1,559.7 | 0. | 0.0 | 1,559.7 | 0% | |
| | Nov '08 | -7 | 27. | 0. | | 27. | 1,586.7 | 0. | 0.0 | 1,586.7 | 0% | |
| | Dec '08 | -6 | 156. | 0. | | 156. | 1,742.7 | 0. | 0.0 | 1,742.7 | 0% | |
| | Jan '09 | -5 | 12. | 0. | | 12. | 1,754.7 | 0. | 0.0 | 1,754.7 | 0% | |
| | Feb '09 | -4 | 273. | 0. | | 273. | 2,027.7 | 0. | 0.0 | 2,027.7 | 0% | |
| | Mar '09 | -3 | 47. | 0. | | 47. | 2,074.7 | 0. | 0.0 | 2,074.7 | 0% | |
| | Apr '09 | -2 | 18. | 0. | | 18. | 2,092.7 | 0. | 0.0 | 2,092.7 | 0% | |
| | May '09 | -1 | 6. | 0. | | 6. | 2,098.7 | 0. | 0.0 | 2,098.7 | 0% | |
| | Jun '09 | 0 | 0. | 0. | | 0. | 2,098.7 | 106. | 106.0 | 2,204.7 | 5% | START-UP |
| 2009/10 | Jul '09 | 1 | 22. | 0. | | 22. | 2,120.7 | 84. | 190.0 | 2,310.7 | 8% | |
| | Aug '09 | 2 | 30. | 0. | | 30. | 2,150.7 | 148. | 338.0 | 2,488.7 | 14% | |
| | Sep '09 | 3 | 36. | 0. | | 36. | 2,186.7 | 220. | 558.0 | 2,744.7 | 20% | |
| | Oct '09 | 4 | 122. | 1. | 903.8 | 1026.8 | 3,213.4 | 203. | 761.0 | 3,974.4 | 19% | |
| | Nov '09 | 5 | 100. | 0. | 903.8 | 1003.8 | 4,217.2 | 287. | 1,048.0 | 5,265.2 | 20% | |
| | Dec '09 | 6 | 373. | 0. | 903.8 | 1276.8 | 5,493.9 | 103. | 1,151.0 | 6,644.9 | 17% | |
| | Jan '10 | 7 | 526. | 0. | 903.8 | 1429.8 | 6,923.7 | 76. | 1,227.0 | 8,150.7 | 15% | |
| | Feb '10 | 8 | 370. | 0. | 903.8 | 1273.8 | 8,197.4 | 113. | 1,340.0 | 9,537.4 | 14% | |
| | Mar '10 | 9 | 104. | 0. | 903.8 | 1007.8 | 9,205.2 | 213. | 1,553.0 | 10,758.2 | 14% | |
| | Apr '10 | 10 | 128. | 0. | 903.8 | 1031.8 | 10,236.9 | 71. | 1,624.0 | 11,860.9 | 14% | |
| | May '10 | 11 | 49. | 0. | 903.8 | 952.8 | 11,189.7 | 272. | 1,896.0 | 13,085.7 | 14% | |
| | Jun '10 | 12 | 42. | 0. | 903.8 | 945.8 | 12,135.5 | 261. | 2,157.0 | 14,292.5 | 15% | |
| 2010/11 | Jul '10 | 13 | 7. | 0. | 903.8 | 910.8 | 13,046.2 | 229. | 2,386.0 | 15,432.2 | 15% | HISTORICAL |
| | Aug '10 | 14 | 6. | 0. | 903.8 | 909.8 | 13,956.0 | 181. | 2,567.0 | 16,523.0 | 16% | |
| | Sep '10 | 15 | 25. | 0. | 903.8 | 928.8 | 14,884.7 | 48. | 2,615.0 | 17,499.7 | 15% | |
| | Oct '10 | 16 | 71. | 0. | 903.8 | 974.8 | 15,859.5 | 23. | 2,638.0 | 18,497.5 | 14% | |
| | Nov '10 | 17 | 146. | 0. | 903.8 | 1049.8 | 16,909.2 | 193. | 2,831.0 | 19,740.2 | 14% | |
| | Dec '10 | 18 | 744. | 0. | 903.8 | 1647.8 | 18,557.0 | 122. | 2,953.0 | 21,510.0 | 14% | |
| | Jan '11 | 19 | 235. | 0. | 903.8 | 1138.8 | 19,695.7 | 103. | 3,056.0 | 22,751.7 | 13% | |
| | Feb '11 | 20 | 315. | 0. | 903.8 | 1218.8 | 20,914.5 | 177. | 3,233.0 | 24,147.5 | 13% | |
| | Mar '11 | 21 | 414. | 0. | 903.8 | 1317.8 | 22,232.3 | 126. | 3,359.0 | 25,591.3 | 13% | |
| | Apr '11 | 22 | 142. | 0. | 903.8 | 1045.8 | 23,278.0 | 237. | 3,596.0 | 26,874.0 | 13% | |
| | May '11 | 23 | 62. | 298.9 | 903.8 | 1264.7 | 24,542.7 | 176. | 3,772.0 | 28,314.7 | 13% | |
| | Jun '11 | 24 | 34. | 583.2 | 903.8 | 1521. | 26,063.6 | 184. | 3,956.0 | 30,019.6 | 13% | |
| 2011/12 | Jul '11 | 25 | 80. | 787.4 | 903.8 | 1771.2 | 27,834.8 | 253. | 4,209.0 | 32,043.8 | 13% | |
| | Aug '11 | 26 | 31. | 286.6 | 903.8 | 1221.4 | 29,056.1 | 15. | 4,224.0 | 33,280.1 | 13% | |
| | Sep '11 | 27 | 47. | 567.2 | 903.8 | 1518. | 30,574.1 | 30. | 4,254.0 | 34,828.1 | 12% | |
| | Oct '11 | 28 | 138. | 82.8 | 903.8 | 1124.6 | 31,698.6 | 182. | 4,436.0 | 36,134.6 | 12% | |
| | Nov '11 | 29 | 122. | 0. | 903.8 | 1025.8 | 32,724.4 | 97. | 4,533.0 | 37,257.4 | 12% | |
| | Dec '11 | 30 | 78. | 0. | 903.8 | 981.8 | 33,706.1 | 164. | 4,697.0 | 38,403.1 | 12% | |
| | Jan '12 | 31 | 104. | 0. | 903.8 | 1007.8 | 34,713.9 | 91. | 4,788.0 | 39,501.9 | 12% | |
| | Feb '12 | 32 | 176. | 0. | 903.8 | 1079.8 | 35,793.7 | 160. | 4,948.0 | 40,741.7 | 12% | |
| | Mar '12 | 33 | 222. | 0. | 903.8 | 1125.8 | 36,919.4 | 94. | 5,042.0 | 41,961.4 | 12% | |
| | Apr '12 | 34 | 220. | 0. | 903.8 | 1123.8 | 38,043.2 | 147. | 5,189.0 | 43,232.2 | 12% | |
| | May '12 | 35 | 61. | 0. | 903.8 | 964.8 | 39,007.9 | 375. | 5,564.0 | 44,571.9 | 12% | |
| | Jun '12 | 36 | 60. | 0. | 903.8 | 963.8 | 39,971.7 | 181. | 5,745.0 | 45,716.7 | 13% | |
| 2012/13 | Jul '12 | 37 | 50. | 0. | 903.8 | 953.8 | 40,925.4 | 12. | 5,757.0 | 46,682.4 | 12% | |
| | Aug '12 | 38 | 12. | 0. | 903.8 | 915.8 | 41,841.2 | 0. | 5,757.0 | 47,598.2 | 12% | |
| | Sep '12 | 39 | 4. | 0. | 903.8 | 907.8 | 42,748.9 | 0. | 5,757.0 | 48,505.9 | 12% | |
| | Oct '12 | 40 | 18. | 0. | 903.8 | 921.8 | 43,670.7 | 0. | 5,757.0 | 49,427.7 | 12% | |
| | Nov '12 | 41 | 101. | 0. | 903.8 | 1004.8 | 44,675.5 | 154. | 5,911.0 | 50,586.5 | 12% | |
| | Dec '12 | 42 | 361. | 0. | 903.8 | 1264.8 | 45,940.2 | 220. | 6,131.0 | 52,071.2 | 12% | |
| | Jan '13 | 43 | 147. | 0. | 903.8 | 1050.8 | 46,991.0 | 353. | 6,484.0 | 53,475.0 | 12% | |
| | Feb '13 | 44 | 113. | 0. | 903.8 | 1016.8 | 48,007.7 | 297. | 6,781.0 | 54,788.7 | 12% | |
| | Mar '13 | 45 | 78. | 0. | 903.8 | 981.8 | 48,989.5 | 275. | 7,056.0 | 56,045.5 | 13% | |
| | Apr '13 | 46 | 40. | 0. | 903.8 | 943.8 | 49,933.2 | 386. | 7,442.0 | 57,375.2 | 13% | |
| | May '13 | 47 | 54. | 0. | 903.8 | 957.8 | 50,891.0 | 262. | 7,704.0 | 58,595.0 | 13% | |
| | Jun '13 | 48 | 43. | 0 | 903.8 | 946.8 | 51,837.7 | 239. | 7,943.0 | 59,780.7 | 13% | |
| 2013/14 | Jul '13 | 49 | 72. | 0 | 903.8 | 975.8 | 52,813.5 | 74. | 8,017.0 | 60,830.5 | 13% | |
| | Aug '13 | 50 | 68. | 0 | 903.8 | 971.8 | 53,785.2 | 216. | 8,233.0 | 62,018.2 | 13% | |
| | Sep '13 | 51 | 58. | 0 | 903.8 | 961.8 | 54,747.0 | 353. | 8,586.0 | 63,333.0 | 14% | |
| | Oct '13 | 52 | 53. | 0 | 903.8 | 956.8 | 55,703.8 | 164. | 8,750.0 | 64,453.8 | 14% | |
| | Nov '13 | 53 | 60. | 0 | 903.8 | 963.8 | 56,667.5 | 4. | 8,754.0 | 65,421.5 | 13% | |
| | Dec '13 | 54 | 72. | 0 | 903.8 | 975.8 | 57,643.3 | 251. | 9,005.0 | 66,648.3 | 14% | |
| | Jan '14 | 55 | 43. | 86 | 903.8 | 1032.8 | 58,676.0 | 72. | 9,077.0 | 67,753.0 | 13% | |
| | Feb '14 | 56 | 131. | 66 | 903.8 | 1101.1 | 59,777.1 | 0. | 9,077.0 | 68,854.1 | 13% | |
| | Mar '14 | 57 | 103. | 160 | 903.8 | 1166.9 | 60,943.9 | 0. | 9,077.0 | 70,020.9 | 13% | |
| | Apr '14 | 58 | 48. | 38 | 903.8 | 989.4 | 61,933.3 | 49. | 9,126.0 | 71,059.3 | 13% | |
| | May '14 | 59 | 3. | 0 | 903.8 | 906.8 | 62,840.0 | 0. | 9,126.0 | 71,966.0 | 13% | |
| | Jun '14 | 60 | 6. | 0 | 903.8 | 909.8 | 63,749.8 | 172. | 9,298.0 | 73,047.8 | 13% | |

# RWC Management Plan for RP3 Basins

**(120-month averaging period)**

***Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries***

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 61 | 9. | 0 | 903.8 | 912.8 | 64,662.6 | 184. | 9,482.0 | 74,144.6 | 13% | HIST |
| | Aug '14 | 62 | 23. | 0 | 903.8 | 926.8 | 65,589.3 | 192. | 9,674.0 | 75,263.3 | 13% | |
| | Sep '14 | 63 | 40. | 0 | 903.8 | 943.8 | 66,533.1 | 243. | 9,917.0 | 76,450.1 | 13% | |
| | Oct '14 | 64 | 25. | 0 | 903.8 | 928.8 | 67,461.8 | 335. | 10,252.0 | 77,713.8 | 13% | |
| | Nov '14 | 65 | 112. | 0 | 903.8 | 1015.8 | 68,477.6 | 250. | 10,502.0 | 78,979.6 | 13% | |
| | Dec '14 | 66 | 419. | 0 | 903.8 | 1322.8 | 69,800.3 | 6. | 10,508.0 | 80,308.3 | 13% | |
| | Jan '15 | 67 | 132. | 0 | 903.8 | 1035.8 | 70,836.1 | 29. | 10,537.0 | 81,373.1 | 13% | |
| | Feb '15 | 68 | 95. | 0 | 903.8 | 998.8 | 71,834.8 | 243. | 10,780.0 | 82,614.8 | 13% | |
| | Mar '15 | 69 | 127. | | 903.8 | 1030.8 | 72,865.6 | 200. | 10,980.0 | 83,845.6 | 13% | PLANNED |
| | Apr '15 | 70 | 81. | | 903.8 | 984.8 | 73,850.3 | 200. | 11,180.0 | 85,030.3 | 13% | |
| | May '15 | 71 | 34. | | 903.8 | 937.8 | 74,788.1 | 0. | 11,180.0 | 85,968.1 | 13% | |
| | Jun '15 | 72 | 24. | | 903.8 | 927.8 | 75,715.9 | 0. | 11,180.0 | 86,895.9 | 13% | |
| 2015/16 | Jul '15 | 73 | 29. | | 903.8 | 932.8 | 76,617.6 | 200. | 11,380.0 | 87,997.6 | 13% | |
| | Aug '15 | 74 | 26. | | 903.8 | 929.8 | 77,516.4 | 200. | 11,580.0 | 89,096.4 | 13% | |
| | Sep '15 | 75 | 32. | | 903.8 | 935.8 | 78,392.1 | 200. | 11,780.0 | 90,172.1 | 13% | |
| | Oct '15 | 76 | 56. | | 903.8 | 959.8 | 79,273.9 | 200. | 11,980.0 | 91,253.9 | 13% | |
| | Nov '15 | 77 | 81. | | 903.8 | 984.8 | 80,198.6 | 200. | 12,180.0 | 92,378.6 | 13% | |
| | Dec '15 | 78 | 240. | | 903.8 | 1143.8 | 81,282.4 | 200. | 12,380.0 | 93,662.4 | 13% | |
| | Jan '16 | 79 | 142. | | 903.8 | 1045.8 | 82,295.6 | 450. | 12,830.0 | 95,125.6 | 13% | |
| | Feb '16 | 80 | 169. | | 903.8 | 1072.8 | 83,304.0 | 500. | 13,330.0 | 96,634.0 | 14% | |
| | Mar '16 | 81 | 127. | | 903.8 | 1030.8 | 84,174.1 | 550. | 13,880.0 | 98,054.1 | 14% | |
| | Apr '16 | 82 | 81. | | 903.8 | 984.8 | 85,031.9 | 600. | 14,480.0 | 99,511.9 | 15% | |
| | May '16 | 83 | 34. | | 903.8 | 937.8 | 85,932.7 | 0. | 14,480.0 | 100,412.7 | 14% | |
| | Jun '16 | 84 | 24. | | 903.8 | 927.8 | 86,835.4 | 0. | 14,480.0 | 101,315.4 | 14% | |
| 2016/17 | Jul '16 | 85 | 29. | | 903.8 | 932.8 | 87,753.2 | 600. | 15,080.0 | 102,833.2 | 15% | |
| | Aug '16 | 86 | 26. | | 903.8 | 929.8 | 88,646.9 | 600. | 15,680.0 | 104,326.9 | 15% | |
| | Sep '16 | 87 | 32. | | 903.8 | 935.8 | 89,547.7 | 600. | 16,280.0 | 105,827.7 | 15% | |
| | Oct '16 | 88 | 56. | | 903.8 | 959.8 | 90,474.4 | 600. | 16,880.0 | 107,354.4 | 16% | |
| | Nov '16 | 89 | 81. | | 903.8 | 984.8 | 91,423.1 | 550. | 17,430.0 | 108,853.1 | 16% | |
| | Dec '16 | 90 | 240. | | 903.8 | 1143.8 | 92,541.3 | 450. | 17,880.0 | 110,421.3 | 16% | |
| | Jan '17 | 91 | 142. | | 903.8 | 1045.8 | 93,564.9 | 450. | 18,330.0 | 111,894.9 | 16% | |
| | Feb '17 | 92 | 169. | | 903.8 | 1072.8 | 94,618.7 | 500. | 18,830.0 | 113,448.7 | 17% | |
| | Mar '17 | 93 | 127. | | 903.8 | 1030.8 | 95,642.0 | 550. | 19,380.0 | 115,022.0 | 17% | |
| | Apr '17 | 94 | 81. | | 903.8 | 984.8 | 96,622.8 | 600. | 19,980.0 | 116,602.8 | 17% | |
| | May '17 | 95 | 34. | | 903.8 | 937.8 | 97,558.6 | 0. | 19,980.0 | 117,538.6 | 17% | |
| | Jun '17 | 96 | 24. | | 903.8 | 927.8 | 98,484.3 | 0. | 19,980.0 | 118,464.3 | 17% | |
| 2017/18 | Jul '17 | 97 | 29. | | 903.8 | 932.8 | 99,417.1 | 600. | 20,580.0 | 119,997.1 | 17% | |
| | Aug '17 | 98 | 26. | | 903.8 | 929.8 | 100,343.8 | 600. | 21,180.0 | 121,523.8 | 17% | |
| | Sep '17 | 99 | 32. | | 903.8 | 935.8 | 101,276.6 | 600. | 21,780.0 | 123,056.6 | 18% | |
| | Oct '17 | 100 | 56. | | 903.8 | 959.8 | 102,227.3 | 600. | 22,380.0 | 124,607.3 | 18% | |
| | Nov '17 | 101 | 81. | | 903.8 | 984.8 | 103,165.1 | 550. | 22,930.0 | 126,095.1 | 18% | |
| | Dec '17 | 102 | 240. | | 903.8 | 1143.8 | 104,200.8 | 450. | 23,380.0 | 127,580.8 | 18% | |
| | Jan '18 | 103 | 142. | | 903.8 | 1045.8 | 105,081.6 | 450. | 23,830.0 | 128,911.6 | 18% | |
| | Feb '18 | 104 | 169. | | 903.8 | 1072.8 | 106,024.4 | 500. | 24,330.0 | 130,354.4 | 19% | |
| | Mar '18 | 105 | 127. | | 903.8 | 1030.8 | 107,050.1 | 550. | 24,880.0 | 131,930.1 | 19% | |
| | Apr '18 | 106 | 81. | | 903.8 | 984.8 | 108,031.9 | 600. | 25,480.0 | 133,511.9 | 19% | |
| | May '18 | 107 | 34. | | 903.8 | 937.8 | 108,935.6 | 0. | 25,480.0 | 134,415.6 | 19% | |
| | Jun '18 | 108 | 24. | | 903.8 | 927.8 | 109,859.4 | 0. | 25,480.0 | 135,339.4 | 19% | |
| 2018/19 | Jul '18 | 109 | 29. | | 903.8 | 932.8 | 110,792.1 | 600. | 26,080.0 | 136,872.1 | 19% | |
| | Aug '18 | 110 | 26. | | 903.8 | 929.8 | 111,705.9 | 600. | 26,680.0 | 138,385.9 | 19% | |
| | Sep '18 | 111 | 32. | | 903.8 | 935.8 | 112,625.6 | 600. | 27,280.0 | 139,905.6 | 19% | |
| | Oct '18 | 112 | 56. | | 903.8 | 959.8 | 113,572.4 | 600. | 27,880.0 | 141,452.4 | 20% | |
| | Nov '18 | 113 | 81. | | 903.8 | 984.8 | 114,530.1 | 550. | 28,430.0 | 142,960.1 | 20% | |
| | Dec '18 | 114 | 240. | | 903.8 | 1143.8 | 115,517.9 | 450. | 28,880.0 | 144,397.9 | 20% | |
| | Jan '19 | 115 | 142. | | 903.8 | 1045.8 | 116,551.7 | 450. | 29,330.0 | 145,881.7 | 20% | |
| | Feb '19 | 116 | 169. | | 903.8 | 1072.8 | 117,351.4 | 500. | 29,830.0 | 147,181.4 | 20% | |
| | Mar '19 | 117 | 127. | | 903.8 | 1030.8 | 118,335.2 | 550. | 30,380.0 | 148,715.2 | 20% | |
| | Apr '19 | 118 | 81. | | 903.8 | 984.8 | 119,301.9 | 600. | 30,980.0 | 150,281.9 | 21% | |
| | May '19 | 119 | 34. | | 903.8 | 937.8 | 120,233.7 | 0. | 30,980.0 | 151,213.7 | 20% | |
| | Jun '19 | 120 | 24. | | 903.8 | 927.8 | 121,161.4 | 0. | 30,874.0 | 152,035.4 | 20% | |
| 2019/20 | Jul '19 | 121 | 29. | | 903.8 | 932.8 | 122,072.2 | 600. | 31,390.0 | 153,462.2 | 20% | |
| | Aug '19 | 122 | 26. | | 903.8 | 929.8 | 122,971.9 | 600. | 31,842.0 | 154,813.9 | 21% | |
| | Sep '19 | 123 | 32. | | 903.8 | 935.8 | 123,871.7 | 600. | 32,222.0 | 156,093.7 | 21% | |
| | Oct '19 | 124 | 56. | | 903.8 | 959.8 | 123,804.7 | 600. | 32,619.0 | 156,423.7 | 21% | |
| | Nov '19 | 125 | 81. | | 903.8 | 984.8 | 123,785.7 | 550. | 32,882.0 | 156,667.7 | 21% | |
| | Dec '19 | 126 | 240. | | 903.8 | 1143.8 | 123,652.7 | 450. | 33,229.0 | 156,881.7 | 21% | |
| | Jan '20 | 127 | 142. | | 903.8 | 1045.8 | 123,268.7 | 450. | 33,603.0 | 156,871.7 | 21% | |
| | Feb '20 | 128 | 169. | | 903.8 | 1072.8 | 123,067.7 | 500. | 33,990.0 | 157,057.7 | 22% | |
| | Mar '20 | 129 | 127. | | 903.8 | 1030.8 | 123,090.7 | 550. | 34,327.0 | 157,417.7 | 22% | |
| | Apr '20 | 130 | 81. | | 903.8 | 984.8 | 123,043.7 | 600. | 34,856.0 | 157,899.7 | 22% | |
| | May '20 | 131 | 34. | | 903.8 | 937.8 | 123,028.7 | 0. | 34,584.0 | 157,612.7 | 22% | |
| | Jun '20 | 132 | 24. | | 903.8 | 927.8 | 123,010.7 | 0. | 34,323.0 | 157,333.7 | 22% | |

## RWC Management Plan for RP3 Basins

**(120-month averaging period)**

***Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries***

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/21 | Jul '20 | 133 | 29. | | 903.8 | 932.8 | 123,032.7 | 600. | 34,694.0 | 157,726.7 | 22% | PLANNED |
| | Aug '20 | 134 | 26. | | 903.8 | 929.8 | 123,052.7 | 600. | 35,113.0 | 158,165.7 | 22% | |
| | Sep '20 | 135 | 32. | | 903.8 | 935.8 | 123,059.7 | 600. | 35,665.0 | 158,724.7 | 22% | |
| | Oct '20 | 136 | 56. | | 903.8 | 959.8 | 123,044.7 | 600. | 36,242.0 | 159,286.7 | 23% | |
| | Nov '20 | 137 | 81. | | 903.8 | 984.8 | 122,979.7 | 550. | 36,599.0 | 159,578.7 | 23% | |
| | Dec '20 | 138 | 240. | | 903.8 | 1143.8 | 122,475.7 | 450. | 36,927.0 | 159,402.7 | 23% | |
| | Jan '21 | 139 | 142. | | 903.8 | 1045.8 | 122,382.7 | 450. | 37,274.0 | 159,656.7 | 23% | |
| | Feb '21 | 140 | 169. | | 903.8 | 1072.8 | 122,236.7 | 500. | 37,597.0 | 159,833.7 | 24% | |
| | Mar '21 | 141 | 127. | | 903.8 | 1030.8 | 121,949.7 | 550. | 38,021.0 | 159,970.7 | 24% | |
| | Apr '21 | 142 | 81. | | 903.8 | 984.8 | 121,888.7 | 600. | 38,384.0 | 160,272.7 | 24% | |
| | May '21 | 143 | 34. | | 903.8 | 937.8 | 121,561.8 | 0. | 38,208.0 | 159,769.8 | 24% | |
| | Jun '21 | 144 | 24. | | 903.8 | 927.8 | 120,968.6 | 0. | 38,024.0 | 158,992.6 | 24% | |
| 2021/22 | Jul '21 | 145 | 29. | | 903.8 | 932.8 | 120,130.2 | 600. | 38,371.0 | 158,501.2 | 24% | |
| | Aug '21 | 146 | 26. | | 903.8 | 929.8 | 119,838.6 | 600. | 38,956.0 | 158,794.6 | 25% | |
| | Sep '21 | 147 | 32. | | 903.8 | 935.8 | 119,256.4 | 600. | 39,526.0 | 158,782.4 | 25% | |
| | Oct '21 | 148 | 56. | | 903.8 | 959.8 | 119,091.6 | 600. | 39,944.0 | 159,035.6 | 25% | |
| | Nov '21 | 149 | 81. | | 903.8 | 984.8 | 119,050.6 | 550. | 40,397.0 | 159,447.6 | 25% | |
| | Dec '21 | 150 | 240. | | 903.8 | 1143.8 | 119,212.6 | 450. | 40,683.0 | 159,895.6 | 25% | |
| | Jan '22 | 151 | 142. | | 903.8 | 1045.8 | 119,250.6 | 450. | 41,042.0 | 160,292.6 | 26% | |
| | Feb '22 | 152 | 169. | | 903.8 | 1072.8 | 119,243.6 | 500. | 41,382.0 | 160,625.6 | 26% | |
| | Mar '22 | 153 | 127. | | 903.8 | 1030.8 | 119,148.6 | 550. | 41,838.0 | 160,986.6 | 26% | |
| | Apr '22 | 154 | 81. | | 903.8 | 984.8 | 119,009.6 | 600. | 42,291.0 | 161,300.6 | 26% | |
| | May '22 | 155 | 34. | | 903.8 | 937.8 | 118,982.6 | 0. | 41,916.0 | 160,898.6 | 26% | |
| | Jun '22 | 156 | 24. | | 903.8 | 927.8 | 118,946.6 | 0. | 41,735.0 | 160,681.6 | 26% | |
| 2022/23 | Jul '22 | 157 | 29. | | 903.8 | 932.8 | 118,925.6 | 600. | 42,323.0 | 161,248.6 | 26% | |
| | Aug '22 | 158 | 26. | | 903.8 | 929.8 | 118,939.6 | 600. | 42,923.0 | 161,862.6 | 27% | |
| | Sep '22 | 159 | 32. | | 903.8 | 935.8 | 118,967.6 | 600. | 43,523.0 | 162,490.6 | 27% | |
| | Oct '22 | 160 | 56. | | 903.8 | 959.8 | 119,005.6 | 600. | 44,123.0 | 163,128.6 | 27% | |
| | Nov '22 | 161 | 81. | | 903.8 | 984.8 | 118,985.6 | 550. | 44,519.0 | 163,504.6 | 27% | |
| | Dec '22 | 162 | 240. | | 903.8 | 1143.8 | 118,864.6 | 450. | 44,749.0 | 163,613.6 | 27% | |
| | Jan '23 | 163 | 142. | | 903.8 | 1045.8 | 118,859.6 | 450. | 44,846.0 | 163,705.6 | 27% | |
| | Feb '23 | 164 | 169. | | 903.8 | 1072.8 | 118,915.6 | 500. | 45,049.0 | 163,964.6 | 27% | |
| | Mar '23 | 165 | 127. | | 903.8 | 1030.8 | 118,964.6 | 550. | 45,324.0 | 164,288.6 | 28% | |
| | Apr '23 | 166 | 81. | | 903.8 | 984.8 | 119,005.6 | 600. | 45,538.0 | 164,543.6 | 28% | |
| | May '23 | 167 | 34. | | 903.8 | 937.8 | 118,985.6 | 0. | 45,276.0 | 164,261.6 | 28% | |
| | Jun '23 | 168 | 24. | | 903.8 | 927.8 | 118,966.6 | 0. | 45,037.0 | 164,003.6 | 27% | |
| 2023/24 | Jul '23 | 169 | 29. | | 903.8 | 932.8 | 118,923.6 | 600. | 45,563.0 | 164,486.6 | 28% | |
| | Aug '23 | 170 | 26. | | 903.8 | 929.8 | 118,881.6 | 600. | 45,947.0 | 164,828.6 | 28% | |
| | Sep '23 | 171 | 32. | | 903.8 | 935.8 | 118,855.6 | 600. | 46,194.0 | 165,049.6 | 28% | |
| | Oct '23 | 172 | 56. | | 903.8 | 959.8 | 118,858.6 | 600. | 46,630.0 | 165,488.6 | 28% | |
| | Nov '23 | 173 | 81. | | 903.8 | 984.8 | 118,879.6 | 550. | 47,176.0 | 166,055.6 | 28% | |
| | Dec '23 | 174 | 240. | | 903.8 | 1143.8 | 119,047.6 | 450. | 47,375.0 | 166,422.6 | 28% | |
| | Jan '24 | 175 | 142. | | 903.8 | 1045.8 | 119,060.6 | 450. | 47,753.0 | 166,813.6 | 29% | |
| | Feb '24 | 176 | 169. | | 903.8 | 1072.8 | 119,032.3 | 500. | 48,253.0 | 167,285.3 | 29% | |
| | Mar '24 | 177 | 127. | | 903.8 | 1030.8 | 118,896.2 | 550. | 48,803.0 | 167,699.2 | 29% | |
| | Apr '24 | 178 | 81. | | 903.8 | 984.8 | 118,891.6 | 600. | 49,354.0 | 168,245.6 | 29% | |
| | May '24 | 179 | 34. | | 903.8 | 937.8 | 118,922.6 | 0. | 49,354.0 | 168,276.6 | 29% | |
| | Jun '24 | 180 | 24. | | 903.8 | 927.8 | 118,940.6 | 0. | 49,182.0 | 168,122.6 | 29% | |

**Notes:**

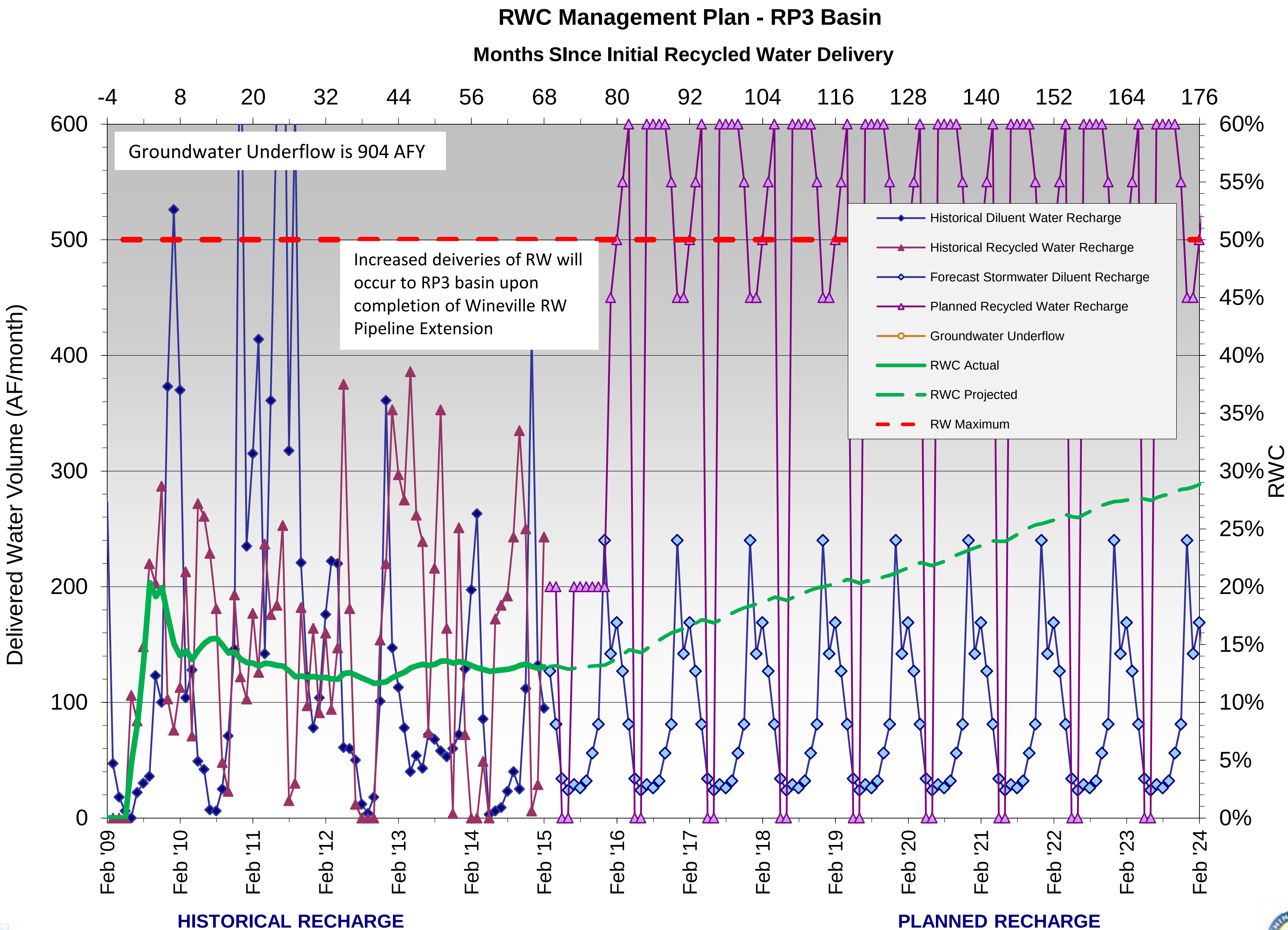
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan - RP3 Basin
Months SInce Initial Recycled Water Delivery
-4
8
20
32
44
56
68
80
92
104
116
128
140
152
164
176
Groundwater Underflow is 904 AFY
Increased deiveries of RW will occur to RP3 basin upon completion of Wineville RW Pipeline Extension
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Diluent Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC Actual
RWC Projected
RW Maximum
Delivered Water Volume (AF/month)
600
500
400
300
200
100
0
RWC
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

# RWC Management Plan for San Sevaine Basin 1 through 5

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | -24 | 0. | 0. | | 0. | 18849 | 0. | 0 | 18849 | 0% | |
| | Aug '08 | -23 | 0. | 0. | | 0. | 18849 | 0. | 0 | 18849 | 0% | |
| | Sep '08 | -22 | 0. | 0. | | 0. | 18849 | 0. | 0 | 18849 | 0% | |
| | Oct '08 | -21 | 0. | 0. | | 0. | 18849 | 0. | 0 | 18849 | 0% | |
| | Nov '08 | -20 | 8. | 0. | | 8. | 18857 | 0. | 0 | 18857 | 0% | |
| | Dec '08 | -19 | 86. | 0. | | 86. | 18943 | 0. | 0 | 18943 | 0% | |
| | Jan '09 | -18 | 16. | 0. | | 16. | 18959 | 0. | 0 | 18959 | 0% | |
| | Feb '09 | -17 | 107. | 0. | | 107. | 19066 | 0. | 0 | 19066 | 0% | |
| | Mar '09 | -16 | 8. | 0. | | 8. | 19074 | 0. | 0 | 19074 | 0% | |
| | Apr '09 | -15 | 0. | 0. | | 0. | 19074 | 0. | 0 | 19074 | 0% | |
| | May '09 | -14 | 0. | 0. | | 0. | 19074 | 0. | 0 | 19074 | 0% | |
| | Jun '09 | -13 | 0. | 0. | | 0. | 19074 | 0. | 0 | 19074 | 0% | |
| 2009/10 | Jul '09 | -12 | 0. | 0. | | 0. | 19074 | 0. | 0 | 19074 | 0% | HISTORICAL |
| | Aug '09 | -11 | 0. | 0. | | 0. | 19074 | 0. | 0 | 19074 | 0% | |
| | Sep '09 | -10 | 0. | 0. | | 0. | 19074 | 0. | 0 | 19074 | 0% | |
| | Oct '09 | -9 | 56. | 0. | | 56. | 19130 | 0. | 0 | 19130 | 0% | |
| | Nov '09 | -8 | 21. | 0. | | 21. | 19151 | 0. | 0 | 19151 | 0% | |
| | Dec '09 | -7 | 334. | 0. | | 334. | 19485 | 0. | 0 | 19485 | 0% | |
| | Jan '10 | -6 | 290. | 0. | | 290. | 19775 | 0. | 0 | 19775 | 0% | |
| | Feb '10 | -5 | 223. | 0. | | 223. | 19998 | 0. | 0 | 19998 | 0% | |
| | Mar '10 | -4 | 16. | 0. | | 16. | 20014 | 0. | 0 | 20014 | 0% | |
| | Apr '10 | -3 | 53. | 0. | | 53. | 20067 | 0. | 0 | 20067 | 0% | |
| | May '10 | -2 | 0. | 0. | | 0. | 20067 | 0. | 0 | 20067 | 0% | |
| | Jun '10 | -1 | 0. | 0. | | 0. | 20067 | 0. | 0 | 20067 | 0% | |
| 2010/11 | Jul '10 | 0 | 0. | 0. | | 0. | 20067 | 50. | 50 | 20117 | 0% | START-UP |
| | Aug '10 | 1 | 0. | 0. | | 0. | 20067 | 44. | 94 | 20161 | 0% | |
| | Sep '10 | 2 | 0. | 0. | | 0. | 20067 | 42. | 136 | 20203 | 1% | |
| | Oct '10 | 3 | 95. | 0. | | 95. | 20162 | 73. | 209 | 20371 | 1% | |
| | Nov '10 | 4 | 81. | 0. | 139. | 220. | 20382 | 13. | 222 | 20604 | 1% | |
| | Dec '10 | 5 | 577. | 0. | 139. | 716. | 21098 | 32. | 254 | 21352 | 1% | |
| | Jan '11 | 6 | 13. | 0. | 139. | 152. | 21250 | 72. | 326 | 21576 | 2% | |
| | Feb '11 | 7 | 143. | 0. | 139. | 282. | 21532 | 0. | 326 | 21858 | 1% | |
| | Mar '11 | 8 | 133. | 0. | 139. | 272. | 21804 | 0. | 326 | 22130 | 1% | |
| | Apr '11 | 9 | 0. | 0. | 139. | 139. | 21943 | 0. | 326 | 22269 | 1% | |
| | May '11 | 10 | 7. | 537.9 | 139. | 683.9 | 22627 | 36. | 362 | 22989 | 2% | |
| | Jun '11 | 11 | 0. | 1169.2 | 139. | 1308.2 | 23935 | 34. | 396 | 24331 | 2% | |
| 2011/12 | Jul '11 | 12 | 0. | 1010.7 | 139. | 1149.7 | 25084 | 113. | 509 | 25593 | 2% | HISTORICAL |
| | Aug '11 | 13 | 0. | 11.2 | 139. | 150.2 | 25235 | 90. | 599 | 25834 | 2% | |
| | Sep '11 | 14 | 0. | 205.6 | 139. | 344.6 | 25579 | 0. | 599 | 26178 | 2% | |
| | Oct '11 | 15 | 39. | 0. | 139. | 178. | 25757 | 0. | 599 | 26356 | 2% | |
| | Nov '11 | 16 | 32. | 0. | 139. | 171. | 25928 | 0. | 599 | 26527 | 2% | |
| | Dec '11 | 17 | 20. | 0. | 139. | 159. | 26087 | 0. | 599 | 26686 | 2% | |
| | Jan '12 | 18 | 55. | 0. | 139. | 194. | 26281 | 159. | 758 | 27039 | 3% | |
| | Feb '12 | 19 | 54. | 0. | 139. | 193. | 26474 | 74. | 832 | 27306 | 3% | |
| | Mar '12 | 20 | 160. | 0. | 139. | 299. | 26773 | 16. | 848 | 27621 | 3% | |
| | Apr '12 | 21 | 76. | 0. | 139. | 215. | 26988 | 4. | 852 | 27840 | 3% | |
| | May '12 | 22 | 0. | 0. | 139. | 139. | 27127 | 3. | 855 | 27982 | 3% | |
| | Jun '12 | 23 | 0. | 0. | 139. | 139. | 27266 | 54. | 909 | 28175 | 3% | |
| 2012/13 | Jul '12 | 24 | 0. | 0. | 139. | 139. | 27405 | 122. | 1031 | 28436 | 4% | |
| | Aug '12 | 25 | 1. | 0. | 139. | 140. | 27545 | 84. | 1115 | 28660 | 4% | |
| | Sep '12 | 26 | 0. | 0. | 139. | 139. | 27684 | 39. | 1154 | 28838 | 4% | |
| | Oct '12 | 27 | 1. | 0. | 139. | 140. | 27824 | 63. | 1217 | 29041 | 4% | |
| | Nov '12 | 28 | 14. | 0. | 139. | 153. | 27977 | 66. | 1283 | 29260 | 4% | |
| | Dec '12 | 29 | 79. | 0. | 139. | 218. | 28194 | 1. | 1284 | 29478 | 4% | |
| | Jan '13 | 30 | 21. | 0. | 139. | 160. | 28354 | 59. | 1343 | 29697 | 5% | |
| | Feb '13 | 31 | 9. | 0. | 139. | 148. | 28502 | 19. | 1362 | 29864 | 5% | |
| | Mar '13 | 32 | 13. | 0. | 139. | 152. | 28654 | 53. | 1415 | 30069 | 5% | |
| | Apr '13 | 33 | 5. | 0. | 139. | 144. | 28798 | 41. | 1456 | 30254 | 5% | |
| | May '13 | 34 | 4. | 0. | 139. | 143. | 28941 | 26. | 1482 | 30423 | 5% | |
| | Jun '13 | 35 | 0. | 0 | 139. | 139. | 29080 | 2. | 1484 | 30564 | 5% | |
| 2013/14 | Jul '13 | 36 | 0. | 0 | 139. | 139. | 29219 | 0. | 1484 | 30703 | 5% | |
| | Aug '13 | 37 | 0. | 0 | 139. | 139. | 29358 | 0. | 1484 | 30842 | 5% | |
| | Sep '13 | 38 | 0. | 0 | 139. | 139. | 29497 | 154. | 1638 | 31135 | 5% | |
| | Oct '13 | 39 | 11. | 0 | 139. | 150. | 29647 | 69. | 1707 | 31354 | 5% | |
| | Nov '13 | 40 | 39. | 0 | 139. | 178. | 29825 | 9. | 1716 | 31541 | 5% | |
| | Dec '13 | 41 | 6. | 0 | 139. | 145. | 29970 | 0. | 1716 | 31686 | 5% | |
| | Jan '14 | 42 | 0. | 0 | 139. | 139. | 30109 | 12. | 1728 | 31837 | 5% | |
| | Feb '14 | 43 | 69. | 0 | 139. | 208. | 30317 | 16. | 1744 | 32061 | 5% | |
| | Mar '14 | 44 | 20. | 0 | 139. | 159. | 30476 | 0. | 1744 | 32220 | 5% | |
| | Apr '14 | 45 | 17. | 0 | 139. | 156. | 30632 | 2. | 1746 | 32378 | 5% | |
| | May '14 | 46 | 0. | 0 | 139. | 139. | 30771 | 12. | 1758 | 32529 | 5% | |
| | Jun '14 | 47 | 0. | 0 | 139. | 139. | 30910 | 0. | 1758 | 32668 | 5% | |

## RWC Management Plan for San Sevaine Basin 1 through 5

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 48 | 0. | 0 | 139. | 139. | 31049 | 0. | 1758 | 32807 | 5% | HIST |
| | Aug '14 | 49 | 6. | 0 | 139. | 145. | 31193 | 0. | 1758 | 32951 | 5% | |
| | Sep '14 | 50 | 1. | 0 | 139. | 140. | 31333 | 1. | 1759 | 33092 | 5% | |
| | Oct '14 | 51 | 0. | 0 | 139. | 139. | 31472 | 0. | 1759 | 33231 | 5% | |
| | Nov '14 | 52 | 18. | 0 | 139. | 157. | 31629 | 0. | 1759 | 33388 | 5% | |
| | Dec '14 | 53 | 247. | 0 | 139. | 386. | 32015 | 0. | 1759 | 33774 | 5% | |
| | Jan '15 | 54 | - 6. | 0 | 139. | 133. | 32148 | 0. | 1759 | 33907 | 5% | |
| | Feb '15 | 55 | 39. | 0 | 139. | 178. | 32326 | 0. | 1759 | 34085 | 5% | |
| | Mar '15 | 56 | 100. | | 139. | 239. | 32565 | 0. | 1759 | 34324 | 5% | PLANNED |
| | Apr '15 | 57 | 149. | | 139. | 288. | 32853 | 0. | 1759 | 34612 | 5% | |
| | May '15 | 58 | 25. | | 139. | 164. | 32623 | 0. | 1759 | 34382 | 5% | |
| | Jun '15 | 59 | 3. | | 139. | 142. | 31574 | 0. | 1759 | 33333 | 5% | |
| 2015/16 | Jul '15 | 60 | 0. | | 139. | 139. | 31244 | 0. | 1759 | 33003 | 5% | |
| | Aug '15 | 61 | 1. | | 139. | 140. | 31171 | 0. | 1759 | 32930 | 5% | |
| | Sep '15 | 62 | 0. | | 139. | 139. | 30752 | 0. | 1759 | 32511 | 5% | |
| | Oct '15 | 63 | 23. | | 139. | 162. | 30339 | 0. | 1759 | 32098 | 5% | |
| | Nov '15 | 64 | 25. | | 139. | 164. | 29361 | 0. | 1759 | 31120 | 6% | |
| | Dec '15 | 65 | 151. | | 139. | 290. | 28664 | 0. | 1759 | 30423 | 6% | |
| | Jan '16 | 66 | 100. | | 139. | 239. | 27935 | 100. | 1859 | 29794 | 6% | |
| | Feb '16 | 67 | 89. | | 139. | 228. | 27039 | 100. | 1959 | 28998 | 7% | |
| | Mar '16 | 68 | 100. | | 139. | 239. | 26314 | 100. | 2059 | 28373 | 7% | |
| | Apr '16 | 69 | 149. | | 139. | 288. | 25415 | 100. | 2159 | 27574 | 8% | |
| | May '16 | 70 | 25. | | 139. | 164. | 24193 | 100. | 2259 | 26452 | 9% | |
| | Jun '16 | 71 | 3. | | 139. | 142. | 23386 | 100. | 2359 | 25745 | 9% | |
| 2016/17 | Jul '16 | 72 | 0. | | 139. | 139. | 23510 | 0. | 2359 | 25869 | 9% | |
| | Aug '16 | 73 | 1. | | 139. | 140. | 22620 | 0. | 2359 | 24979 | 9% | |
| | Sep '16 | 74 | 0. | | 139. | 139. | 21753 | 100. | 2459 | 24212 | 10% | |
| | Oct '16 | 75 | 23. | | 139. | 162. | 20904 | 100. | 2559 | 23463 | 11% | |
| | Nov '16 | 76 | 25. | | 139. | 164. | 20503 | 100. | 2659 | 23162 | 11% | |
| | Dec '16 | 77 | 151. | | 139. | 290. | 19774 | 100. | 2759 | 22533 | 12% | |
| | Jan '17 | 78 | 100. | | 139. | 239. | 19076 | 100. | 2859 | 21935 | 13% | |
| | Feb '17 | 79 | 89. | | 139. | 228. | 18962 | 100. | 2959 | 21921 | 13% | |
| | Mar '17 | 80 | 100. | | 139. | 239. | 19196 | 100. | 3059 | 22255 | 14% | |
| | Apr '17 | 81 | 149. | | 139. | 288. | 19481 | 100. | 3159 | 22640 | 14% | |
| | May '17 | 82 | 25. | | 139. | 164. | 19614 | 100. | 3259 | 22873 | 14% | |
| | Jun '17 | 83 | 3. | | 139. | 142. | 19726 | 100. | 3359 | 23085 | 15% | |
| 2017/18 | Jul '17 | 84 | 0. | | 139. | 139. | 19865 | 0. | 3359 | 23224 | 14% | |
| | Aug '17 | 85 | 1. | | 139. | 140. | 20005 | 0. | 3359 | 23364 | 14% | |
| | Sep '17 | 86 | 0. | | 139. | 139. | 20142 | 100. | 3459 | 23601 | 15% | |
| | Oct '17 | 87 | 23. | | 139. | 162. | 20298 | 100. | 3559 | 23857 | 15% | |
| | Nov '17 | 88 | 25. | | 139. | 164. | 20424 | 100. | 3659 | 24083 | 15% | |
| | Dec '17 | 89 | 151. | | 139. | 290. | 20639 | 100. | 3759 | 24398 | 15% | |
| | Jan '18 | 90 | 100. | | 139. | 239. | 20325 | 100. | 3859 | 24184 | 16% | |
| | Feb '18 | 91 | 89. | | 139. | 228. | 20524 | 100. | 3959 | 24483 | 16% | |
| | Mar '18 | 92 | 100. | | 139. | 239. | 20763 | 100. | 4059 | 24822 | 16% | |
| | Apr '18 | 93 | 149. | | 139. | 288. | 21051 | 100. | 4159 | 25210 | 16% | |
| | May '18 | 94 | 25. | | 139. | 164. | 21168 | 100. | 4259 | 25427 | 17% | |
| | Jun '18 | 95 | 3. | | 139. | 142. | 21310 | 100. | 4359 | 25669 | 17% | |
| 2018/19 | Jul '18 | 96 | 0. | | 139. | 139. | 21449 | 0. | 4359 | 25808 | 17% | |
| | Aug '18 | 97 | 1. | | 139. | 140. | 21589 | 0. | 4359 | 25948 | 17% | |
| | Sep '18 | 98 | 0. | | 139. | 139. | 21728 | 100. | 4459 | 26187 | 17% | |
| | Oct '18 | 99 | 23. | | 139. | 162. | 21890 | 100. | 4559 | 26449 | 17% | |
| | Nov '18 | 100 | 25. | | 139. | 164. | 22046 | 100. | 4659 | 26705 | 17% | |
| | Dec '18 | 101 | 151. | | 139. | 290. | 22250 | 100. | 4759 | 27009 | 18% | |
| | Jan '19 | 102 | 100. | | 139. | 239. | 22473 | 100. | 4859 | 27332 | 18% | |
| | Feb '19 | 103 | 89. | | 139. | 228. | 22594 | 100. | 4959 | 27553 | 18% | |
| | Mar '19 | 104 | 100. | | 139. | 239. | 22825 | 100. | 5059 | 27884 | 18% | |
| | Apr '19 | 105 | 149. | | 139. | 288. | 23113 | 100. | 5159 | 28272 | 18% | |
| | May '19 | 106 | 25. | | 139. | 164. | 23277 | 100. | 5259 | 28536 | 18% | |
| | Jun '19 | 107 | 3. | | 139. | 142. | 23419 | 100. | 5359 | 28778 | 19% | |
| 2019/20 | Jul '19 | 108 | 0. | | 139. | 139. | 23558 | 0. | 5359 | 28917 | 19% | |
| | Aug '19 | 109 | 1. | | 139. | 140. | 23697 | 0. | 5359 | 29056 | 18% | |
| | Sep '19 | 110 | 0. | | 139. | 139. | 23836 | 100. | 5459 | 29295 | 19% | |
| | Oct '19 | 111 | 23. | | 139. | 162. | 23942 | 100. | 5559 | 29501 | 19% | |
| | Nov '19 | 112 | 25. | | 139. | 164. | 24085 | 100. | 5659 | 29744 | 19% | |
| | Dec '19 | 113 | 151. | | 139. | 290. | 24041 | 100. | 5759 | 29800 | 19% | |
| | Jan '20 | 114 | 100. | | 139. | 239. | 23990 | 100. | 5859 | 29849 | 20% | |
| | Feb '20 | 115 | 89. | | 139. | 228. | 23995 | 100. | 5959 | 29954 | 20% | |
| | Mar '20 | 116 | 100. | | 139. | 239. | 24218 | 100. | 6059 | 30277 | 20% | |
| | Apr '20 | 117 | 149. | | 139. | 288. | 24453 | 100. | 6159 | 30612 | 20% | |
| | May '20 | 118 | 25. | | 139. | 164. | 24617 | 100. | 6259 | 30876 | 20% | |
| | Jun '20 | 119 | 3. | | 139. | 142. | 24759 | 100. | 6359 | 31118 | 20% | |

## RWC Management Plan for San Sevaine Basin 1 through 5

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/21 | Jul '20 | 120 | 0. | | 139. | 139. | 24898 | 0. | 6309 | 31207 | 20% | PLANNED |
| | Aug '20 | 121 | 1. | | 139. | 140. | 25038 | 0. | 6265 | 31303 | 20% | |
| | Sep '20 | 122 | 0. | | 139. | 139. | 25177 | 100. | 6323 | 31500 | 20% | |
| | Oct '20 | 123 | 23. | | 139. | 162. | 25244 | 100. | 6350 | 31594 | 20% | |
| | Nov '20 | 124 | 25. | | 139. | 164. | 25188 | 100. | 6437 | 31625 | 20% | |
| | Dec '20 | 125 | 151. | | 139. | 290. | 24762 | 100. | 6505 | 31267 | 21% | |
| | Jan '21 | 126 | 100. | | 139. | 239. | 24849 | 100. | 6533 | 31382 | 21% | |
| | Feb '21 | 127 | 89. | | 139. | 228. | 24795 | 100. | 6633 | 31428 | 21% | |
| | Mar '21 | 128 | 100. | | 139. | 239. | 24762 | 100. | 6733 | 31495 | 21% | |
| | Apr '21 | 129 | 149. | | 139. | 288. | 24911 | 100. | 6833 | 31744 | 22% | |
| | May '21 | 130 | 25. | | 139. | 164. | 24391 | 100. | 6897 | 31288 | 22% | |
| | Jun '21 | 131 | 3. | | 139. | 142. | 23225 | 100. | 6963 | 30188 | 23% | |
| 2021/22 | Jul '21 | 132 | 0. | | 139. | 139. | 22214 | 0. | 6850 | 29064 | 24% | |
| | Aug '21 | 133 | 1. | | 139. | 140. | 22204 | 0. | 6760 | 28964 | 23% | |
| | Sep '21 | 134 | 0. | | 139. | 139. | 21998 | 100. | 6860 | 28858 | 24% | |
| | Oct '21 | 135 | 23. | | 139. | 162. | 21982 | 100. | 6960 | 28942 | 24% | |
| | Nov '21 | 136 | 25. | | 139. | 164. | 21975 | 100. | 7060 | 29035 | 24% | |
| | Dec '21 | 137 | 151. | | 139. | 290. | 22106 | 100. | 7160 | 29266 | 24% | |
| | Jan '22 | 138 | 100. | | 139. | 239. | 22151 | 100. | 7101 | 29252 | 24% | |
| | Feb '22 | 139 | 89. | | 139. | 228. | 22186 | 100. | 7127 | 29313 | 24% | |
| | Mar '22 | 140 | 100. | | 139. | 239. | 22126 | 100. | 7211 | 29337 | 25% | |
| | Apr '22 | 141 | 149. | | 139. | 288. | 22199 | 100. | 7307 | 29506 | 25% | |
| | May '22 | 142 | 25. | | 139. | 164. | 22224 | 100. | 7404 | 29628 | 25% | |
| | Jun '22 | 143 | 3. | | 139. | 142. | 22227 | 100. | 7450 | 29677 | 25% | |
| 2022/23 | Jul '22 | 144 | 0. | | 139. | 139. | 22227 | 0. | 7328 | 29555 | 25% | |
| | Aug '22 | 145 | 1. | | 139. | 140. | 22227 | 0. | 7244 | 29471 | 25% | |
| | Sep '22 | 146 | 0. | | 139. | 139. | 22227 | 100. | 7305 | 29532 | 25% | |
| | Oct '22 | 147 | 23. | | 139. | 162. | 22249 | 100. | 7342 | 29591 | 25% | |
| | Nov '22 | 148 | 25. | | 139. | 164. | 22260 | 100. | 7376 | 29636 | 25% | |
| | Dec '22 | 149 | 151. | | 139. | 290. | 22332 | 100. | 7475 | 29807 | 25% | |
| | Jan '23 | 150 | 100. | | 139. | 239. | 22411 | 100. | 7516 | 29927 | 25% | |
| | Feb '23 | 151 | 89. | | 139. | 228. | 22491 | 100. | 7597 | 30088 | 25% | |
| | Mar '23 | 152 | 100. | | 139. | 239. | 22578 | 100. | 7644 | 30222 | 25% | |
| | Apr '23 | 153 | 149. | | 139. | 288. | 22722 | 100. | 7703 | 30425 | 25% | |
| | May '23 | 154 | 25. | | 139. | 164. | 22743 | 100. | 7777 | 30520 | 25% | |
| | Jun '23 | 155 | 3. | | 139. | 142. | 22746 | 100. | 7875 | 30621 | 26% | |
| 2023/24 | Jul '23 | 156 | 0. | | 139. | 139. | 22746 | 0. | 7875 | 30621 | 26% | |
| | Aug '23 | 157 | 1. | | 139. | 140. | 22747 | 0. | 7875 | 30622 | 26% | |
| | Sep '23 | 158 | 0. | | 139. | 139. | 22747 | 100. | 7821 | 30568 | 26% | |
| | Oct '23 | 159 | 23. | | 139. | 162. | 22759 | 100. | 7852 | 30611 | 26% | |
| | Nov '23 | 160 | 25. | | 139. | 164. | 22745 | 100. | 7943 | 30688 | 26% | |
| | Dec '23 | 161 | 151. | | 139. | 290. | 22890 | 100. | 8043 | 30933 | 26% | |
| | Jan '24 | 162 | 100. | | 139. | 239. | 22990 | 100. | 8131 | 31121 | 26% | |
| | Feb '24 | 163 | 89. | | 139. | 228. | 23010 | 100. | 8215 | 31225 | 26% | |
| | Mar '24 | 164 | 100. | | 139. | 239. | 23090 | 100. | 8315 | 31405 | 26% | |
| | Apr '24 | 165 | 149. | | 139. | 288. | 23222 | 100. | 8413 | 31635 | 27% | |
| | May '24 | 166 | 25. | | 139. | 164. | 23247 | 100. | 8501 | 31748 | 27% | |
| | Jun '24 | 167 | 3. | | 139. | 142. | 23250 | 100. | 8601 | 31851 | 27% | |

**Notes:**

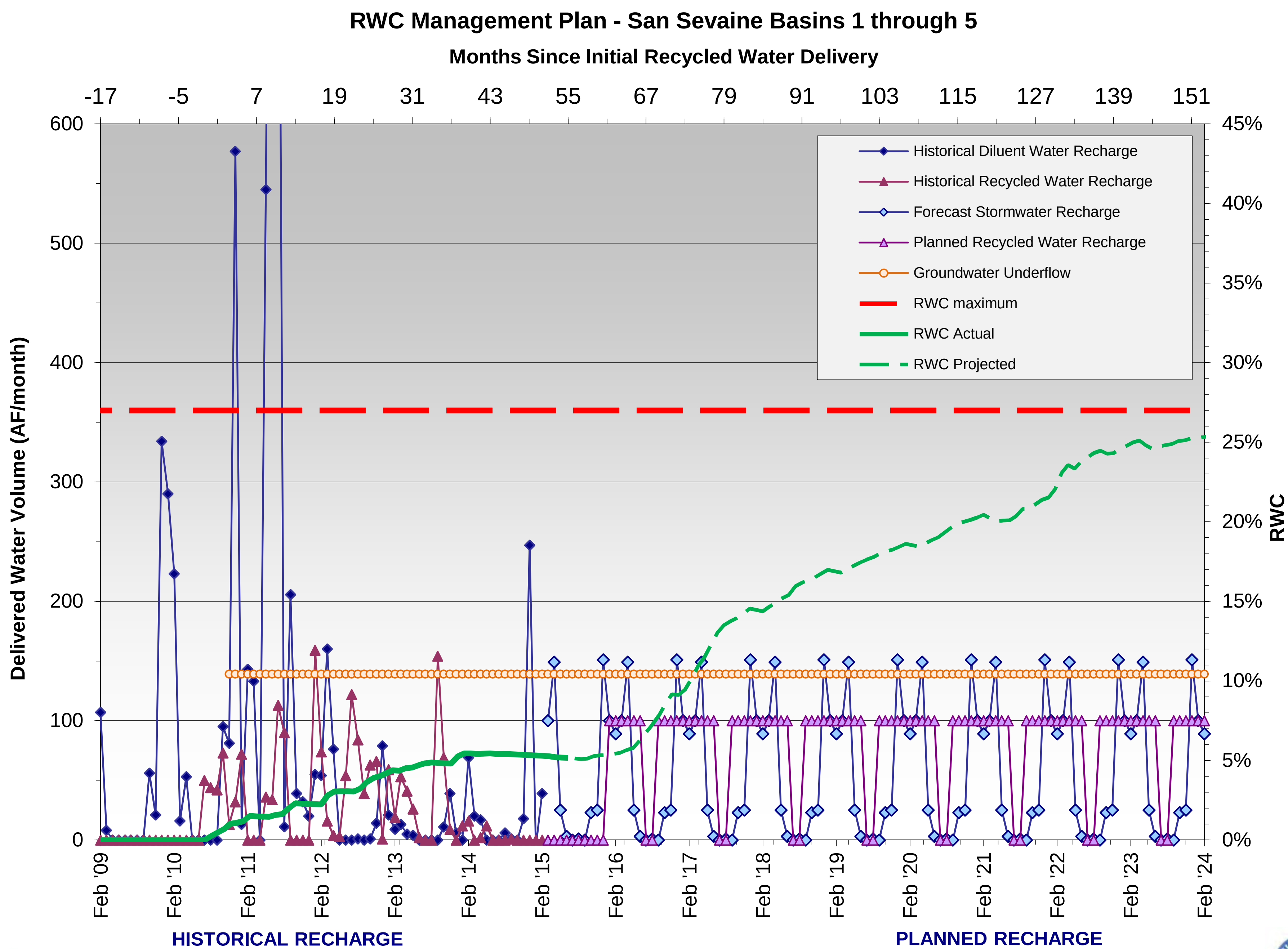
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan - San Sevaine Basins 1 through 5
Months Since Initial Recycled Water Delivery
-17
-5
7
19
31
43
55
67
79
91
103
115
127
139
151
600
500
400
300
200
100
0
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Delivered Water Volume (AF/month)
RWC
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC maximum
RWC Actual
RWC Projected
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

## RWC Management Plan for Turner Basin Cells 1 & 2

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | 24 | 7. | 0. | | 7. | 4629 | 0. | 620 | 5249 | 12% | HISTORICAL |
| | Aug '08 | 25 | 3. | 0. | | 3. | 4632 | 0. | 620 | 5252 | 12% | |
| | Sep '08 | 26 | 127. | 0. | | 127. | 4759 | 0. | 620 | 5379 | 12% | |
| | Oct '08 | 27 | 80. | 0. | | 80. | 4839 | 28. | 648 | 5487 | 12% | |
| | Nov '08 | 28 | 81. | 0. | | 81. | 4920 | 30. | 678 | 5598 | 12% | |
| | Dec '08 | 29 | 344. | 0. | | 344. | 5264 | 0. | 678 | 5942 | 11% | |
| | Jan '09 | 30 | 29. | 0. | | 29. | 5293 | 0. | 678 | 5971 | 11% | |
| | Feb '09 | 31 | 345. | 0. | | 345. | 5638 | 0. | 678 | 6316 | 11% | |
| | Mar '09 | 32 | 47. | 0. | | 47. | 5685 | 0. | 678 | 6363 | 11% | |
| | Apr '09 | 33 | 11. | 0. | | 11. | 5696 | 0. | 678 | 6374 | 11% | |
| | May '09 | 34 | 18. | 0. | | 18. | 5714 | 30. | 708 | 6422 | 11% | |
| | Jun '09 | 35 | 77. | 0. | | 77. | 5791 | 9. | 717 | 6508 | 11% | |
| 2009/10 | Jul '09 | 36 | 32. | 0. | | 32. | 5823 | 0. | 717 | 6540 | 11% | |
| | Aug '09 | 37 | 19. | 0. | | 19. | 5842 | 20. | 737 | 6579 | 11% | |
| | Sep '09 | 38 | 28. | 0. | | 28. | 5870 | 18. | 755 | 6625 | 11% | |
| | Oct '09 | 39 | 80. | 0. | 67.3 | 147.3 | 6017 | 0. | 755 | 6772 | 11% | |
| | Nov '09 | 40 | 49. | 0. | 67.3 | 116.3 | 6133 | 0. | 755 | 6889 | 11% | |
| | Dec '09 | 41 | 401. | 0. | 67.3 | 468.3 | 6602 | 0. | 755 | 7357 | 10% | |
| | Jan '10 | 42 | 294. | 0. | 67.3 | 361.3 | 6963 | 0. | 755 | 7718 | 10% | |
| | Feb '10 | 43 | 330. | 0. | 67.3 | 397.3 | 7360 | 0. | 755 | 8115 | 9% | |
| | Mar '10 | 44 | 34. | 0. | 67.3 | 101.3 | 7461 | 0. | 755 | 8217 | 9% | |
| | Apr '10 | 45 | 158. | 0. | 67.3 | 225.3 | 7687 | 0. | 755 | 8442 | 9% | |
| | May '10 | 46 | 38. | 0. | 67.3 | 105.3 | 7792 | 0. | 755 | 8547 | 9% | |
| | Jun '10 | 47 | 0. | 0. | 67.3 | 67.3 | 7859 | 0. | 755 | 8614 | 9% | |
| 2010/11 | Jul '10 | 48 | 23. | 0. | 67.3 | 90.3 | 7949 | 0. | 755 | 8705 | 9% | |
| | Aug '10 | 49 | 53. | 0. | 67.3 | 120.3 | 8070 | 8. | 763 | 8833 | 9% | |
| | Sep '10 | 50 | 57. | 0. | 67.3 | 124.3 | 8194 | 0. | 763 | 8957 | 9% | |
| | Oct '10 | 51 | 90. | 0. | 67.3 | 157.3 | 8351 | 0. | 763 | 9115 | 8% | |
| | Nov '10 | 52 | 165. | 0. | 67.3 | 232.3 | 8584 | 0. | 763 | 9347 | 8% | |
| | Dec '10 | 53 | 365. | 0. | 67.3 | 432.3 | 9016 | 0. | 763 | 9779 | 8% | |
| | Jan '11 | 54 | 190. | 0. | 67.3 | 257.3 | 9273 | 0. | 763 | 10036 | 8% | |
| | Feb '11 | 55 | 233. | 0. | 67.3 | 300.3 | 9573 | 0. | 763 | 10337 | 7% | |
| | Mar '11 | 56 | 264. | 0. | 67.3 | 331.3 | 9905 | 0. | 763 | 10668 | 7% | |
| | Apr '11 | 57 | 333. | 0. | 67.3 | 400.3 | 10305 | 0. | 763 | 11068 | 7% | |
| | May '11 | 58 | 181. | 0. | 67.3 | 248.3 | 10553 | 0. | 763 | 11316 | 7% | |
| | Jun '11 | 59 | 90. | 0. | 67.3 | 157.3 | 10710 | 0. | 763 | 11474 | 7% | |
| 2011/12 | Jul '11 | 60 | 16. | 0. | 67.3 | 83.3 | 10794 | 0. | 763 | 11557 | 7% | |
| | Aug '11 | 61 | 22. | 0. | 67.3 | 89.3 | 10883 | 0. | 763 | 11646 | 7% | |
| | Sep '11 | 62 | 2. | 0. | 67.3 | 69.3 | 10952 | 0. | 763 | 11716 | 7% | |
| | Oct '11 | 63 | 0. | 0. | 67.3 | 67.3 | 11020 | 0. | 763 | 11783 | 6% | |
| | Nov '11 | 64 | 81. | 0. | 67.3 | 148.3 | 11148 | 41. | 804 | 11952 | 7% | |
| | Dec '11 | 65 | 88. | 0. | 67.3 | 155.3 | 11285 | 60. | 864 | 12149 | 7% | |
| | Jan '12 | 66 | 146. | 0. | 67.3 | 213.3 | 11478 | 29. | 893 | 12371 | 7% | |
| | Feb '12 | 67 | 221. | 0. | 67.3 | 288.3 | 11742 | 0. | 893 | 12636 | 7% | |
| | Mar '12 | 68 | 295. | 0. | 67.3 | 362.3 | 12092 | 0. | 893 | 12985 | 7% | |
| | Apr '12 | 69 | 258. | 0. | 67.3 | 325.3 | 12414 | 0. | 893 | 13307 | 7% | |
| | May '12 | 70 | 14. | 0. | 67.3 | 81.3 | 12494 | 0. | 893 | 13387 | 7% | |
| | Jun '12 | 71 | 20. | 0. | 67.3 | 87.3 | 12581 | 0. | 893 | 13474 | 7% | |
| 2012/13 | Jul '12 | 72 | 83. | 0. | 67.3 | 150.3 | 12731 | 0. | 893 | 13624 | 7% | |
| | Aug '12 | 73 | 36. | 0. | 67.3 | 103.3 | 12834 | 0. | 893 | 13728 | 7% | |
| | Sep '12 | 74 | 31. | 0. | 67.3 | 98.3 | 12933 | 0. | 893 | 13826 | 6% | |
| | Oct '12 | 75 | 61. | 0. | 67.3 | 128.3 | 13061 | 0. | 893 | 13954 | 6% | |
| | Nov '12 | 76 | 61. | 0. | 67.3 | 128.3 | 13179 | 0. | 893 | 14072 | 6% | |
| | Dec '12 | 77 | 290. | 0. | 67.3 | 357.3 | 13506 | 0. | 893 | 14399 | 6% | |
| | Jan '13 | 78 | 149. | 0. | 67.3 | 216.3 | 13722 | 0. | 893 | 14615 | 6% | |
| | Feb '13 | 79 | 116. | 0. | 67.3 | 183.3 | 13876 | 26. | 919 | 14795 | 6% | |
| | Mar '13 | 80 | 48. | 0. | 67.3 | 115.3 | 13959 | 21. | 940 | 14899 | 6% | |
| | Apr '13 | 81 | 0. | 0. | 67.3 | 67.3 | 13989 | 0. | 940 | 14929 | 6% | |
| | May '13 | 82 | 0. | 0. | 67.3 | 67.3 | 14004 | 0. | 940 | 14944 | 6% | |
| | Jun '13 | 83 | 0. | 0 | 67.3 | 67.3 | 14071 | 0. | 940 | 15011 | 6% | |
| 2013/14 | Jul '13 | 84 | 0. | 0 | 67.3 | 67.3 | 14138 | 0. | 940 | 15078 | 6% | |
| | Aug '13 | 85 | 0. | 0 | 67.3 | 67.3 | 14205 | 0. | 940 | 15146 | 6% | |
| | Sep '13 | 86 | 0. | 0 | 67.3 | 67.3 | 14273 | 0. | 940 | 15213 | 6% | |
| | Oct '13 | 87 | 0. | 0 | 67.3 | 67.3 | 14340 | 0. | 940 | 15280 | 6% | |
| | Nov '13 | 88 | 0. | 0 | 67.3 | 67.3 | 14407 | 0. | 940 | 15348 | 6% | |
| | Dec '13 | 89 | 72. | 0 | 67.3 | 139.3 | 14547 | 174. | 1114 | 15661 | 7% | |
| | Jan '14 | 90 | 45. | 0 | 67.3 | 112.3 | 14659 | 102. | 1216 | 15875 | 8% | |
| | Feb '14 | 91 | 94. | 0 | 67.3 | 161.3 | 14820 | 70. | 1286 | 16106 | 8% | |
| | Mar '14 | 92 | 63. | 0 | 67.3 | 130.3 | 14950 | 20. | 1306 | 16257 | 8% | |
| | Apr '14 | 93 | 61. | 0 | 67.3 | 128.3 | 15079 | 105. | 1411 | 16490 | 9% | |
| | May '14 | 94 | 21. | 0 | 67.3 | 88.3 | 15167 | 136. | 1547 | 16714 | 9% | |
| | Jun '14 | 95 | 23. | 0 | 67.3 | 90.3 | 15257 | 32. | 1579 | 16836 | 9% | |

## RWC Management Plan for Turner Basin Cells 1 & 2

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 96 | 0. | 0 | 67.3 | 67.3 | 15324 | 0. | 1579 | 16904 | 9% | HIST |
| | Aug '14 | 97 | 76. | 0 | 67.3 | 143.3 | 15468 | 205. | 1784 | 17252 | 10% | |
| | Sep '14 | 98 | 54. | 0 | 67.3 | 121.3 | 15589 | 128. | 1912 | 17501 | 11% | |
| | Oct '14 | 99 | 39. | 0 | 67.3 | 106.3 | 15635 | 63. | 1975 | 17610 | 11% | |
| | Nov '14 | 100 | 108. | 0 | 67.3 | 175.3 | 15679 | 58. | 2033 | 17712 | 11% | |
| | Dec '14 | 101 | 255. | 0 | 67.3 | 322.3 | 15836 | 2. | 2035 | 17871 | 11% | |
| | Jan '15 | 102 | 117. | 0 | 67.3 | 184.3 | 15924 | 0. | 2035 | 17959 | 11% | |
| | Feb '15 | 103 | 93. | 0 | 67.3 | 160.3 | 15996 | 60. | 2095 | 18092 | 12% | |
| | Mar '15 | 104 | 102. | | 67.3 | 169.3 | 16100 | 0. | 2095 | 18195 | 12% | PLANNED |
| | Apr '15 | 105 | 98. | | 67.3 | 165.3 | 16265 | 50. | 2145 | 18411 | 12% | |
| | May '15 | 106 | 45. | | 67.3 | 112.3 | 16377 | 50. | 2195 | 18572 | 12% | |
| | Jun '15 | 107 | 18. | | 67.3 | 85.3 | 16462 | 50. | 2245 | 18708 | 12% | |
| 2015/16 | Jul '15 | 108 | 13. | | 67.3 | 80.3 | 16543 | 50. | 2295 | 18838 | 12% | |
| | Aug '15 | 109 | 15. | | 67.3 | 82.3 | 16625 | 50. | 2345 | 18970 | 12% | |
| | Sep '15 | 110 | 30. | | 67.3 | 97.3 | 16633 | 50. | 2395 | 19028 | 13% | |
| | Oct '15 | 111 | 43. | | 67.3 | 110.3 | 16648 | 50. | 2445 | 19093 | 13% | |
| | Nov '15 | 112 | 69. | | 67.3 | 136.3 | 16606 | 50. | 2495 | 19101 | 13% | |
| | Dec '15 | 113 | 174. | | 67.3 | 241.3 | 16488 | 50. | 2545 | 19033 | 13% | |
| | Jan '16 | 114 | 115. | | 67.3 | 182.3 | 16408 | 0. | 2545 | 18954 | 13% | |
| | Feb '16 | 115 | 146. | | 67.3 | 213.3 | 16470 | 0. | 2545 | 19015 | 13% | |
| | Mar '16 | 116 | 102. | | 67.3 | 169.3 | 16212 | 0. | 2545 | 18758 | 14% | |
| | Apr '16 | 117 | 98. | | 67.3 | 165.3 | 15988 | 50. | 2595 | 18583 | 14% | |
| | May '16 | 118 | 45. | | 67.3 | 112.3 | 16003 | 50. | 2645 | 18648 | 14% | |
| | Jun '16 | 119 | 18. | | 67.3 | 85.3 | 16077 | 50. | 2695 | 18773 | 14% | |
| 2016/17 | Jul '16 | 120 | 13. | | 67.3 | 80.3 | 16095 | 50. | 2723 | 18818 | 14% | |
| | Aug '16 | 121 | 15. | | 67.3 | 82.3 | 16156 | 50. | 2660 | 18816 | 14% | |
| | Sep '16 | 122 | 30. | | 67.3 | 97.3 | 16147 | 50. | 2596 | 18743 | 14% | |
| | Oct '16 | 123 | 43. | | 67.3 | 110.3 | 16093 | 50. | 2646 | 18739 | 14% | |
| | Nov '16 | 124 | 69. | | 67.3 | 136.3 | 16201 | 50. | 2696 | 18896 | 14% | |
| | Dec '16 | 125 | 174. | | 67.3 | 241.3 | 16412 | 50. | 2642 | 19054 | 14% | |
| | Jan '17 | 126 | 115. | | 67.3 | 182.3 | 16567 | 0. | 2572 | 19138 | 13% | |
| | Feb '17 | 127 | 146. | | 67.3 | 213.3 | 16768 | 0. | 2528 | 19296 | 13% | |
| | Mar '17 | 128 | 102. | | 67.3 | 169.3 | 16912 | 0. | 2471 | 19383 | 13% | |
| | Apr '17 | 129 | 98. | | 67.3 | 165.3 | 17072 | 50. | 2507 | 19579 | 13% | |
| | May '17 | 130 | 45. | | 67.3 | 112.3 | 17172 | 50. | 2478 | 19650 | 13% | |
| | Jun '17 | 131 | 18. | | 67.3 | 85.3 | 17257 | 50. | 2525 | 19782 | 13% | |
| 2017/18 | Jul '17 | 132 | 13. | | 67.3 | 80.3 | 17333 | 50. | 2575 | 19908 | 13% | |
| | Aug '17 | 133 | 15. | | 67.3 | 82.3 | 17377 | 50. | 2625 | 20002 | 13% | |
| | Sep '17 | 134 | 30. | | 67.3 | 97.3 | 17470 | 50. | 2675 | 20145 | 13% | |
| | Oct '17 | 135 | 43. | | 67.3 | 110.3 | 17519 | 50. | 2725 | 20244 | 13% | |
| | Nov '17 | 136 | 69. | | 67.3 | 136.3 | 17559 | 50. | 2775 | 20334 | 14% | |
| | Dec '17 | 137 | 174. | | 67.3 | 241.3 | 17585 | 50. | 2825 | 20410 | 14% | |
| | Jan '18 | 138 | 115. | | 67.3 | 182.3 | 17457 | 0. | 2825 | 20282 | 14% | |
| | Feb '18 | 139 | 146. | | 67.3 | 213.3 | 17419 | 0. | 2825 | 20244 | 14% | |
| | Mar '18 | 140 | 102. | | 67.3 | 169.3 | 17571 | 0. | 2825 | 20396 | 14% | |
| | Apr '18 | 141 | 98. | | 67.3 | 165.3 | 17722 | 50. | 2875 | 20597 | 14% | |
| | May '18 | 142 | 45. | | 67.3 | 112.3 | 17692 | 50. | 2925 | 20617 | 14% | |
| | Jun '18 | 143 | 18. | | 67.3 | 85.3 | 17766 | 50. | 2975 | 20741 | 14% | |
| 2018/19 | Jul '18 | 144 | 13. | | 67.3 | 80.3 | 17839 | 50. | 3025 | 20864 | 14% | |
| | Aug '18 | 145 | 15. | | 67.3 | 82.3 | 17919 | 50. | 3075 | 20994 | 15% | |
| | Sep '18 | 146 | 30. | | 67.3 | 97.3 | 17889 | 50. | 3125 | 21014 | 15% | |
| | Oct '18 | 147 | 43. | | 67.3 | 110.3 | 17919 | 50. | 3147 | 21066 | 15% | |
| | Nov '18 | 148 | 69. | | 67.3 | 136.3 | 17974 | 50. | 3167 | 21141 | 15% | |
| | Dec '18 | 149 | 174. | | 67.3 | 241.3 | 17872 | 50. | 3217 | 21089 | 15% | |
| | Jan '19 | 150 | 115. | | 67.3 | 182.3 | 18025 | 0. | 3217 | 21242 | 15% | |
| | Feb '19 | 151 | 146. | | 67.3 | 213.3 | 17893 | 0. | 3217 | 21110 | 15% | |
| | Mar '19 | 152 | 102. | | 67.3 | 169.3 | 18015 | 0. | 3217 | 21232 | 15% | |
| | Apr '19 | 153 | 98. | | 67.3 | 165.3 | 18170 | 50. | 3267 | 21437 | 15% | |
| | May '19 | 154 | 45. | | 67.3 | 112.3 | 18264 | 50. | 3287 | 21551 | 15% | |
| | Jun '19 | 155 | 18. | | 67.3 | 85.3 | 18272 | 50. | 3328 | 21600 | 15% | |
| 2019/20 | Jul '19 | 156 | 13. | | 67.3 | 80.3 | 18321 | 50. | 3378 | 21699 | 16% | |
| | Aug '19 | 157 | 15. | | 67.3 | 82.3 | 18384 | 50. | 3408 | 21792 | 16% | |
| | Sep '19 | 158 | 30. | | 67.3 | 97.3 | 18453 | 50. | 3440 | 21893 | 16% | |
| | Oct '19 | 159 | 43. | | 67.3 | 110.3 | 18416 | 50. | 3490 | 21906 | 16% | |
| | Nov '19 | 160 | 69. | | 67.3 | 136.3 | 18436 | 50. | 3540 | 21976 | 16% | |
| | Dec '19 | 161 | 174. | | 67.3 | 241.3 | 18209 | 50. | 3590 | 21799 | 16% | |
| | Jan '20 | 162 | 115. | | 67.3 | 182.3 | 18030 | 0. | 3590 | 21620 | 17% | |
| | Feb '20 | 163 | 146. | | 67.3 | 213.3 | 17846 | 0. | 3590 | 21436 | 17% | |
| | Mar '20 | 164 | 102. | | 67.3 | 169.3 | 17914 | 0. | 3590 | 21504 | 17% | |
| | Apr '20 | 165 | 98. | | 67.3 | 165.3 | 17854 | 50. | 3640 | 21494 | 17% | |
| | May '20 | 166 | 45. | | 67.3 | 112.3 | 17861 | 50. | 3690 | 21551 | 17% | |
| | Jun '20 | 167 | 18. | | 67.3 | 85.3 | 17879 | 50. | 3740 | 21619 | 17% | |

## RWC Management Plan for Turner Basin Cells 1 & 2

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/21 | Jul '20 | 168 | 13. | | 67.3 | 80.3 | 17869 | 50. | 3790 | 21659 | 17% | |
| | Aug '20 | 169 | 15. | | 67.3 | 82.3 | 17831 | 50. | 3832 | 21663 | 18% | |
| | Sep '20 | 170 | 30. | | 67.3 | 97.3 | 17804 | 50. | 3882 | 21686 | 18% | |
| | Oct '20 | 171 | 43. | | 67.3 | 110.3 | 17757 | 50. | 3932 | 21689 | 18% | |
| | Nov '20 | 172 | 69. | | 67.3 | 136.3 | 17661 | 50. | 3982 | 21643 | 18% | |
| | Dec '20 | 173 | 174. | | 67.3 | 241.3 | 17470 | 50. | 4032 | 21502 | 19% | |
| | Jan '21 | 174 | 115. | | 67.3 | 182.3 | 17395 | 0. | 4032 | 21427 | 19% | |
| | Feb '21 | 175 | 146. | | 67.3 | 213.3 | 17308 | 0. | 4032 | 21340 | 19% | |
| | Mar '21 | 176 | 102. | | 67.3 | 169.3 | 17146 | 0. | 4032 | 21178 | 19% | |
| | Apr '21 | 177 | 98. | | 67.3 | 165.3 | 16911 | 50. | 4082 | 20993 | 19% | |
| | May '21 | 178 | 45. | | 67.3 | 112.3 | 16775 | 50. | 4132 | 20907 | 20% | |
| | Jun '21 | 179 | 18. | | 67.3 | 85.3 | 16703 | 50. | 4182 | 20885 | 20% | |
| 2021/22 | Jul '21 | 180 | 13. | | 67.3 | 80.3 | 16700 | 50. | 4232 | 20932 | 20% | |
| | Aug '21 | 181 | 15. | | 67.3 | 82.3 | 16693 | 50. | 4282 | 20975 | 20% | |
| | Sep '21 | 182 | 30. | | 67.3 | 97.3 | 16721 | 50. | 4332 | 21053 | 21% | |
| | Oct '21 | 183 | 43. | | 67.3 | 110.3 | 16764 | 50. | 4382 | 21146 | 21% | |
| | Nov '21 | 184 | 69. | | 67.3 | 136.3 | 16752 | 50. | 4391 | 21143 | 21% | |
| | Dec '21 | 185 | 174. | | 67.3 | 241.3 | 16838 | 50. | 4381 | 21219 | 21% | |
| | Jan '22 | 186 | 115. | | 67.3 | 182.3 | 16807 | 0. | 4352 | 21159 | 21% | |
| | Feb '22 | 187 | 146. | | 67.3 | 213.3 | 16732 | 0. | 4352 | 21084 | 21% | |
| | Mar '22 | 188 | 102. | | 67.3 | 169.3 | 16539 | 0. | 4352 | 20891 | 21% | |
| | Apr '22 | 189 | 98. | | 67.3 | 165.3 | 16379 | 50. | 4402 | 20781 | 21% | |
| | May '22 | 190 | 45. | | 67.3 | 112.3 | 16410 | 50. | 4452 | 20862 | 21% | |
| | Jun '22 | 191 | 18. | | 67.3 | 85.3 | 16408 | 50. | 4502 | 20910 | 22% | |
| 2022/23 | Jul '22 | 192 | 13. | | 67.3 | 80.3 | 16338 | 50. | 4552 | 20890 | 22% | PLANNED |
| | Aug '22 | 193 | 15. | | 67.3 | 82.3 | 16317 | 50. | 4602 | 20919 | 22% | |
| | Sep '22 | 194 | 30. | | 67.3 | 97.3 | 16316 | 50. | 4652 | 20968 | 22% | |
| | Oct '22 | 195 | 43. | | 67.3 | 110.3 | 16298 | 50. | 4702 | 21000 | 22% | |
| | Nov '22 | 196 | 69. | | 67.3 | 136.3 | 16306 | 50. | 4752 | 21058 | 23% | |
| | Dec '22 | 197 | 174. | | 67.3 | 241.3 | 16190 | 50. | 4802 | 20992 | 23% | |
| | Jan '23 | 198 | 115. | | 67.3 | 182.3 | 16156 | 0. | 4802 | 20958 | 23% | |
| | Feb '23 | 199 | 146. | | 67.3 | 213.3 | 16186 | 0. | 4776 | 20962 | 23% | |
| | Mar '23 | 200 | 102. | | 67.3 | 169.3 | 16240 | 0. | 4755 | 20995 | 23% | |
| | Apr '23 | 201 | 98. | | 67.3 | 165.3 | 16338 | 50. | 4805 | 21143 | 23% | |
| | May '23 | 202 | 45. | | 67.3 | 112.3 | 16383 | 50. | 4855 | 21238 | 23% | |
| | Jun '23 | 203 | 18. | | 67.3 | 85.3 | 16401 | 50. | 4905 | 21306 | 23% | |
| 2023/24 | Jul '23 | 204 | 13. | | 67.3 | 80.3 | 16414 | 50. | 4955 | 21369 | 23% | |
| | Aug '23 | 205 | 15. | | 67.3 | 82.3 | 16429 | 50. | 5005 | 21434 | 23% | |
| | Sep '23 | 206 | 30. | | 67.3 | 97.3 | 16459 | 50. | 5055 | 21514 | 23% | |
| | Oct '23 | 207 | 43. | | 67.3 | 110.3 | 16502 | 50. | 5105 | 21607 | 24% | |
| | Nov '23 | 208 | 69. | | 67.3 | 136.3 | 16571 | 50. | 5155 | 21726 | 24% | |
| | Dec '23 | 209 | 174. | | 67.3 | 241.3 | 16673 | 50. | 5031 | 21704 | 23% | |
| | Jan '24 | 210 | 115. | | 67.3 | 182.3 | 16743 | 0. | 4929 | 21672 | 23% | |
| | Feb '24 | 211 | 146. | | 67.3 | 213.3 | 16795 | 0. | 4859 | 21654 | 22% | |
| | Mar '24 | 212 | 102. | | 67.3 | 169.3 | 16834 | 0. | 4839 | 21673 | 22% | |
| | Apr '24 | 213 | 98. | | 67.3 | 165.3 | 16871 | 50. | 4784 | 21655 | 22% | |
| | May '24 | 214 | 45. | | 67.3 | 112.3 | 16895 | 50. | 4698 | 21593 | 22% | |
| | Jun '24 | 215 | 18. | | 67.3 | 85.3 | 16890 | 50. | 4716 | 21606 | 22% | |

**Notes:**

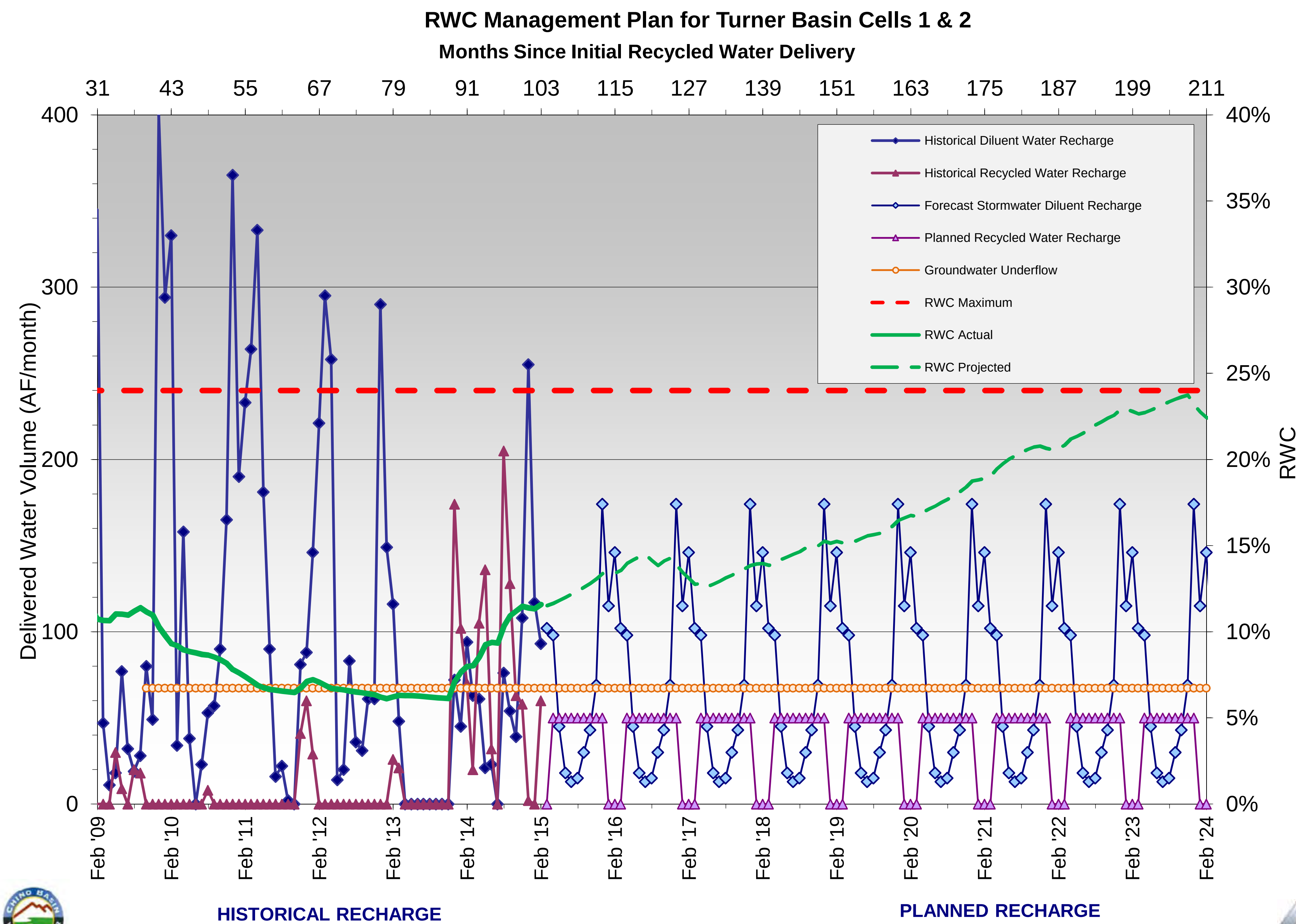
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan for Turner Basin Cells 1 & 2
Months Since Initial Recycled Water Delivery
31
43
55
67
79
91
103
115
127
139
151
163
175
187
199
211
Delivered Water Volume (AF/month)
400
300
200
100
0
RWC
40%
35%
30%
25%
20%
15%
10%
5%
0%
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Diluent Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC Maximum
RWC Actual
RWC Projected
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

# RWC Management Plan for Turner Basin Cells 3 & 4

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | 24 | 4. | 0. | | 4. | 2596 | 0. | 612 | 3208 | 19% | HISTORICAL |
| | Aug '08 | 25 | 5. | 0. | | 5. | 2601 | 0. | 612 | 3213 | 19% | |
| | Sep '08 | 26 | 14. | 0. | | 14. | 2615 | 0. | 612 | 3227 | 19% | |
| | Oct '08 | 27 | 37. | 0. | | 37. | 2652 | 66. | 678 | 3330 | 20% | |
| | Nov '08 | 28 | 36. | 0. | | 36. | 2688 | 8. | 686 | 3374 | 20% | |
| | Dec '08 | 29 | 50. | 0. | | 50. | 2738 | 0. | 686 | 3424 | 20% | |
| | Jan '09 | 30 | 10. | 0. | | 10. | 2748 | 0. | 686 | 3434 | 20% | |
| | Feb '09 | 31 | 68. | 0. | | 68. | 2816 | 0. | 686 | 3502 | 20% | |
| | Mar '09 | 32 | 10. | 0. | | 10. | 2826 | 0. | 686 | 3512 | 20% | |
| | Apr '09 | 33 | 2. | 0. | | 2. | 2828 | 0. | 686 | 3514 | 20% | |
| | May '09 | 34 | 1. | 0. | | 1. | 2829 | 0. | 686 | 3515 | 20% | |
| | Jun '09 | 35 | 0. | 0. | | 0. | 2829 | 0. | 686 | 3515 | 20% | |
| 2009/10 | Jul '09 | 36 | 0. | 0. | | 0. | 2829 | 0. | 686 | 3515 | 20% | |
| | Aug '09 | 37 | 0. | 0. | | 0. | 2829 | 0. | 686 | 3515 | 20% | |
| | Sep '09 | 38 | 0. | 0. | | 0. | 2829 | 0. | 686 | 3515 | 20% | |
| | Oct '09 | 39 | 0. | 0. | 59.7 | 59.7 | 2889 | 0. | 686 | 3575 | 19% | |
| | Nov '09 | 40 | 3. | 0. | 59.7 | 62.7 | 2952 | 0. | 686 | 3637 | 19% | |
| | Dec '09 | 41 | 98. | 0. | 59.7 | 157.7 | 3109 | 63. | 749 | 3858 | 19% | |
| | Jan '10 | 42 | 185. | 0. | 59.7 | 244.7 | 3354 | 127. | 876 | 4230 | 21% | |
| | Feb '10 | 43 | 175. | 0. | 59.7 | 234.7 | 3589 | 0. | 876 | 4465 | 20% | |
| | Mar '10 | 44 | 114. | 0. | 59.7 | 173.7 | 3763 | 44. | 920 | 4682 | 20% | |
| | Apr '10 | 45 | 83. | 0. | 59.7 | 142.7 | 3905 | 15. | 935 | 4840 | 19% | |
| | May '10 | 46 | 27. | 0. | 59.7 | 86.7 | 3992 | 70. | 1005 | 4997 | 20% | |
| | Jun '10 | 47 | 75. | 0. | 59.7 | 134.7 | 4127 | 40. | 1045 | 5172 | 20% | |
| 2010/11 | Jul '10 | 48 | 95. | 0. | 59.7 | 154.7 | 4282 | 6. | 1051 | 5332 | 20% | |
| | Aug '10 | 49 | 84. | 0. | 59.7 | 143.7 | 4425 | 22. | 1073 | 5498 | 20% | |
| | Sep '10 | 50 | 54. | 0. | 59.7 | 113.7 | 4539 | 17. | 1090 | 5629 | 19% | |
| | Oct '10 | 51 | 55. | 0. | 59.7 | 114.7 | 4654 | 0. | 1090 | 5744 | 19% | |
| | Nov '10 | 52 | 39. | 0. | 59.7 | 98.7 | 4753 | 0. | 1090 | 5842 | 19% | |
| | Dec '10 | 53 | 161. | 0. | 59.7 | 220.7 | 4973 | 0. | 1090 | 6063 | 18% | |
| | Jan '11 | 54 | 1. | 0. | 59.7 | 60.7 | 5034 | 0. | 1090 | 6124 | 18% | |
| | Feb '11 | 55 | 50. | 0. | 59.7 | 109.7 | 5144 | 0. | 1090 | 6234 | 17% | |
| | Mar '11 | 56 | 49. | 0. | 59.7 | 108.7 | 5253 | 0. | 1090 | 6342 | 17% | |
| | Apr '11 | 57 | 0. | 0. | 59.7 | 59.7 | 5312 | 0. | 1090 | 6402 | 17% | |
| | May '11 | 58 | 0. | 0. | 59.7 | 59.7 | 5372 | 0. | 1090 | 6462 | 17% | |
| | Jun '11 | 59 | 0. | 0. | 59.7 | 59.7 | 5432 | 0. | 1090 | 6522 | 17% | |
| 2011/12 | Jul '11 | 60 | 0. | 0. | 59.7 | 59.7 | 5492 | 0. | 1090 | 6581 | 17% | |
| | Aug '11 | 61 | 3. | 54.6 | 59.7 | 117.3 | 5609 | 7. | 1097 | 6706 | 16% | |
| | Sep '11 | 62 | 41. | 144.5 | 59.7 | 245.2 | 5854 | 186. | 1283 | 7137 | 18% | |
| | Oct '11 | 63 | 63. | 0. | 59.7 | 122.7 | 5977 | 223. | 1506 | 7483 | 20% | |
| | Nov '11 | 64 | 66. | 0. | 59.7 | 125.7 | 6103 | 96. | 1602 | 7704 | 21% | |
| | Dec '11 | 65 | 69. | 0. | 59.7 | 128.7 | 6232 | 52. | 1654 | 7885 | 21% | |
| | Jan '12 | 66 | 86. | 0. | 59.7 | 145.7 | 6377 | 72. | 1726 | 8103 | 21% | |
| | Feb '12 | 67 | 109. | 0. | 59.7 | 168.7 | 6546 | 97. | 1823 | 8369 | 22% | |
| | Mar '12 | 68 | 126. | 0. | 59.7 | 185.7 | 6732 | 35. | 1858 | 8589 | 22% | |
| | Apr '12 | 69 | 88. | 0. | 59.7 | 147.7 | 6880 | 15. | 1873 | 8752 | 21% | |
| | May '12 | 70 | 40. | 0. | 59.7 | 99.7 | 6979 | 56. | 1929 | 8908 | 22% | |
| | Jun '12 | 71 | 25. | 0. | 59.7 | 84.7 | 7064 | 65. | 1994 | 9058 | 22% | |
| 2012/13 | Jul '12 | 72 | 25. | 0. | 59.7 | 84.7 | 7149 | 51. | 2045 | 9193 | 22% | |
| | Aug '12 | 73 | 36. | 0. | 59.7 | 95.7 | 7245 | 35. | 2080 | 9324 | 22% | |
| | Sep '12 | 74 | 31. | 0. | 59.7 | 90.7 | 7335 | 24. | 2104 | 9439 | 22% | |
| | Oct '12 | 75 | 22. | 0. | 59.7 | 81.7 | 7417 | 9. | 2113 | 9530 | 22% | |
| | Nov '12 | 76 | 30. | 0. | 59.7 | 89.7 | 7507 | 5. | 2118 | 9624 | 22% | |
| | Dec '12 | 77 | 47. | 0. | 59.7 | 106.7 | 7614 | 5. | 2123 | 9736 | 22% | |
| | Jan '13 | 78 | 15. | 0. | 59.7 | 74.7 | 7688 | 0. | 2123 | 9811 | 22% | |
| | Feb '13 | 79 | 25. | 0. | 59.7 | 84.7 | 7773 | 0. | 2123 | 9896 | 21% | |
| | Mar '13 | 80 | 14. | 0. | 59.7 | 73.7 | 7847 | 0. | 2123 | 9969 | 21% | |
| | Apr '13 | 81 | 0. | 0. | 59.7 | 59.7 | 7907 | 0. | 2123 | 10029 | 21% | |
| | May '13 | 82 | 0. | 0. | 59.7 | 59.7 | 7966 | 0. | 2123 | 10089 | 21% | |
| | Jun '13 | 83 | 0. | 0 | 59.7 | 59.7 | 8026 | 0. | 2123 | 10149 | 21% | |
| 2013/14 | Jul '13 | 84 | 0. | 0 | 59.7 | 59.7 | 8086 | 0. | 2123 | 10208 | 21% | |
| | Aug '13 | 85 | 0. | 0 | 59.7 | 59.7 | 8146 | 0. | 2123 | 10268 | 21% | |
| | Sep '13 | 86 | 24. | 0 | 59.7 | 83.7 | 8229 | 107. | 2230 | 10459 | 21% | |
| | Oct '13 | 87 | 20. | 0 | 59.7 | 79.7 | 8309 | 117. | 2347 | 10656 | 22% | |
| | Nov '13 | 88 | 17. | 0 | 59.7 | 76.7 | 8386 | 89. | 2436 | 10821 | 23% | |
| | Dec '13 | 89 | 5. | 0 | 59.7 | 64.7 | 8451 | 85. | 2521 | 10971 | 23% | |
| | Jan '14 | 90 | 16. | 0 | 59.7 | 75.7 | 8526 | 139. | 2660 | 11186 | 24% | |
| | Feb '14 | 91 | 62. | 0 | 59.7 | 121.7 | 8648 | 120. | 2780 | 11428 | 24% | |
| | Mar '14 | 92 | 50. | 0 | 59.7 | 109.7 | 8758 | 47. | 2827 | 11584 | 24% | |
| | Apr '14 | 93 | 0. | 0 | 59.7 | 59.7 | 8817 | 0. | 2827 | 11644 | 24% | |
| | May '14 | 94 | 23. | 0 | 59.7 | 82.7 | 8900 | 168. | 2995 | 11895 | 25% | |
| | Jun '14 | 95 | 12. | 0 | 59.7 | 71.7 | 8972 | 54. | 3049 | 12021 | 25% | |

## RWC Management Plan for Turner Basin Cells 3 & 4

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 96 | 11. | 0 | 59.7 | 70.7 | 9043 | 0. | 3049 | 12091 | 25% | HIST |
| | Aug '14 | 97 | 0. | 0 | 59.7 | 59.7 | 9102 | 0. | 3049 | 12151 | 25% | |
| | Sep '14 | 98 | 0. | 0 | 59.7 | 59.7 | 9162 | 0. | 3049 | 12211 | 25% | |
| | Oct '14 | 99 | 0. | 0 | 59.7 | 59.7 | 9101 | 0. | 3049 | 12150 | 25% | |
| | Nov '14 | 100 | 0. | 0 | 59.7 | 59.7 | 9033 | 0. | 3049 | 12081 | 25% | |
| | Dec '14 | 101 | 348. | 0 | 59.7 | 407.7 | 9223 | 0. | 3049 | 12271 | 25% | |
| | Jan '15 | 102 | 4. | 0 | 59.7 | 63.7 | 9029 | 0. | 3049 | 12078 | 25% | |
| | Feb '15 | 103 | 65. | 0 | 59.7 | 124.7 | 8922 | 53. | 3102 | 12023 | 26% | |
| | Mar '15 | 104 | 71. | | 59.7 | 130.7 | 8878 | 120. | 3222 | 12100 | 27% | PLANNED |
| | Apr '15 | 105 | 44. | | 59.7 | 103.7 | 8982 | 120. | 3342 | 12323 | 27% | |
| | May '15 | 106 | 21. | | 59.7 | 80.7 | 9062 | 0. | 3342 | 12404 | 27% | |
| | Jun '15 | 107 | 21. | | 59.7 | 80.7 | 9143 | 0. | 3342 | 12484 | 27% | |
| 2015/16 | Jul '15 | 108 | 15. | | 59.7 | 74.7 | 9218 | 0. | 3342 | 12559 | 27% | |
| | Aug '15 | 109 | 16. | | 59.7 | 75.7 | 9293 | 120. | 3462 | 12755 | 27% | |
| | Sep '15 | 110 | 17. | | 59.7 | 76.7 | 9370 | 120. | 3582 | 12952 | 28% | |
| | Oct '15 | 111 | 30. | | 59.7 | 89.7 | 9460 | 120. | 3702 | 13161 | 28% | |
| | Nov '15 | 112 | 36. | | 59.7 | 95.7 | 9556 | 120. | 3822 | 13377 | 29% | |
| | Dec '15 | 113 | 100. | | 59.7 | 159.7 | 9591 | 60. | 3882 | 13473 | 29% | |
| | Jan '16 | 114 | 69. | | 59.7 | 128.7 | 9645 | 60. | 3942 | 13587 | 29% | |
| | Feb '16 | 115 | 80. | | 59.7 | 139.7 | 9714 | 60. | 4002 | 13716 | 29% | |
| | Mar '16 | 116 | 71. | | 59.7 | 130.7 | 9673 | 120. | 4122 | 13795 | 30% | |
| | Apr '16 | 117 | 44. | | 59.7 | 103.7 | 9517 | 120. | 4242 | 13758 | 31% | |
| | May '16 | 118 | 21. | | 59.7 | 80.7 | 9525 | 0. | 4242 | 13767 | 31% | |
| | Jun '16 | 119 | 21. | | 59.7 | 80.7 | 9519 | 0. | 4242 | 13761 | 31% | |
| 2016/17 | Jul '16 | 120 | 15. | | 59.7 | 74.7 | 9564 | 0. | 4104 | 13667 | 30% | |
| | Aug '16 | 121 | 16. | | 59.7 | 75.7 | 9606 | 120. | 3989 | 13594 | 29% | |
| | Sep '16 | 122 | 17. | | 59.7 | 76.7 | 9660 | 120. | 4069 | 13729 | 30% | |
| | Oct '16 | 123 | 30. | | 59.7 | 89.7 | 9685 | 120. | 4189 | 13874 | 30% | |
| | Nov '16 | 124 | 36. | | 59.7 | 95.7 | 9765 | 120. | 4309 | 14074 | 31% | |
| | Dec '16 | 125 | 100. | | 59.7 | 159.7 | 9911 | 60. | 4303 | 14214 | 30% | |
| | Jan '17 | 126 | 69. | | 59.7 | 128.7 | 10030 | 60. | 4332 | 14362 | 30% | |
| | Feb '17 | 127 | 80. | | 59.7 | 139.7 | 10161 | 60. | 4371 | 14532 | 30% | |
| | Mar '17 | 128 | 71. | | 59.7 | 130.7 | 10287 | 120. | 4475 | 14762 | 30% | |
| | Apr '17 | 129 | 44. | | 59.7 | 103.7 | 10388 | 120. | 4587 | 14975 | 31% | |
| | May '17 | 130 | 21. | | 59.7 | 80.7 | 10461 | 0. | 4530 | 14991 | 30% | |
| | Jun '17 | 131 | 21. | | 59.7 | 80.7 | 10532 | 0. | 4530 | 15062 | 30% | |
| 2017/18 | Jul '17 | 132 | 15. | | 59.7 | 74.7 | 10605 | 0. | 4530 | 15135 | 30% | |
| | Aug '17 | 133 | 16. | | 59.7 | 75.7 | 10671 | 120. | 4650 | 15321 | 30% | |
| | Sep '17 | 134 | 17. | | 59.7 | 76.7 | 10736 | 120. | 4770 | 15506 | 31% | |
| | Oct '17 | 135 | 30. | | 59.7 | 89.7 | 10823 | 120. | 4890 | 15713 | 31% | |
| | Nov '17 | 136 | 36. | | 59.7 | 95.7 | 10852 | 120. | 5010 | 15862 | 32% | |
| | Dec '17 | 137 | 100. | | 59.7 | 159.7 | 10950 | 60. | 5070 | 16020 | 32% | |
| | Jan '18 | 138 | 69. | | 59.7 | 128.7 | 10936 | 60. | 5130 | 16066 | 32% | |
| | Feb '18 | 139 | 80. | | 59.7 | 139.7 | 11067 | 60. | 5190 | 16257 | 32% | |
| | Mar '18 | 140 | 71. | | 59.7 | 130.7 | 11197 | 120. | 5310 | 16507 | 32% | |
| | Apr '18 | 141 | 44. | | 59.7 | 103.7 | 11297 | 120. | 5430 | 16727 | 32% | |
| | May '18 | 142 | 21. | | 59.7 | 80.7 | 11340 | 0. | 5430 | 16770 | 32% | |
| | Jun '18 | 143 | 21. | | 59.7 | 80.7 | 11393 | 0. | 5430 | 16823 | 32% | |
| 2018/19 | Jul '18 | 144 | 15. | | 59.7 | 74.7 | 11463 | 0. | 5430 | 16893 | 32% | |
| | Aug '18 | 145 | 16. | | 59.7 | 75.7 | 11534 | 120. | 5550 | 17084 | 32% | |
| | Sep '18 | 146 | 17. | | 59.7 | 76.7 | 11597 | 120. | 5670 | 17267 | 33% | |
| | Oct '18 | 147 | 30. | | 59.7 | 89.7 | 11650 | 120. | 5724 | 17374 | 33% | |
| | Nov '18 | 148 | 36. | | 59.7 | 95.7 | 11709 | 120. | 5836 | 17545 | 33% | |
| | Dec '18 | 149 | 100. | | 59.7 | 159.7 | 11819 | 60. | 5896 | 17715 | 33% | |
| | Jan '19 | 150 | 69. | | 59.7 | 128.7 | 11938 | 60. | 5956 | 17894 | 33% | |
| | Feb '19 | 151 | 80. | | 59.7 | 139.7 | 12010 | 60. | 6016 | 18026 | 33% | |
| | Mar '19 | 152 | 71. | | 59.7 | 130.7 | 12130 | 120. | 6136 | 18266 | 34% | |
| | Apr '19 | 153 | 44. | | 59.7 | 103.7 | 12232 | 120. | 6256 | 18488 | 34% | |
| | May '19 | 154 | 21. | | 59.7 | 80.7 | 12312 | 0. | 6256 | 18568 | 34% | |
| | Jun '19 | 155 | 21. | | 59.7 | 80.7 | 12393 | 0. | 6256 | 18649 | 34% | |
| 2019/2020 | Jul '19 | 156 | 15. | | 59.7 | 74.7 | 12467 | 0. | 6256 | 18723 | 33% | |
| | Aug '19 | 157 | 16. | | 59.7 | 75.7 | 12543 | 120. | 6376 | 18919 | 34% | |
| | Sep '19 | 158 | 17. | | 59.7 | 76.7 | 12620 | 120. | 6496 | 19116 | 34% | |
| | Oct '19 | 159 | 30. | | 59.7 | 89.7 | 12650 | 120. | 6616 | 19266 | 34% | |
| | Nov '19 | 160 | 36. | | 59.7 | 95.7 | 12683 | 120. | 6736 | 19419 | 35% | |
| | Dec '19 | 161 | 100. | | 59.7 | 159.7 | 12685 | 60. | 6733 | 19418 | 35% | |
| | Jan '20 | 162 | 69. | | 59.7 | 128.7 | 12569 | 60. | 6666 | 19235 | 35% | |
| | Feb '20 | 163 | 80. | | 59.7 | 139.7 | 12474 | 60. | 6726 | 19200 | 35% | |
| | Mar '20 | 164 | 71. | | 59.7 | 130.7 | 12431 | 120. | 6802 | 19233 | 35% | |
| | Apr '20 | 165 | 44. | | 59.7 | 103.7 | 12392 | 120. | 6907 | 19299 | 36% | |
| | May '20 | 166 | 21. | | 59.7 | 80.7 | 12386 | 0. | 6837 | 19223 | 36% | |
| | Jun '20 | 167 | 21. | | 59.7 | 80.7 | 12332 | 0. | 6797 | 19129 | 36% | |

## RWC Management Plan for Turner Basin Cells 3 & 4

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/21 | Jul '20 | 168 | 15. | | 59.7 | 74.7 | 12252 | 0. | 6791 | 19043 | 36% | PLANNED |
| | Aug '20 | 169 | 16. | | 59.7 | 75.7 | 12184 | 120. | 6889 | 19073 | 36% | |
| | Sep '20 | 170 | 17. | | 59.7 | 76.7 | 12147 | 120. | 6992 | 19139 | 37% | |
| | Oct '20 | 171 | 30. | | 59.7 | 89.7 | 12122 | 120. | 7112 | 19234 | 37% | |
| | Nov '20 | 172 | 36. | | 59.7 | 95.7 | 12119 | 120. | 7232 | 19351 | 37% | |
| | Dec '20 | 173 | 100. | | 59.7 | 159.7 | 12058 | 60. | 7292 | 19350 | 38% | |
| | Jan '21 | 174 | 69. | | 59.7 | 128.7 | 12126 | 60. | 7352 | 19478 | 38% | |
| | Feb '21 | 175 | 80. | | 59.7 | 139.7 | 12156 | 60. | 7412 | 19568 | 38% | |
| | Mar '21 | 176 | 71. | | 59.7 | 130.7 | 12178 | 120. | 7532 | 19710 | 38% | |
| | Apr '21 | 177 | 44. | | 59.7 | 103.7 | 12222 | 120. | 7652 | 19874 | 39% | |
| | May '21 | 178 | 21. | | 59.7 | 80.7 | 12243 | 0. | 7652 | 19895 | 38% | |
| | Jun '21 | 179 | 21. | | 59.7 | 80.7 | 12264 | 0. | 7652 | 19916 | 38% | |
| 2021/22 | Jul '21 | 180 | 15. | | 59.7 | 74.7 | 12279 | 0. | 7652 | 19931 | 38% | |
| | Aug '21 | 181 | 16. | | 59.7 | 75.7 | 12237 | 120. | 7765 | 20002 | 39% | |
| | Sep '21 | 182 | 17. | | 59.7 | 76.7 | 12069 | 120. | 7699 | 19768 | 39% | |
| | Oct '21 | 183 | 30. | | 59.7 | 89.7 | 12036 | 120. | 7596 | 19632 | 39% | |
| | Nov '21 | 184 | 36. | | 59.7 | 95.7 | 12006 | 120. | 7620 | 19626 | 39% | |
| | Dec '21 | 185 | 100. | | 59.7 | 159.7 | 12037 | 60. | 7628 | 19665 | 39% | |
| | Jan '22 | 186 | 69. | | 59.7 | 128.7 | 12020 | 60. | 7616 | 19636 | 39% | |
| | Feb '22 | 187 | 80. | | 59.7 | 139.7 | 11991 | 60. | 7579 | 19570 | 39% | |
| | Mar '22 | 188 | 71. | | 59.7 | 130.7 | 11936 | 120. | 7664 | 19600 | 39% | |
| | Apr '22 | 189 | 44. | | 59.7 | 103.7 | 11892 | 120. | 7769 | 19661 | 40% | |
| | May '22 | 190 | 21. | | 59.7 | 80.7 | 11873 | 0. | 7713 | 19586 | 39% | |
| | Jun '22 | 191 | 21. | | 59.7 | 80.7 | 11869 | 0. | 7648 | 19517 | 39% | |
| 2022/23 | Jul '22 | 192 | 15. | | 59.7 | 74.7 | 11859 | 0. | 7597 | 19456 | 39% | |
| | Aug '22 | 193 | 16. | | 59.7 | 75.7 | 11839 | 120. | 7682 | 19521 | 39% | |
| | Sep '22 | 194 | 17. | | 59.7 | 76.7 | 11825 | 120. | 7778 | 19603 | 40% | |
| | Oct '22 | 195 | 30. | | 59.7 | 89.7 | 11833 | 120. | 7889 | 19722 | 40% | |
| | Nov '22 | 196 | 36. | | 59.7 | 95.7 | 11839 | 120. | 8004 | 19843 | 40% | |
| | Dec '22 | 197 | 100. | | 59.7 | 159.7 | 11892 | 60. | 8059 | 19951 | 40% | |
| | Jan '23 | 198 | 69. | | 59.7 | 128.7 | 11946 | 60. | 8119 | 20065 | 40% | |
| | Feb '23 | 199 | 80. | | 59.7 | 139.7 | 12001 | 60. | 8179 | 20180 | 41% | |
| | Mar '23 | 200 | 71. | | 59.7 | 130.7 | 12058 | 120. | 8299 | 20357 | 41% | |
| | Apr '23 | 201 | 44. | | 59.7 | 103.7 | 12102 | 120. | 8419 | 20521 | 41% | |
| | May '23 | 202 | 21. | | 59.7 | 80.7 | 12123 | 0. | 8419 | 20542 | 41% | |
| | Jun '23 | 203 | 21. | | 59.7 | 80.7 | 12144 | 0. | 8419 | 20563 | 41% | |
| 2023/24 | Jul '23 | 204 | 15. | | 59.7 | 74.7 | 12159 | 0. | 8419 | 20578 | 41% | |
| | Aug '23 | 205 | 16. | | 59.7 | 75.7 | 12175 | 120. | 8539 | 20714 | 41% | |
| | Sep '23 | 206 | 17. | | 59.7 | 76.7 | 12168 | 120. | 8552 | 20720 | 41% | |
| | Oct '23 | 207 | 30. | | 59.7 | 89.7 | 12178 | 120. | 8555 | 20733 | 41% | |
| | Nov '23 | 208 | 36. | | 59.7 | 95.7 | 12197 | 120. | 8586 | 20783 | 41% | |
| | Dec '23 | 209 | 100. | | 59.7 | 159.7 | 12292 | 60. | 8561 | 20853 | 41% | |
| | Jan '24 | 210 | 69. | | 59.7 | 128.7 | 12345 | 60. | 8482 | 20827 | 41% | |
| | Feb '24 | 211 | 80. | | 59.7 | 139.7 | 12363 | 60. | 8422 | 20785 | 41% | |
| | Mar '24 | 212 | 71. | | 59.7 | 130.7 | 12384 | 120. | 8495 | 20879 | 41% | |
| | Apr '24 | 213 | 44. | | 59.7 | 103.7 | 12428 | 120. | 8615 | 21043 | 41% | |
| | May '24 | 214 | 21. | | 59.7 | 80.7 | 12426 | 0. | 8447 | 20873 | 40% | |
| | Jun '24 | 215 | 21. | | 59.7 | 80.7 | 12435 | 0. | 8393 | 20828 | 40% | |

**Notes:**

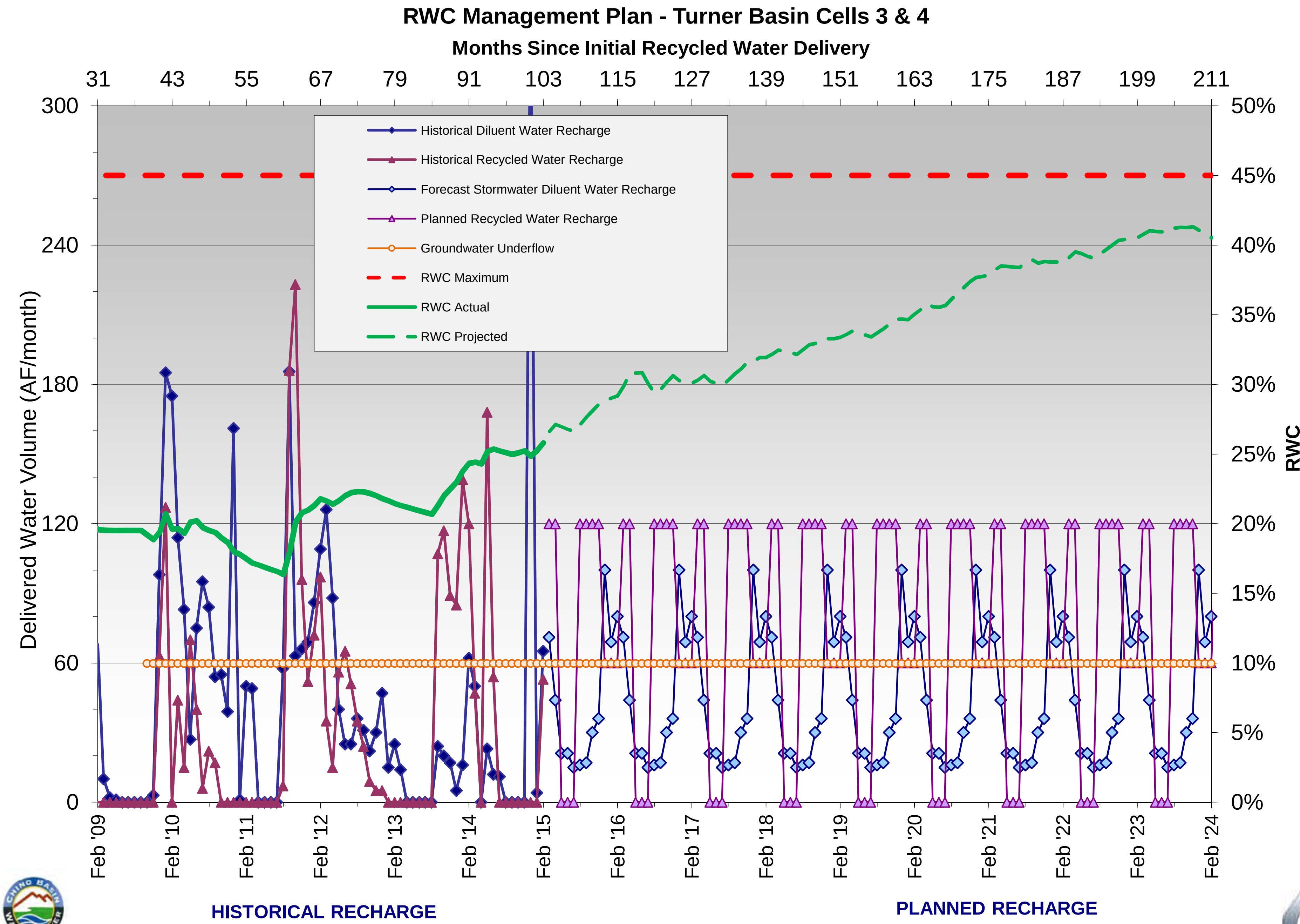
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period



RWC Management Plan - Turner Basin Cells 3 & 4
Months Since Initial Recycled Water Delivery
31
43
55
67
79
91
103
115
127
139
151
163
175
187
199
211
Delivered Water Volume (AF/month)
300
240
180
120
60
0
RWC
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Diluent Water Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC Maximum
RWC Actual
RWC Projected
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECHARGE
PLANNED RECHARGE

# RWC Management Plan for Victoria Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008/09 | Jul '08 | -26 | 3. | 0. | | 3. | 1,122.4 | 0. | 0. | 1,122.4 | 0% | |
| | Aug '08 | -25 | 3. | 0. | | 3. | 1,125.4 | 0. | 0. | 1,125.4 | 0% | |
| | Sep '08 | -24 | 2. | 0. | | 2. | 1,127.4 | 0. | 0. | 1,127.4 | 0% | |
| | Oct '08 | -23 | 4. | 0. | | 4. | 1,131.4 | 0. | 0. | 1,131.4 | 0% | |
| | Nov '08 | -22 | 35. | 0. | | 35. | 1,166.4 | 0. | 0. | 1,166.4 | 0% | |
| | Dec '08 | -21 | 74. | 0. | | 74. | 1,240.4 | 0. | 0. | 1,240.4 | 0% | |
| | Jan '09 | -20 | 15. | 0. | | 15. | 1,255.4 | 0. | 0. | 1,255.4 | 0% | |
| | Feb '09 | -19 | 95. | 0. | | 95. | 1,350.4 | 0. | 0. | 1,350.4 | 0% | |
| | Mar '09 | -18 | 13. | 0. | | 13. | 1,363.4 | 0. | 0. | 1,363.4 | 0% | |
| | Apr '09 | -17 | 3. | 0. | | 3. | 1,366.4 | 0. | 0. | 1,366.4 | 0% | |
| | May '09 | -16 | 3. | 0. | | 3. | 1,369.4 | 0. | 0. | 1,369.4 | 0% | |
| | Jun '09 | -15 | 0. | 0. | | 0. | 1,369.4 | 0. | 0. | 1,369.4 | 0% | |
| 2009/10 | Jul '09 | -14 | 1. | 0. | | 1. | 1,370.4 | 0. | 0. | 1,370.4 | 0% | |
| | Aug '09 | -13 | 0. | 0. | | 0. | 1,370.4 | 0. | 0. | 1,370.4 | 0% | |
| | Sep '09 | -12 | 0. | 0. | | 0. | 1,370.4 | 0. | 0. | 1,370.4 | 0% | |
| | Oct '09 | -11 | 37. | 2. | | 39. | 1,409.4 | 0. | 0. | 1,409.4 | 0% | |
| | Nov '09 | -10 | 19. | 0. | | 19. | 1,428.4 | 0. | 0. | 1,428.4 | 0% | |
| | Dec '09 | -9 | 89. | 0. | | 89. | 1,517.4 | 0. | 0. | 1,517.4 | 0% | |
| | Jan '10 | -8 | 153. | 0. | | 153. | 1,670.4 | 0. | 0. | 1,670.4 | 0% | |
| | Feb '10 | -7 | 174. | 0. | | 174. | 1,844.4 | 0. | 0. | 1,844.4 | 0% | |
| | Mar '10 | -6 | 0. | 0. | | 0. | 1,844.4 | 0. | 0. | 1,844.4 | 0% | |
| | Apr '10 | -5 | 20. | 0. | | 20. | 1,864.4 | 0. | 0. | 1,864.4 | 0% | |
| | May '10 | -4 | 0. | 0. | | 0. | 1,864.4 | 0. | 0. | 1,864.4 | 0% | |
| | Jun '10 | -3 | 1. | 0. | | 1. | 1,865.4 | 0. | 0. | 1,865.4 | 0% | |
| 2010/11 | Jul '10 | -2 | 3. | 0. | | 3. | 1,868.4 | 0. | 0. | 1,868.4 | 0% | |
| | Aug '10 | -1 | 2. | 0. | | 2. | 1,870.4 | 0. | 0. | 1,870.4 | 0% | |
| | Sep '10 | 0 | 2. | 0. | | 2. | 1,872.4 | 67. | 67. | 1,939.4 | 3% | START-UP |
| | Oct '10 | 1 | 15. | 0. | 139. | 154. | 2,026.3 | 153. | 220. | 2,246.3 | 10% | |
| | Nov '10 | 2 | 34. | 0. | 139. | 173. | 2,199.3 | 117. | 337. | 2,536.3 | 13% | |
| | Dec '10 | 3 | 242. | 0. | 139. | 381. | 2,580.2 | 42. | 379. | 2,959.2 | 13% | |
| | Jan '11 | 4 | 18. | 0. | 139. | 157. | 2,737.2 | 86. | 465. | 3,202.2 | 15% | |
| | Feb '11 | 5 | 72. | 0. | 139. | 211. | 2,948.1 | 67. | 532. | 3,480.1 | 15% | |
| | Mar '11 | 6 | 59. | 0. | 139. | 198. | 3,146.1 | 39. | 571. | 3,717.1 | 15% | |
| | Apr '11 | 7 | 5. | 0. | 139. | 144. | 3,290.1 | 0. | 571. | 3,861.1 | 15% | |
| | May '11 | 8 | 6. | 68.8 | 139. | 213.8 | 3,503.8 | 141. | 712. | 4,215.8 | 17% | |
| | Jun '11 | 9 | 3. | 0. | 139. | 142. | 3,645.8 | 61. | 773. | 4,418.8 | 17% | |
| 2011/12 | Jul '11 | 10 | 4. | 0. | 139. | 143. | 3,788.7 | 62. | 835. | 4,623.7 | 18% | HISTORICAL |
| | Aug '11 | 11 | 1. | 122.7 | 139. | 262.7 | 4,051.4 | 52. | 887. | 4,938.4 | 18% | |
| | Sep '11 | 12 | 0. | 158.3 | 139. | 297.3 | 4,348.6 | 0. | 887. | 5,235.6 | 17% | |
| | Oct '11 | 13 | 30. | 0. | 139. | 169. | 4,517.6 | 0. | 887. | 5,404.6 | 16% | |
| | Nov '11 | 14 | 25. | 0. | 139. | 164. | 4,681.5 | 15. | 902. | 5,583.5 | 16% | |
| | Dec '11 | 15 | 9. | 0. | 139. | 148. | 4,829.5 | 25. | 927. | 5,756.5 | 16% | |
| | Jan '12 | 16 | 11. | 0. | 139. | 150. | 4,979.4 | 0. | 927. | 5,906.4 | 16% | |
| | Feb '12 | 17 | 4. | 0. | 139. | 143. | 5,122.4 | 0. | 927. | 6,049.4 | 15% | |
| | Mar '12 | 18 | 18. | 0. | 139. | 157. | 5,279.3 | 0. | 927. | 6,206.3 | 15% | |
| | Apr '12 | 19 | 96. | 0. | 139. | 235. | 5,514.3 | 18. | 945. | 6,459.3 | 15% | |
| | May '12 | 20 | 20. | 0. | 139. | 159. | 5,673.2 | 271. | 1,216. | 6,889.2 | 18% | |
| | Jun '12 | 21 | 3. | 0. | 139. | 142. | 5,815.2 | 222. | 1,438. | 7,253.2 | 20% | |
| 2012/13 | Jul '12 | 22 | 3. | 0. | 139. | 142. | 5,957.1 | 94. | 1,532. | 7,489.1 | 20% | |
| | Aug '12 | 23 | 5. | 0. | 139. | 144. | 6,101.1 | 118. | 1,650. | 7,751.1 | 21% | |
| | Sep '12 | 24 | 1. | 0. | 139. | 140. | 6,241. | 55. | 1,705. | 7,946. | 21% | |
| | Oct '12 | 25 | 1. | 0. | 139. | 140. | 6,381. | 131. | 1,836. | 8,217. | 22% | |
| | Nov '12 | 26 | 6. | 0. | 139. | 145. | 6,525.9 | 71. | 1,907. | 8,432.9 | 23% | |
| | Dec '12 | 27 | 19. | 0. | 139. | 158. | 6,683.9 | 21. | 1,928. | 8,611.9 | 22% | |
| | Jan '13 | 28 | 35. | 0. | 139. | 174. | 6,857.8 | 12. | 1,940. | 8,797.8 | 22% | |
| | Feb '13 | 29 | 10. | 0. | 139. | 149. | 7,006.8 | 10. | 1,950. | 8,956.8 | 22% | |
| | Mar '13 | 30 | 7. | 0. | 139. | 146. | 7,152.7 | 57. | 2,007. | 9,159.7 | 22% | |
| | Apr '13 | 31 | 1. | 0. | 139. | 140. | 7,292.7 | 98. | 2,105. | 9,397.7 | 22% | |
| | May '13 | 32 | 5. | 0. | 139. | 144. | 7,436.6 | 93. | 2,198. | 9,634.6 | 23% | |
| | Jun '13 | 33 | 1. | 0 | 139. | 140. | 7,576.6 | 82. | 2,280. | 9,856.6 | 23% | |
| 2013/14 | Jul '13 | 34 | 2. | 0 | 139. | 141. | 7,717.5 | 74. | 2,354. | 10,071.5 | 23% | |
| | Aug '13 | 35 | 2. | 0 | 139. | 141. | 7,858.5 | 42. | 2,396. | 10,254.5 | 23% | |
| | Sep '13 | 36 | 2. | 0 | 139. | 141. | 7,999.4 | 46. | 2,442. | 10,441.4 | 23% | |
| | Oct '13 | 37 | 7. | 0 | 139. | 146. | 8,145.4 | 0. | 2,442. | 10,587.4 | 23% | |
| | Nov '13 | 38 | 12. | 0 | 139. | 151. | 8,296.3 | 0. | 2,442. | 10,738.3 | 23% | |
| | Dec '13 | 39 | 10. | 0 | 139. | 149. | 8,445.3 | 118. | 2,560. | 11,005.3 | 23% | |
| | Jan '14 | 40 | 2. | 0 | 139. | 141. | 8,586.3 | 158. | 2,718. | 11,304.3 | 24% | |
| | Feb '14 | 41 | 37. | 0 | 139. | 176. | 8,762.2 | 191. | 2,909. | 11,671.2 | 25% | |
| | Mar '14 | 42 | 99. | 0 | 139. | 238. | 9,000.2 | 142. | 3,051. | 12,051.2 | 25% | |
| | Apr '14 | 43 | 15. | 0 | 139. | 154. | 9,154.1 | 250. | 3,301. | 12,455.1 | 27% | |
| | May '14 | 44 | 2. | 0 | 139. | 141. | 9,295.1 | 214. | 3,515. | 12,810.1 | 27% | |
| | Jun '14 | 45 | 2. | 0 | 139. | 141. | 9,436. | 144. | 3,659. | 13,095. | 28% | |

# RWC Management Plan for Victoria Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014/15 | Jul '14 | 46 | 2. | 0 | 139. | 141. | 9,577. | 91. | 3,750. | 13,327. | 28% | HIST |
| | Aug '14 | 47 | 5. | 0 | 139. | 144. | 9,720.9 | 107. | 3,857. | 13,577.9 | 28% | |
| | Sep '14 | 48 | 2. | 0 | 139. | 141. | 9,861.9 | 155. | 4,012. | 13,873.9 | 29% | |
| | Oct '14 | 49 | 3. | 0 | 139. | 142. | 10,003.8 | 75. | 4,087. | 14,090.8 | 29% | |
| | Nov '14 | 50 | 57. | 0 | 139. | 196. | 10,199.8 | 4. | 4,091. | 14,290.8 | 29% | |
| | Dec '14 | 51 | 153. | 0 | 139. | 292. | 10,491.7 | 0. | 4,091. | 14,582.7 | 28% | |
| | Jan '15 | 52 | 18. | 0 | 139. | 157. | 10,648.7 | 63. | 4,154. | 14,802.7 | 28% | |
| | Feb '15 | 53 | 40. | 0 | 139. | 179. | 10,827.6 | 57. | 4,211. | 15,038.6 | 28% | |
| | Mar '15 | 54 | 35. | | 139. | 174. | 11,001.6 | 160. | 4,371. | 15,372.6 | 28% | PLANNED |
| | Apr '15 | 55 | 27. | | 139. | 166. | 11,108.5 | 180. | 4,551. | 15,659.5 | 29% | |
| | May '15 | 56 | 13. | | 139. | 152. | 11,234.5 | 180. | 4,731. | 15,965.5 | 30% | |
| | Jun '15 | 57 | 4. | | 139. | 143. | 11,365.4 | 180. | 4,911. | 16,276.4 | 30% | |
| 2015/16 | Jul '15 | 58 | 3. | | 139. | 142. | 11,507.4 | 170. | 5,081. | 16,588.4 | 31% | |
| | Aug '15 | 59 | 2. | | 139. | 141. | 11,648.3 | 0. | 5,081. | 16,729.3 | 30% | |
| | Sep '15 | 60 | 2. | | 139. | 141. | 11,789.3 | 0. | 5,081. | 16,870.3 | 30% | |
| | Oct '15 | 61 | 16. | | 139. | 155. | 11,895.2 | 180. | 5,261. | 17,156.2 | 31% | |
| | Nov '15 | 62 | 24. | | 139. | 163. | 12,058.2 | 180. | 5,441. | 17,499.2 | 31% | |
| | Dec '15 | 63 | 76. | | 139. | 215. | 12,263.7 | 100. | 5,541. | 17,804.7 | 31% | |
| | Jan '16 | 64 | 47. | | 139. | 186. | 12,423.9 | 100. | 5,641. | 18,064.9 | 31% | |
| | Feb '16 | 65 | 61. | | 139. | 200. | 12,581.2 | 100. | 5,741. | 18,322.2 | 31% | |
| | Mar '16 | 66 | 35. | | 139. | 174. | 12,645.3 | 160. | 5,901. | 18,546.3 | 32% | |
| | Apr '16 | 67 | 27. | | 139. | 166. | 12,752.6 | 180. | 6,081. | 18,833.6 | 32% | |
| | May '16 | 68 | 13. | | 139. | 152. | 12,875.8 | 180. | 6,261. | 19,136.8 | 33% | |
| | Jun '16 | 69 | 4. | | 139. | 143. | 13,006.8 | 180. | 6,441. | 19,447.8 | 33% | |
| 2016/17 | Jul '16 | 70 | 3. | | 139. | 142. | 13,140. | 170. | 6,611. | 19,751. | 33% | |
| | Aug '16 | 71 | 2. | | 139. | 141. | 13,277.9 | 0. | 6,611. | 19,888.9 | 33% | |
| | Sep '16 | 72 | 2. | | 139. | 141. | 13,415.8 | 0. | 6,611. | 20,026.8 | 33% | |
| | Oct '16 | 73 | 16. | | 139. | 155. | 13,562.7 | 180. | 6,791. | 20,353.7 | 33% | |
| | Nov '16 | 74 | 24. | | 139. | 163. | 13,721.7 | 180. | 6,971. | 20,692.7 | 34% | |
| | Dec '16 | 75 | 76. | | 139. | 215. | 13,847.8 | 100. | 7,071. | 20,918.8 | 34% | |
| | Jan '17 | 76 | 47. | | 139. | 186. | 14,019.1 | 100. | 7,171. | 21,190.1 | 34% | |
| | Feb '17 | 77 | 61. | | 139. | 200. | 14,149.3 | 100. | 7,271. | 21,420.3 | 34% | |
| | Mar '17 | 78 | 35. | | 139. | 174. | 14,315. | 160. | 7,431. | 21,746. | 34% | |
| | Apr '17 | 79 | 27. | | 139. | 166. | 14,446. | 180. | 7,611. | 22,057. | 35% | |
| | May '17 | 80 | 13. | | 139. | 152. | 14,590.9 | 180. | 7,791. | 22,381.9 | 35% | |
| | Jun '17 | 81 | 4. | | 139. | 143. | 14,724.9 | 180. | 7,971. | 22,695.9 | 35% | |
| 2017/18 | Jul '17 | 82 | 3. | | 139. | 142. | 14,866.8 | 170. | 8,141. | 23,007.8 | 35% | |
| | Aug '17 | 83 | 2. | | 139. | 141. | 15,007.8 | 0. | 8,141. | 23,148.8 | 35% | |
| | Sep '17 | 84 | 2. | | 139. | 141. | 15,143.7 | 0. | 8,141. | 23,284.7 | 35% | |
| | Oct '17 | 85 | 16. | | 139. | 155. | 15,290.7 | 180. | 8,321. | 23,611.7 | 35% | |
| | Nov '17 | 86 | 24. | | 139. | 163. | 15,404.6 | 180. | 8,501. | 23,905.6 | 36% | |
| | Dec '17 | 87 | 76. | | 139. | 215. | 15,553.6 | 100. | 8,601. | 24,154.6 | 36% | |
| | Jan '18 | 88 | 47. | | 139. | 186. | 15,559.5 | 100. | 8,701. | 24,260.5 | 36% | |
| | Feb '18 | 89 | 61. | | 139. | 200. | 15,698.5 | 100. | 8,801. | 24,499.5 | 36% | |
| | Mar '18 | 90 | 35. | | 139. | 174. | 15,870.4 | 160. | 8,961. | 24,831.4 | 36% | |
| | Apr '18 | 91 | 27. | | 139. | 166. | 16,029.4 | 180. | 9,141. | 25,170.4 | 36% | |
| | May '18 | 92 | 13. | | 139. | 152. | 16,135.3 | 180. | 9,321. | 25,456.3 | 37% | |
| | Jun '18 | 93 | 4. | | 139. | 143. | 16,275.3 | 180. | 9,501. | 25,776.3 | 37% | |
| 2018/19 | Jul '18 | 94 | 3. | | 139. | 142. | 16,414.2 | 170. | 9,671. | 26,085.2 | 37% | |
| | Aug '18 | 95 | 2. | | 139. | 141. | 16,552.2 | 0. | 9,671. | 26,223.2 | 37% | |
| | Sep '18 | 96 | 2. | | 139. | 141. | 16,691.1 | 0. | 9,671. | 26,362.1 | 37% | |
| | Oct '18 | 97 | 16. | | 139. | 155. | 16,842.1 | 180. | 9,851. | 26,693.1 | 37% | |
| | Nov '18 | 98 | 24. | | 139. | 163. | 16,970. | 180. | 10,031. | 27,001. | 37% | |
| | Dec '18 | 99 | 76. | | 139. | 215. | 17,111. | 100. | 10,131. | 27,242. | 37% | |
| | Jan '19 | 100 | 47. | | 139. | 186. | 17,281.9 | 100. | 10,231. | 27,512.9 | 37% | |
| | Feb '19 | 101 | 61. | | 139. | 200. | 17,386.9 | 100. | 10,331. | 27,717.9 | 37% | |
| | Mar '19 | 102 | 35. | | 139. | 174. | 17,547.9 | 160. | 10,491. | 28,038.9 | 37% | |
| | Apr '19 | 103 | 27. | | 139. | 166. | 17,710.8 | 180. | 10,671. | 28,381.8 | 38% | |
| | May '19 | 104 | 13. | | 139. | 152. | 17,859.8 | 180. | 10,851. | 28,710.8 | 38% | |
| | Jun '19 | 105 | 4. | | 139. | 143. | 18,002.7 | 180. | 11,031. | 29,033.7 | 38% | |
| 2019/20 | Jul '19 | 106 | 3. | | 139. | 142. | 18,143.7 | 170. | 11,201. | 29,344.7 | 38% | |
| | Aug '19 | 107 | 2. | | 139. | 141. | 18,284.6 | 0. | 11,201. | 29,485.6 | 38% | |
| | Sep '19 | 108 | 2. | | 139. | 141. | 18,425.6 | 0. | 11,201. | 29,626.6 | 38% | |
| | Oct '19 | 109 | 16. | | 139. | 155. | 18,541.5 | 180. | 11,381. | 29,922.5 | 38% | |
| | Nov '19 | 110 | 24. | | 139. | 163. | 18,685.5 | 180. | 11,561. | 30,246.5 | 38% | |
| | Dec '19 | 111 | 76. | | 139. | 215. | 18,811.4 | 100. | 11,661. | 30,472.4 | 38% | |
| | Jan '20 | 112 | 47. | | 139. | 186. | 18,844.4 | 100. | 11,761. | 30,605.4 | 38% | |
| | Feb '20 | 113 | 61. | | 139. | 200. | 18,870.3 | 100. | 11,861. | 30,731.3 | 39% | |
| | Mar '20 | 114 | 35. | | 139. | 174. | 19,044.3 | 160. | 12,021. | 31,065.3 | 39% | |
| | Apr '20 | 115 | 27. | | 139. | 166. | 19,190.2 | 180. | 12,201. | 31,391.2 | 39% | |
| | May '20 | 116 | 13. | | 139. | 152. | 19,342.2 | 180. | 12,381. | 31,723.2 | 39% | |
| | Jun '20 | 117 | 4. | | 139. | 143. | 19,484.1 | 180. | 12,561. | 32,045.1 | 39% | |

## RWC Management Plan for Victoria Basin

**(120-month averaging period)**

**Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries**

| Date | | No. Mos. Since Initial RW Delivery | SW (AF) | MWD (AF) | Underflow (AF) | DW Total (AF) | DW 120-Month Total (AF) | RW (AF) | RW 120-Month Total (AF) | DW + RW 120-Month Total (AF) | RWC | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020/21 | Jul '20 | 118 | 3. | | 139. | 142. | 19,623.1 | 170. | 12,731. | 32,354.1 | 39% | PLANNED |
| | Aug '20 | 119 | 2. | | 139. | 141. | 19,762. | 0. | 12,731. | 32,493. | 39% | |
| | Sep '20 | 120 | 2. | | 139. | 141. | 19,901. | 0. | 12,664. | 32,565. | 39% | |
| | Oct '20 | 121 | 16. | | 139. | 155. | 19,902. | 180. | 12,691. | 32,593. | 39% | |
| | Nov '20 | 122 | 24. | | 139. | 163. | 19,892. | 180. | 12,754. | 32,646. | 39% | |
| | Dec '20 | 123 | 76. | | 139. | 215. | 19,726. | 100. | 12,812. | 32,538. | 39% | |
| | Jan '21 | 124 | 47. | | 139. | 186. | 19,755. | 100. | 12,826. | 32,581. | 39% | |
| | Feb '21 | 125 | 61. | | 139. | 200. | 19,744. | 100. | 12,859. | 32,603. | 39% | |
| | Mar '21 | 126 | 35. | | 139. | 174. | 19,720. | 160. | 12,980. | 32,700. | 40% | |
| | Apr '21 | 127 | 27. | | 139. | 166. | 19,742. | 180. | 13,160. | 32,902. | 40% | |
| | May '21 | 128 | 13. | | 139. | 152. | 19,680.2 | 180. | 13,199. | 32,879.2 | 40% | |
| | Jun '21 | 129 | 4. | | 139. | 143. | 19,681.2 | 180. | 13,318. | 32,999.2 | 40% | |
| 2021/22 | Jul '21 | 130 | 3. | | 139. | 142. | 19,680.2 | 170. | 13,426. | 33,106.2 | 41% | |
| | Aug '21 | 131 | 2. | | 139. | 141. | 19,558.5 | 0. | 13,374. | 32,932.5 | 41% | |
| | Sep '21 | 132 | 2. | | 139. | 141. | 19,402.2 | 0. | 13,374. | 32,776.2 | 41% | |
| | Oct '21 | 133 | 16. | | 139. | 155. | 19,388.2 | 180. | 13,554. | 32,942.2 | 41% | |
| | Nov '21 | 134 | 24. | | 139. | 163. | 19,387.2 | 180. | 13,719. | 33,106.2 | 41% | |
| | Dec '21 | 135 | 76. | | 139. | 215. | 19,454.2 | 100. | 13,794. | 33,248.2 | 41% | |
| | Jan '22 | 136 | 47. | | 139. | 186. | 19,490.2 | 100. | 13,894. | 33,384.2 | 42% | |
| | Feb '22 | 137 | 61. | | 139. | 200. | 19,547.2 | 100. | 13,994. | 33,541.2 | 42% | |
| | Mar '22 | 138 | 35. | | 139. | 174. | 19,564.2 | 160. | 14,154. | 33,718.2 | 42% | |
| | Apr '22 | 139 | 27. | | 139. | 166. | 19,495.2 | 180. | 14,316. | 33,811.2 | 42% | |
| | May '22 | 140 | 13. | | 139. | 152. | 19,488.2 | 180. | 14,225. | 33,713.2 | 42% | |
| | Jun '22 | 141 | 4. | | 139. | 143. | 19,489.2 | 180. | 14,183. | 33,672.2 | 42% | |
| 2022/23 | Jul '22 | 142 | 3. | | 139. | 142. | 19,489.2 | 170. | 14,259. | 33,748.2 | 42% | |
| | Aug '22 | 143 | 2. | | 139. | 141. | 19,486.2 | 0. | 14,141. | 33,627.2 | 42% | |
| | Sep '22 | 144 | 2. | | 139. | 141. | 19,487.2 | 0. | 14,086. | 33,573.2 | 42% | |
| | Oct '22 | 145 | 16. | | 139. | 155. | 19,502.2 | 180. | 14,135. | 33,637.2 | 42% | |
| | Nov '22 | 146 | 24. | | 139. | 163. | 19,520.2 | 180. | 14,244. | 33,764.2 | 42% | |
| | Dec '22 | 147 | 76. | | 139. | 215. | 19,577.2 | 100. | 14,323. | 33,900.2 | 42% | |
| | Jan '23 | 148 | 47. | | 139. | 186. | 19,589.2 | 100. | 14,411. | 34,000.2 | 42% | |
| | Feb '23 | 149 | 61. | | 139. | 200. | 19,640.2 | 100. | 14,501. | 34,141.2 | 42% | |
| | Mar '23 | 150 | 35. | | 139. | 174. | 19,668.2 | 160. | 14,604. | 34,272.2 | 43% | |
| | Apr '23 | 151 | 27. | | 139. | 166. | 19,694.2 | 180. | 14,686. | 34,380.2 | 43% | |
| | May '23 | 152 | 13. | | 139. | 152. | 19,702.2 | 180. | 14,773. | 34,475.2 | 43% | |
| | Jun '23 | 153 | 4. | | 139. | 143. | 19,705.2 | 180. | 14,871. | 34,576.2 | 43% | |
| | Jul '23 | 154 | 3. | | 139. | 142. | 19,706.2 | 170. | 14,967. | 34,673.2 | 43% | |
| | Aug '23 | 155 | 2. | | 139. | 141. | 19,706.2 | 0. | 14,925. | 34,631.2 | 43% | |
| | Sep '23 | 156 | 2. | | 139. | 141. | 19,706.2 | 0. | 14,879. | 34,585.2 | 43% | |
| | Oct '23 | 157 | 16. | | 139. | 155. | 19,715.2 | 180. | 15,059. | 34,774.2 | 43% | |
| | Nov '23 | 158 | 24. | | 139. | 163. | 19,727.2 | 180. | 15,239. | 34,966.2 | 44% | |
| | Dec '23 | 159 | 76. | | 139. | 215. | 19,793.2 | 100. | 15,221. | 35,014.2 | 43% | |
| | Jan '24 | 160 | 47. | | 139. | 186. | 19,838.2 | 100. | 15,163. | 35,001.2 | 43% | |
| | Feb '24 | 161 | 61. | | 139. | 200. | 19,862.2 | 100. | 15,072. | 34,934.2 | 43% | |
| | Mar '24 | 162 | 35. | | 139. | 174. | 19,798.2 | 160. | 15,090. | 34,888.2 | 43% | |
| | Apr '24 | 163 | 27. | | 139. | 166. | 19,810.2 | 180. | 15,020. | 34,830.2 | 43% | |
| | May '24 | 164 | 13. | | 139. | 152. | 19,821.2 | 180. | 14,986. | 34,807.2 | 43% | |
| | Jun '24 | 165 | 4. | | 139. | 143. | 19,823.2 | 180. | 15,022. | 34,845.2 | 43% | |

**Notes:**

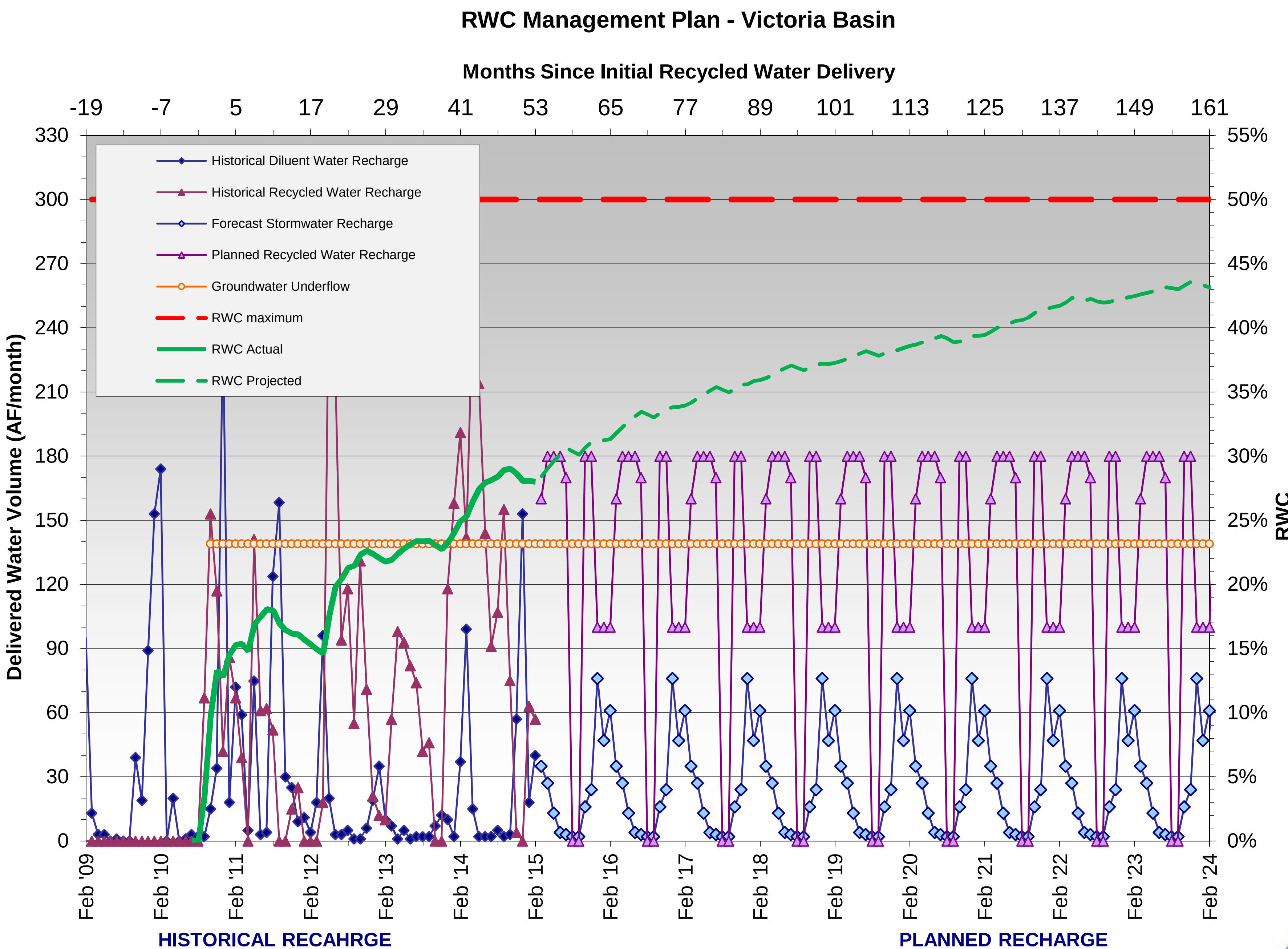
DW = Diluent Water; Total DW is the sum of Stormwater & Local Runoff (SW), Imported Water from the State Water Project (MWD), and groundwater underflow.

RW = Recycled Water

RWC = 120-month running total of recycled water / 120-month running total of all diluent and recycled water.

While an RWC calculation is provided starting on the first month of RW recharge, 120 months of data may not be available until 10 years of recharge operations.

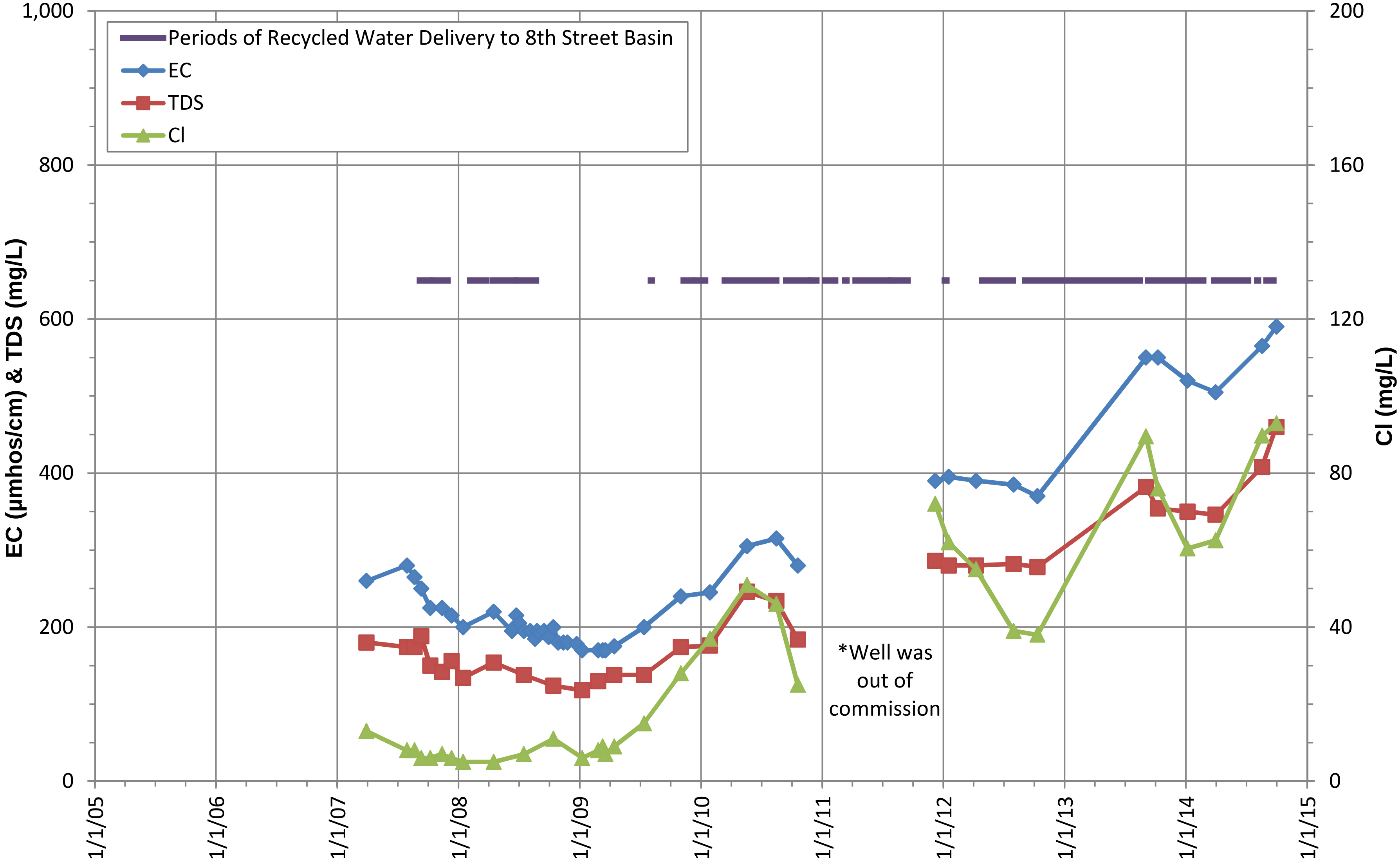
RWC maximum = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC) determined from a recharge site's start-up period


RWC Management Plan - Victoria Basin
Months Since Initial Recycled Water Delivery
Historical Diluent Water Recharge
Historical Recycled Water Recharge
Forecast Stormwater Recharge
Planned Recycled Water Recharge
Groundwater Underflow
RWC maximum
RWC Actual
RWC Projected
Delivered Water Volume (AF/month)
RWC
-19
-7
5
17
29
41
53
65
77
89
101
113
125
137
149
161
330
300
270
240
210
180
150
120
90
60
30
0
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Feb '09
Feb '10
Feb '11
Feb '12
Feb '13
Feb '14
Feb '15
Feb '16
Feb '17
Feb '18
Feb '19
Feb '20
Feb '21
Feb '22
Feb '23
Feb '24
HISTORICAL RECAHRGE
PLANNED RECHARGE

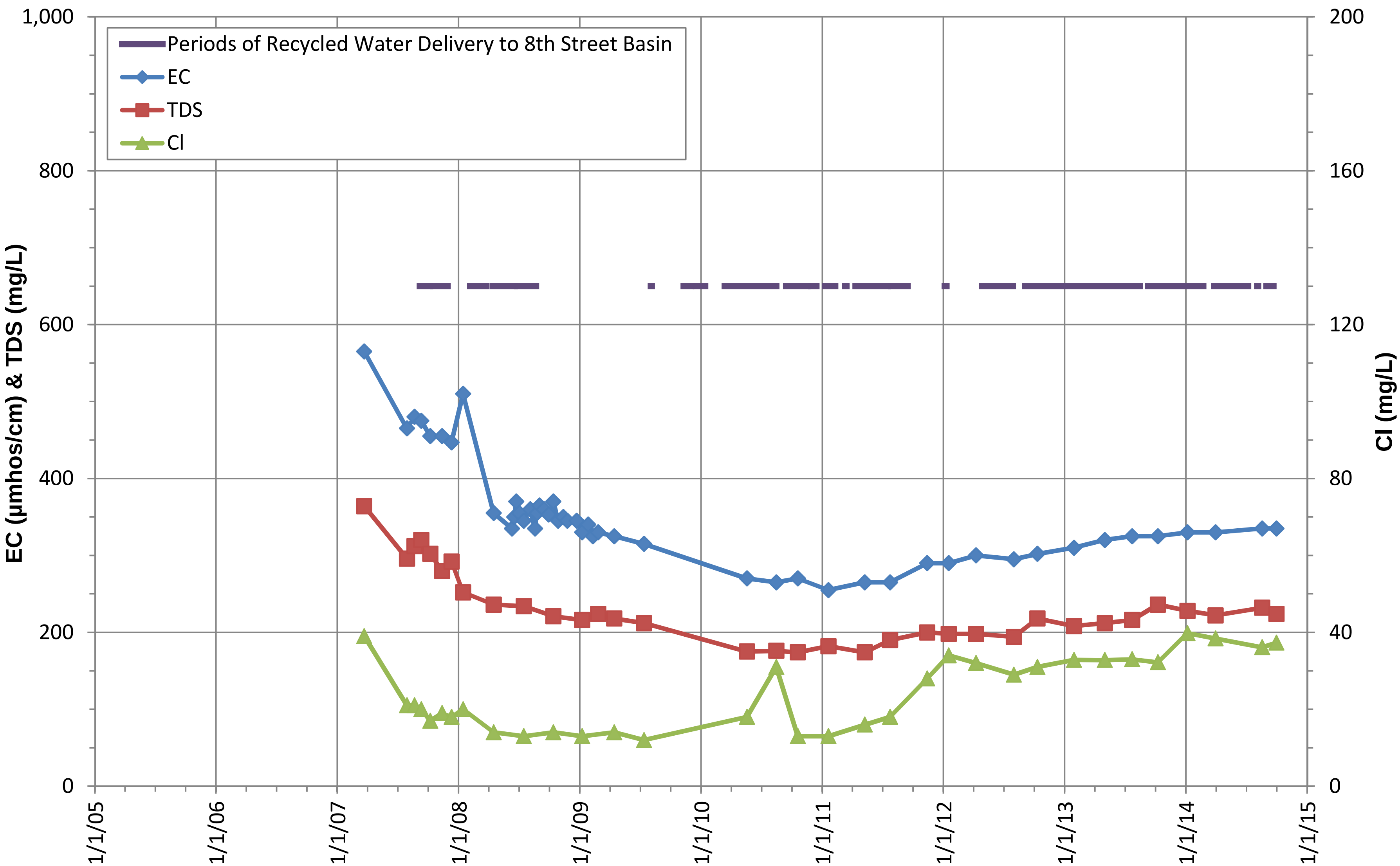
# APPENDIX D

# EVIDENCE FOR BLENDING:

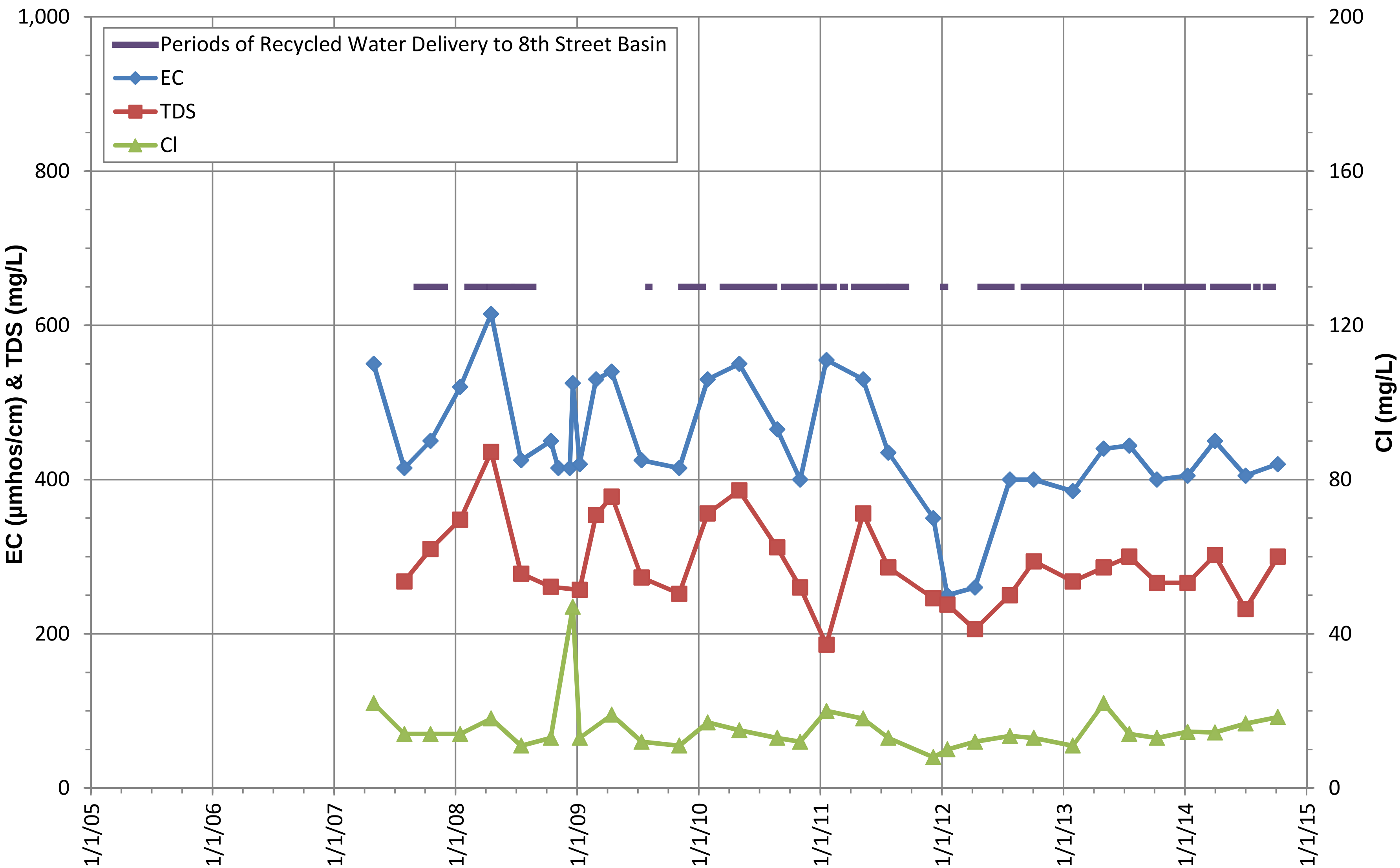
# EC, TDS, CHLORIDE TIME-SERIES GRAPHS



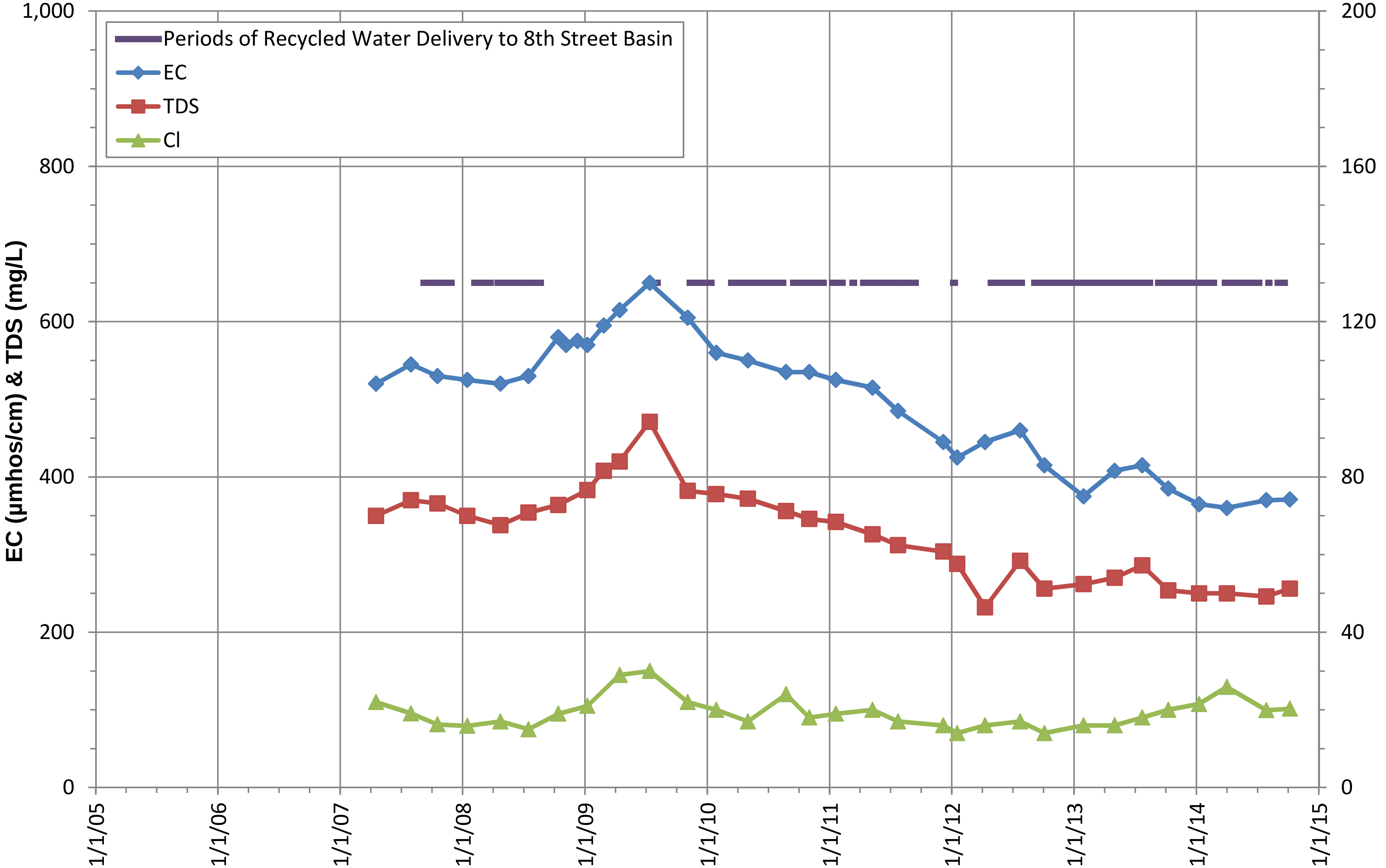

**EC, TDS, CHLORIDE TRENDS**
**8TH STREET BASIN**
**MW 8TH-1/1**



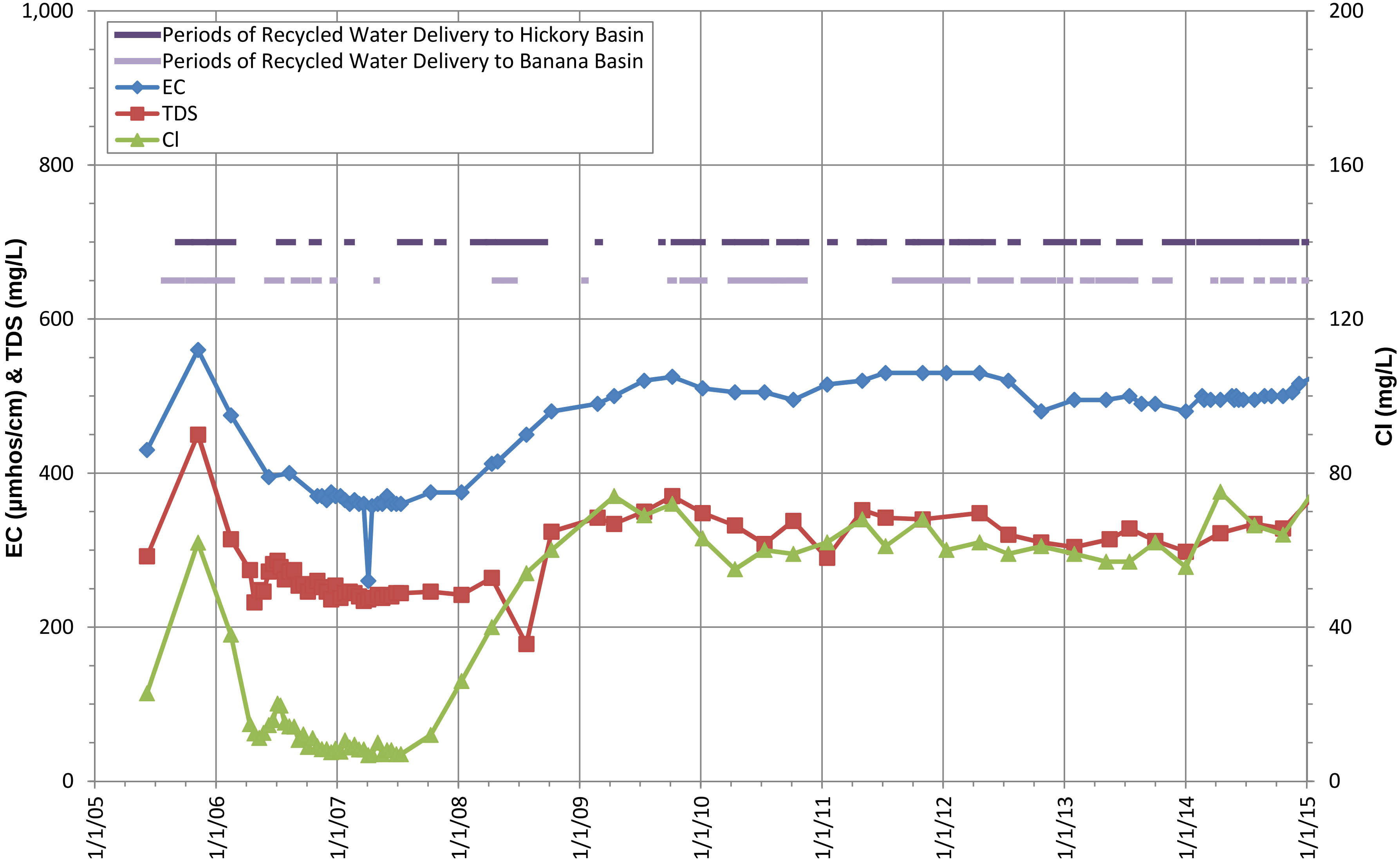

**EC, TDS, CHLORIDE TRENDS**
**8TH STREET BASIN**
**MW 8TH-1/2**



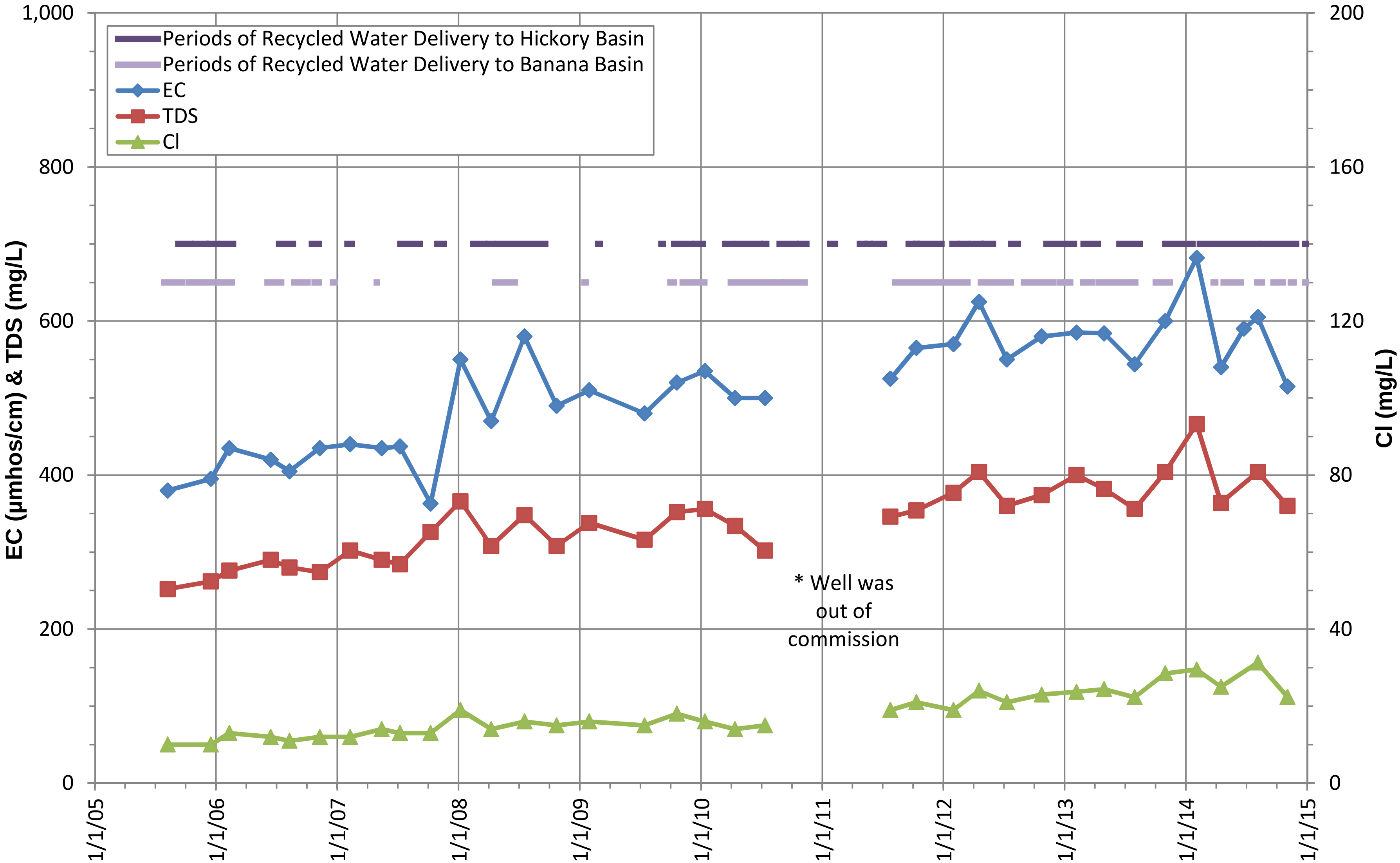

**EC, TDS, CHLORIDE TRENDS**
**8TH STREET BASIN**
**MW 8TH-2/1**



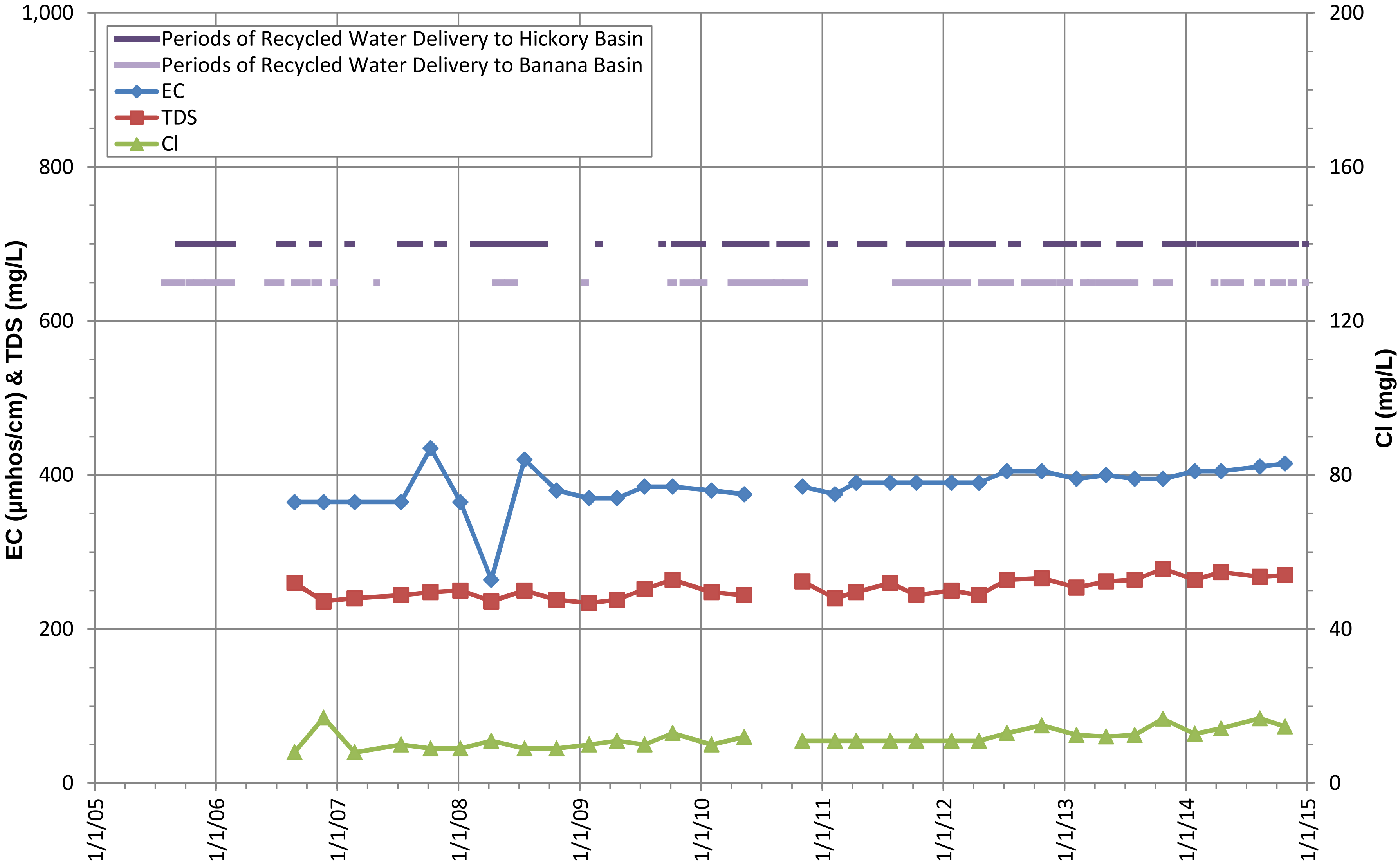

**EC, TDS, CHLORIDE TRENDS**
**8TH STREET BASIN**
**MW 8TH-2/2**



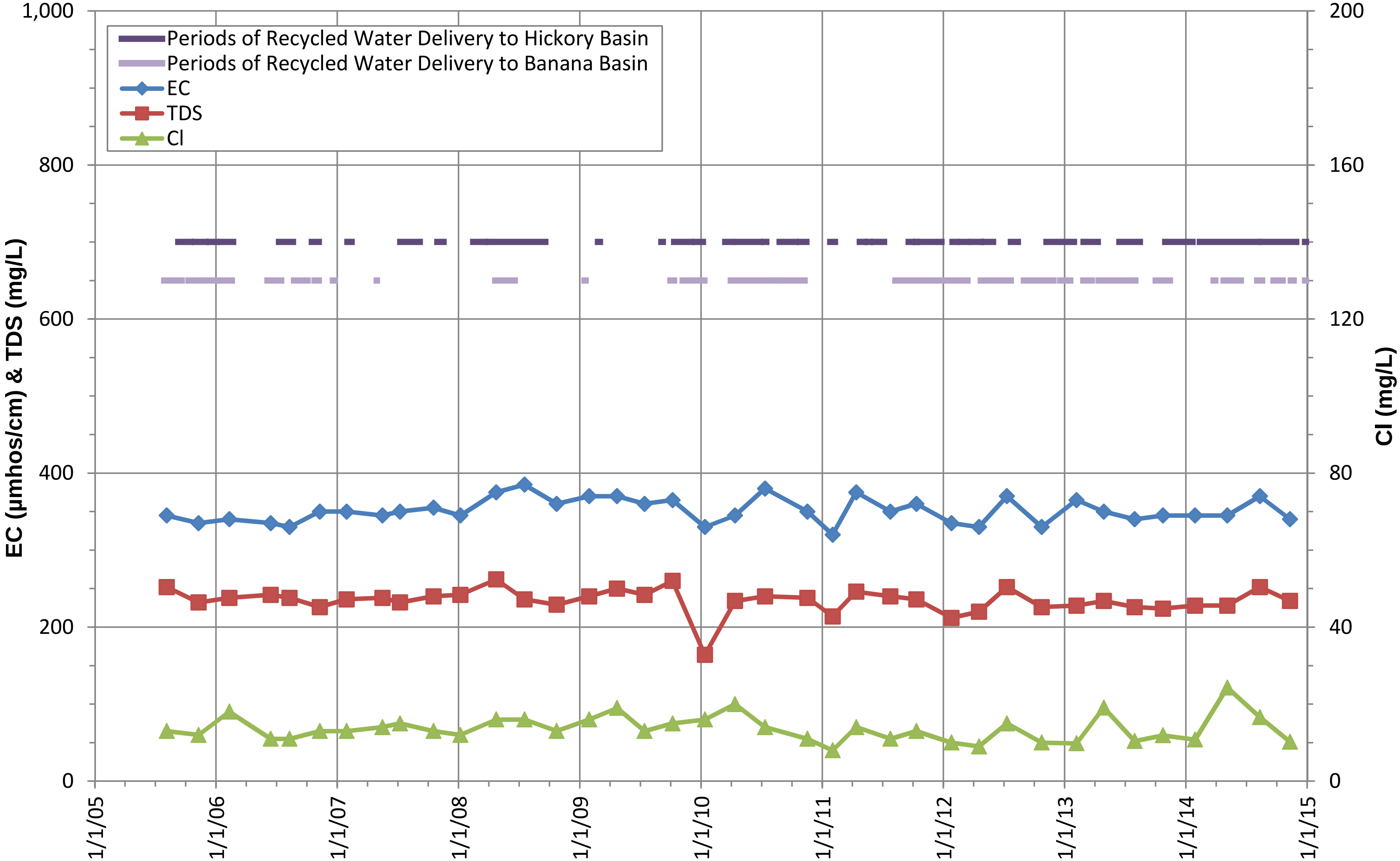

**EC, TDS, CHLORIDE TRENDS**
**HICKORY BANANA BASINS**
**MW BH-1/2**



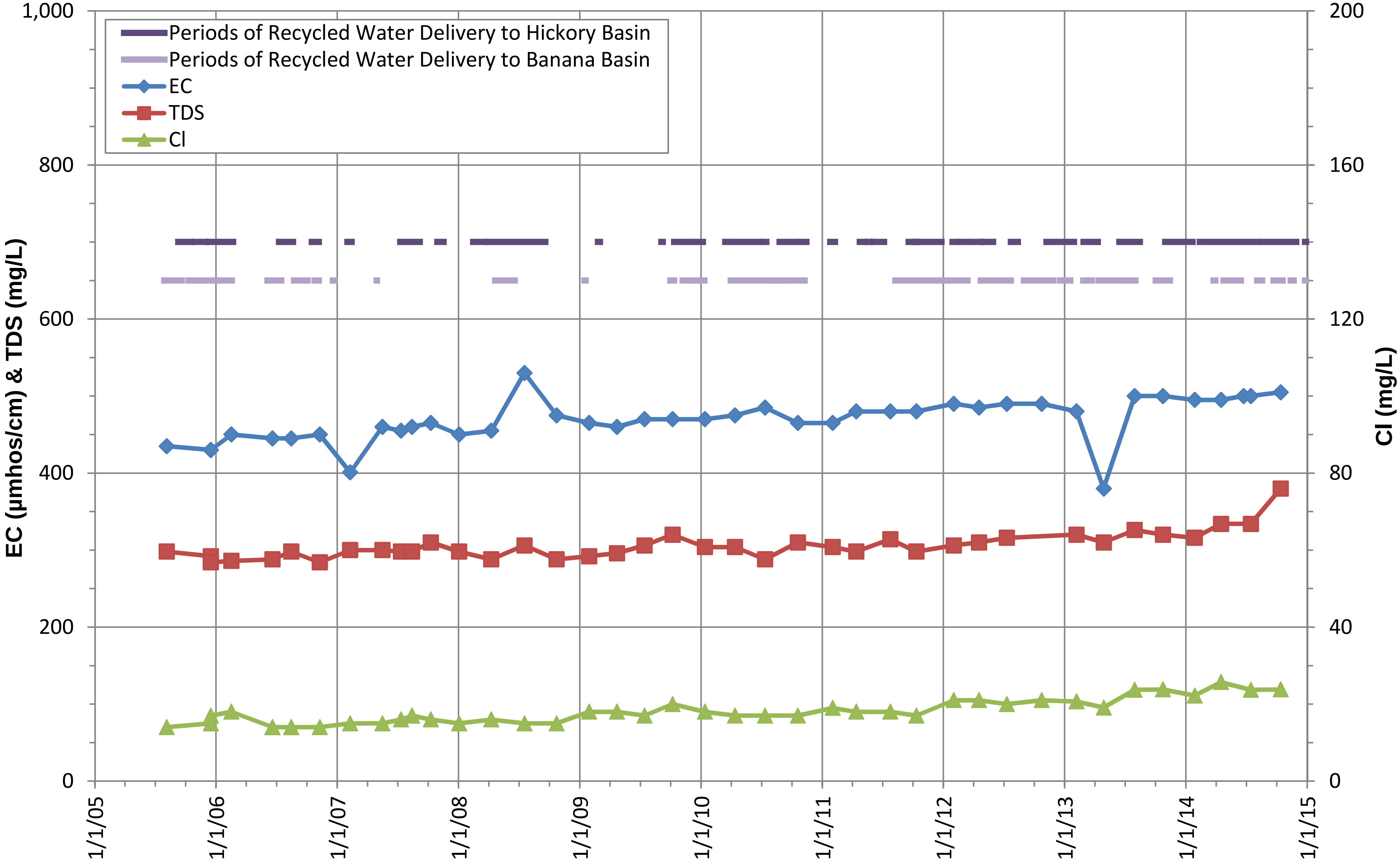

**EC, TDS, CHLORIDE TRENDS**
**BANANA-HICKORY BASINS**
**CALIFORNIA SPEEDWAY INFIELD WELL**



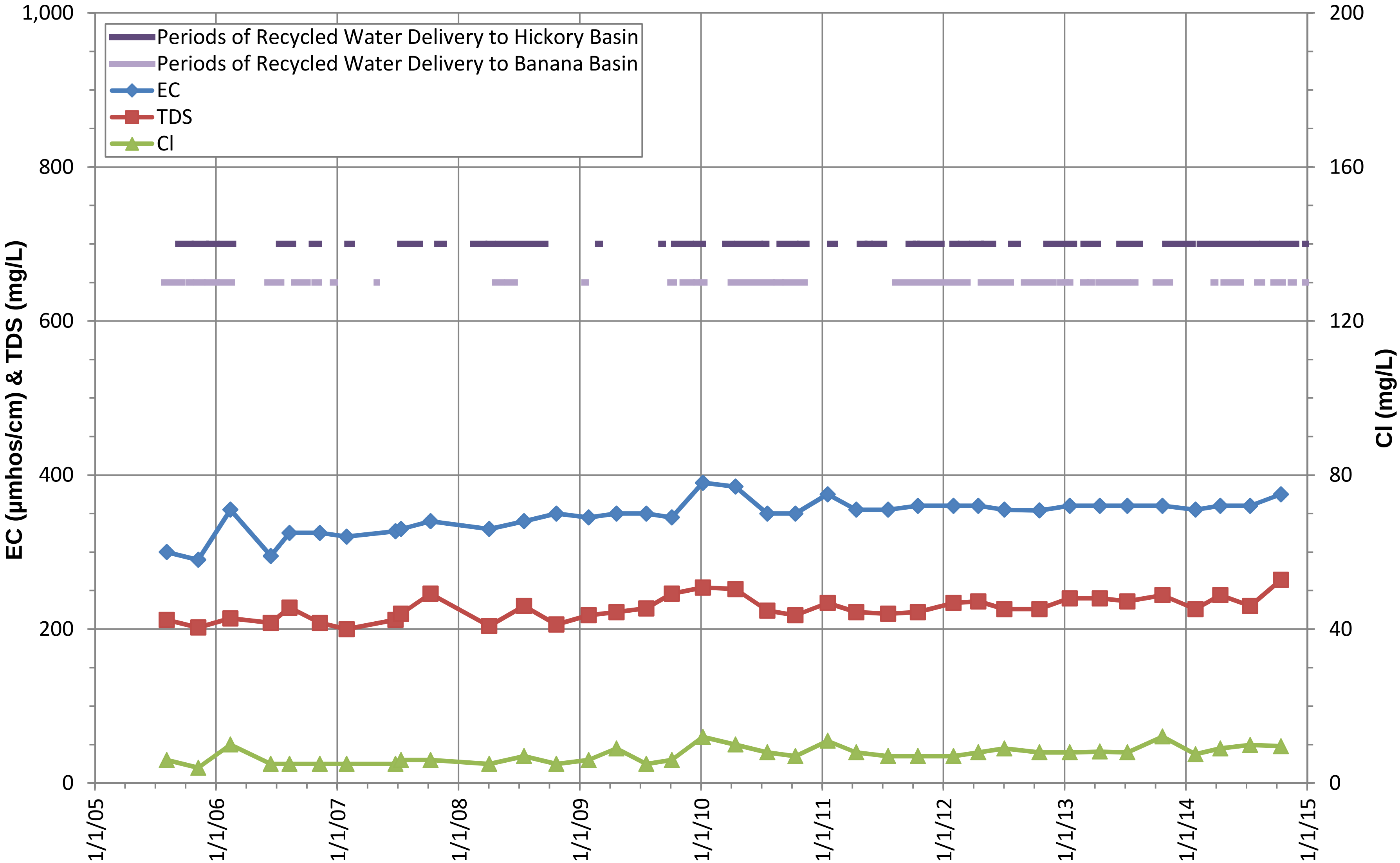

**EC, TDS, CHLORIDE TRENDS**
**BANANA-HICKORY BASINS**
**CALIFORNIA SPEEDWAY NO. 2**



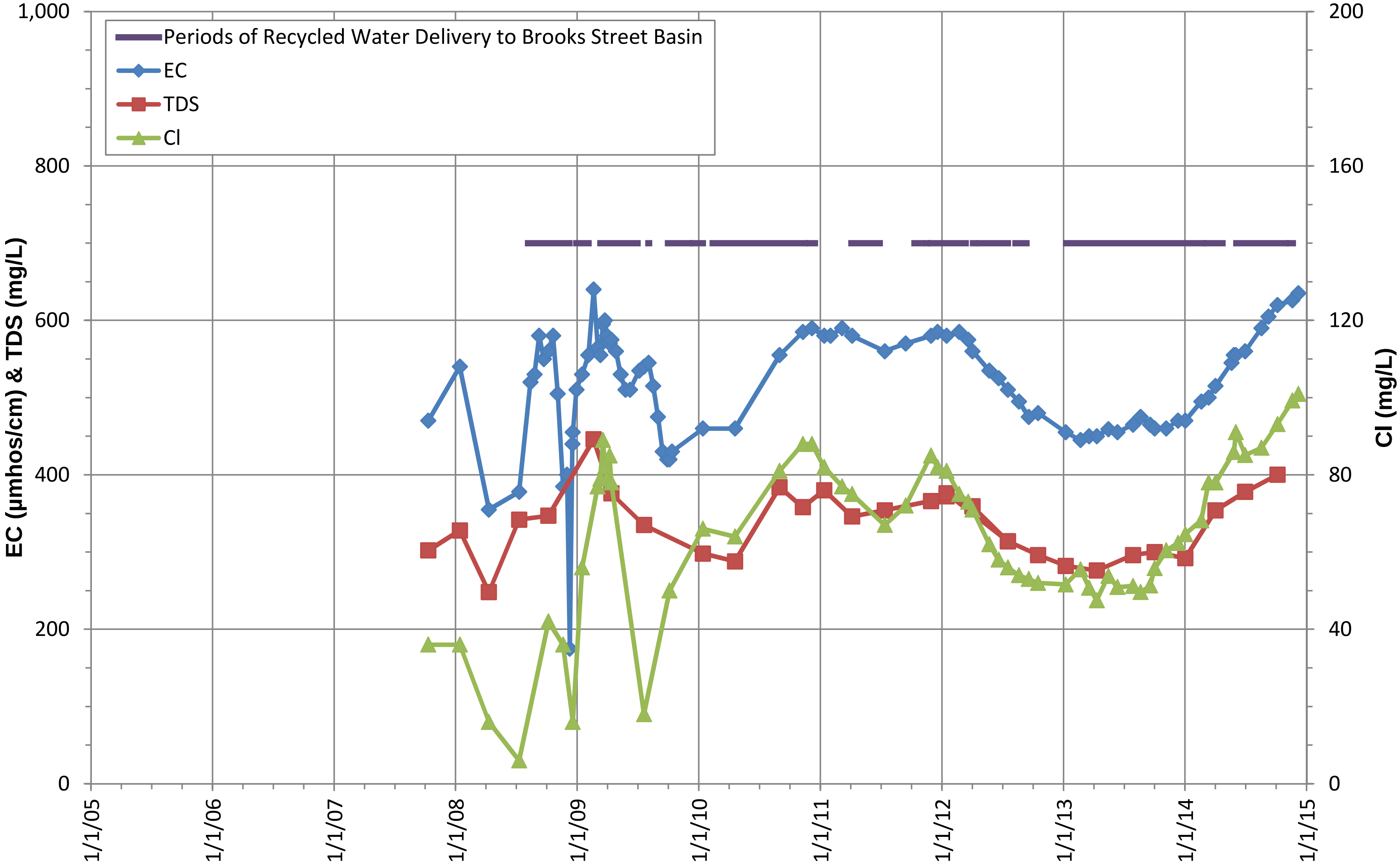

**EC, TDS, CHLORIDE TRENDS**
**BANANA-HICKORY BASINS**
**RELIANT EAST WELL**



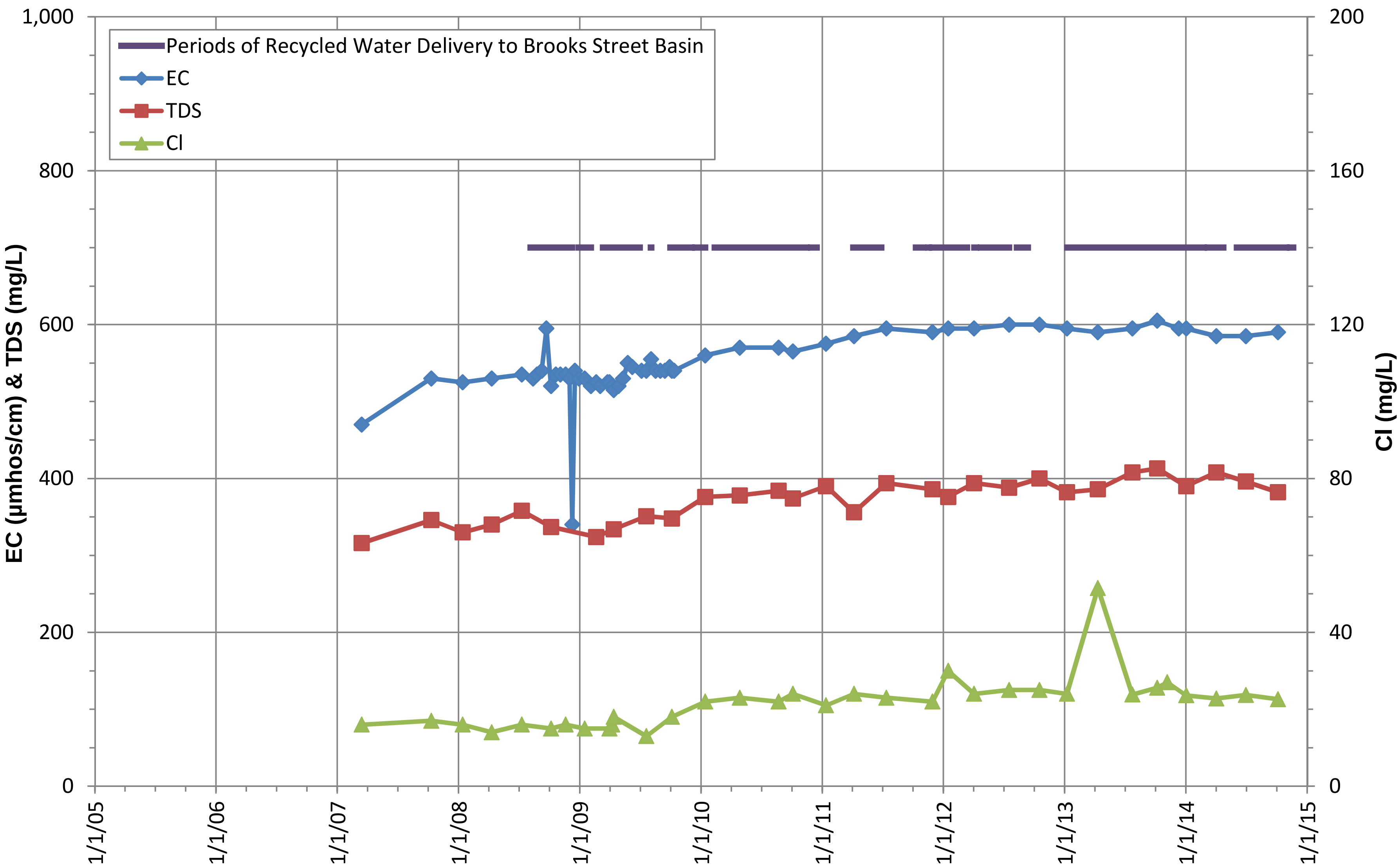

**EC, TDS, CHLORIDE TRENDS**
**BANANA-HICKORY BASINS**
**FONTANA WATER CO. 37A**



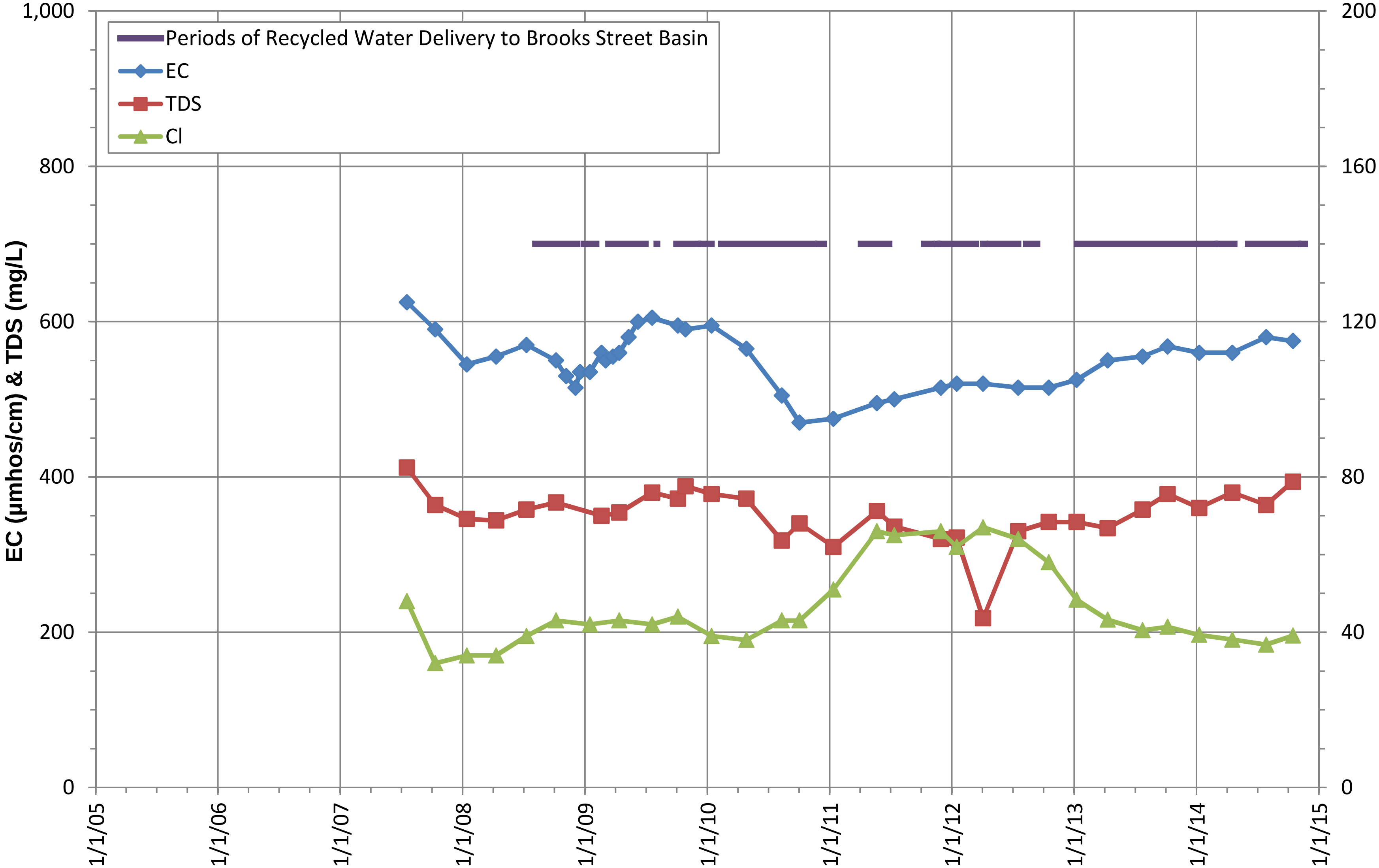

**EC, TDS, CHLORIDE TRENDS**
**BANANA-HICKORY BASINS**
**ONTARIO NO. 20**



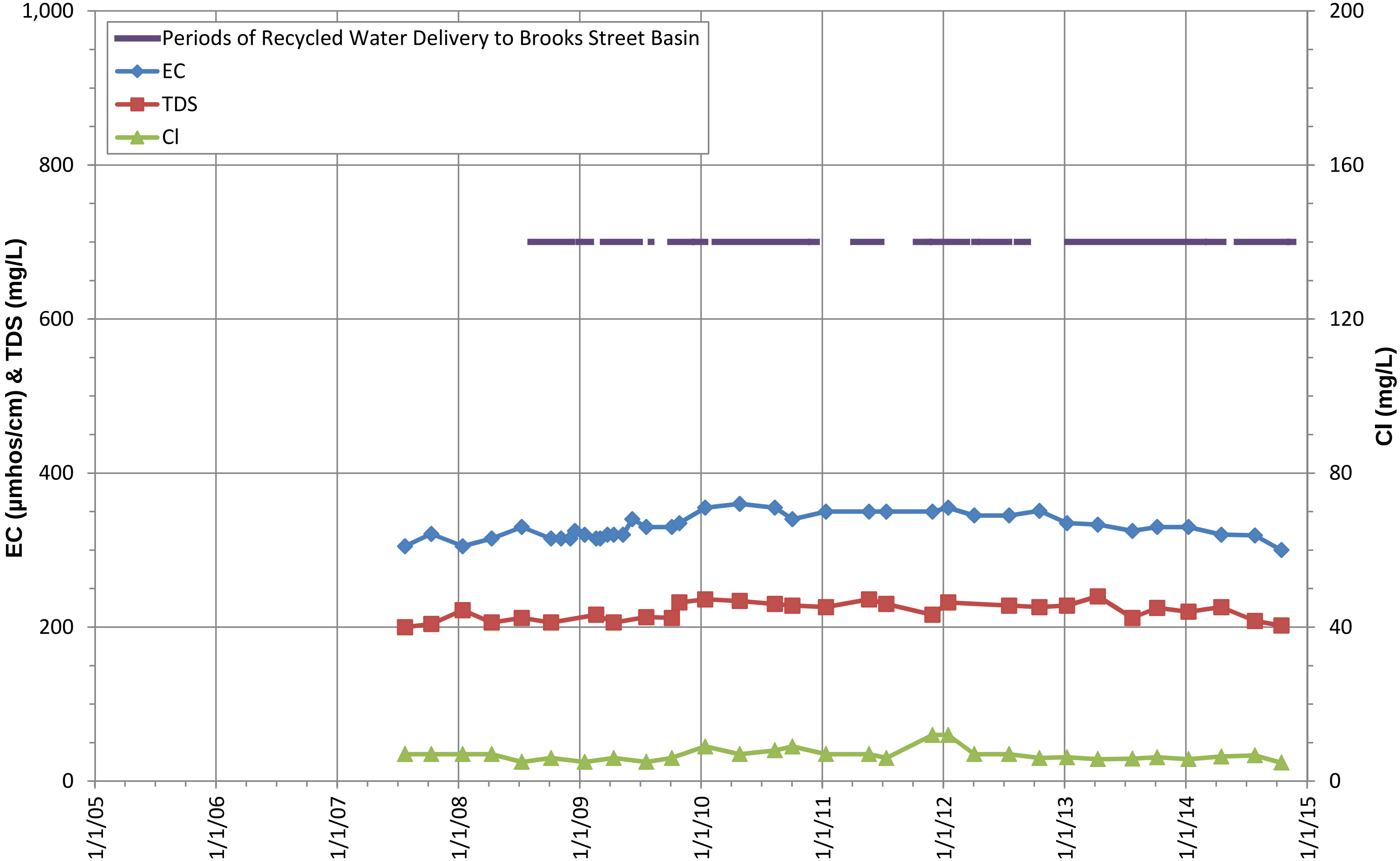

**EC, TDS, CHLORIDE TRENDS**
**BROOKS STREET BASIN**
**MW BRK-1/1**



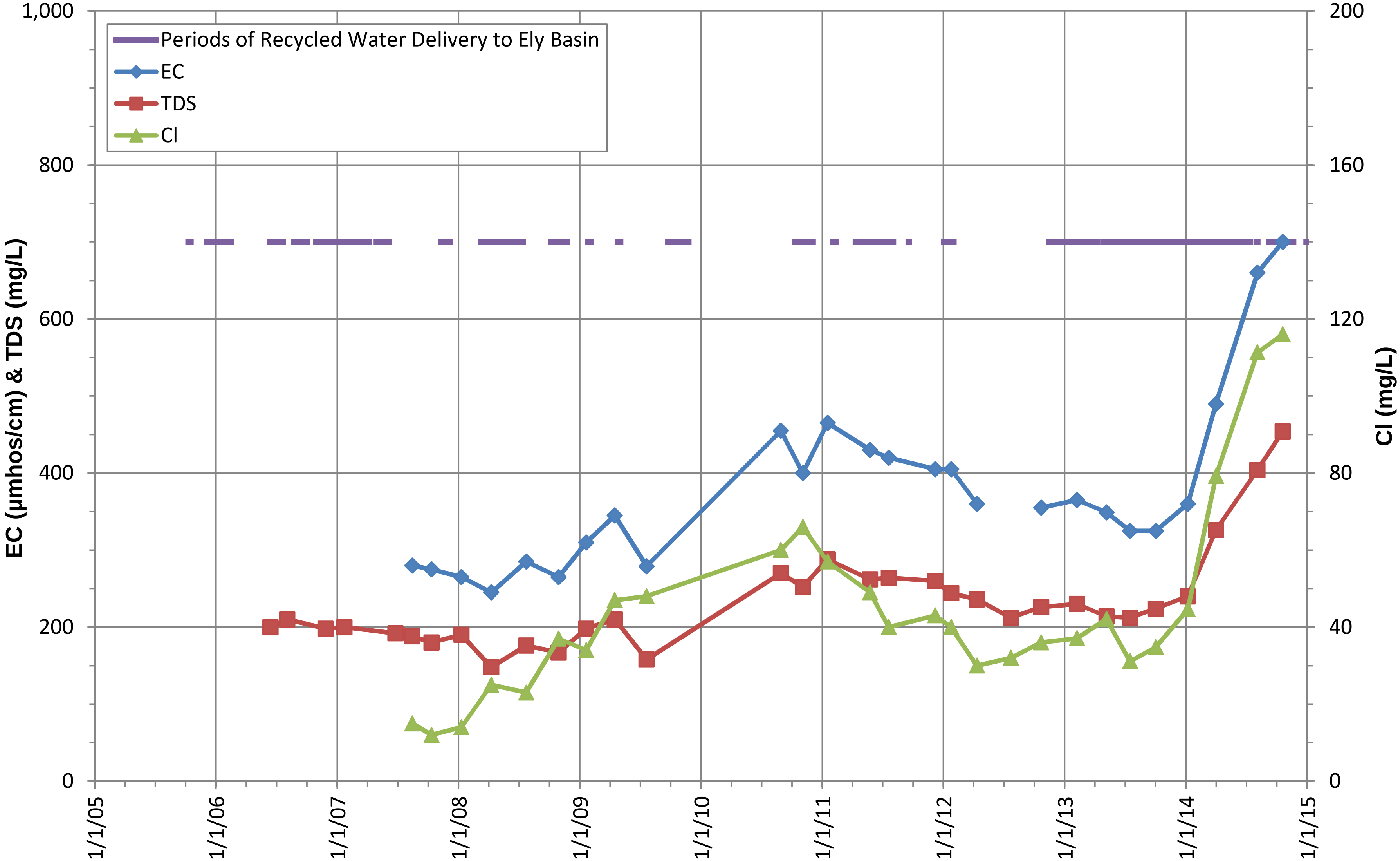

**EC, TDS, CHLORIDE TRENDS**
**BROOKS STREET BASIN**
**MW BRK-1/2**



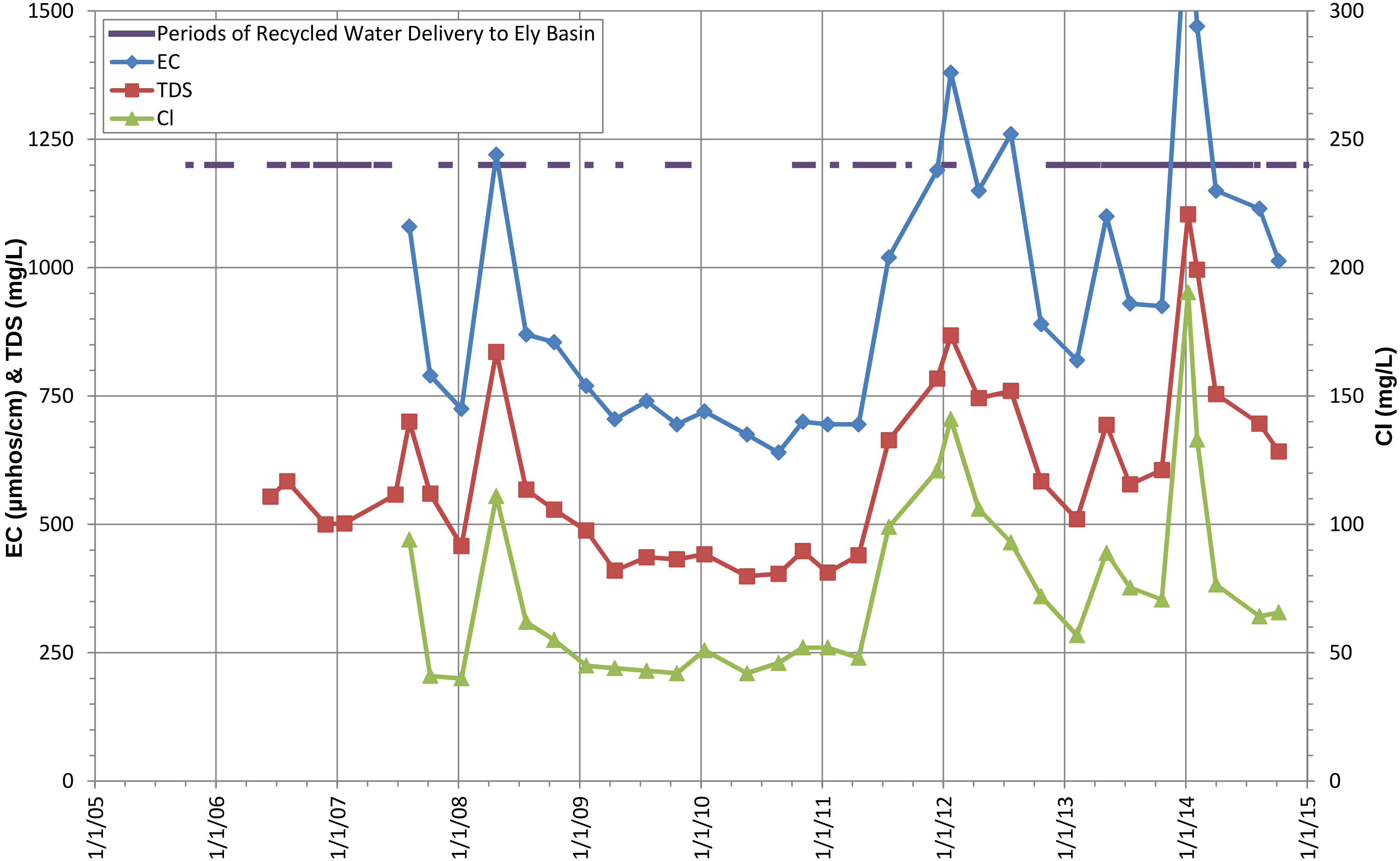

**EC, TDS, CHLORIDE TRENDS**
**BROOKS STREET BASIN**
**MW BRK-2/1**



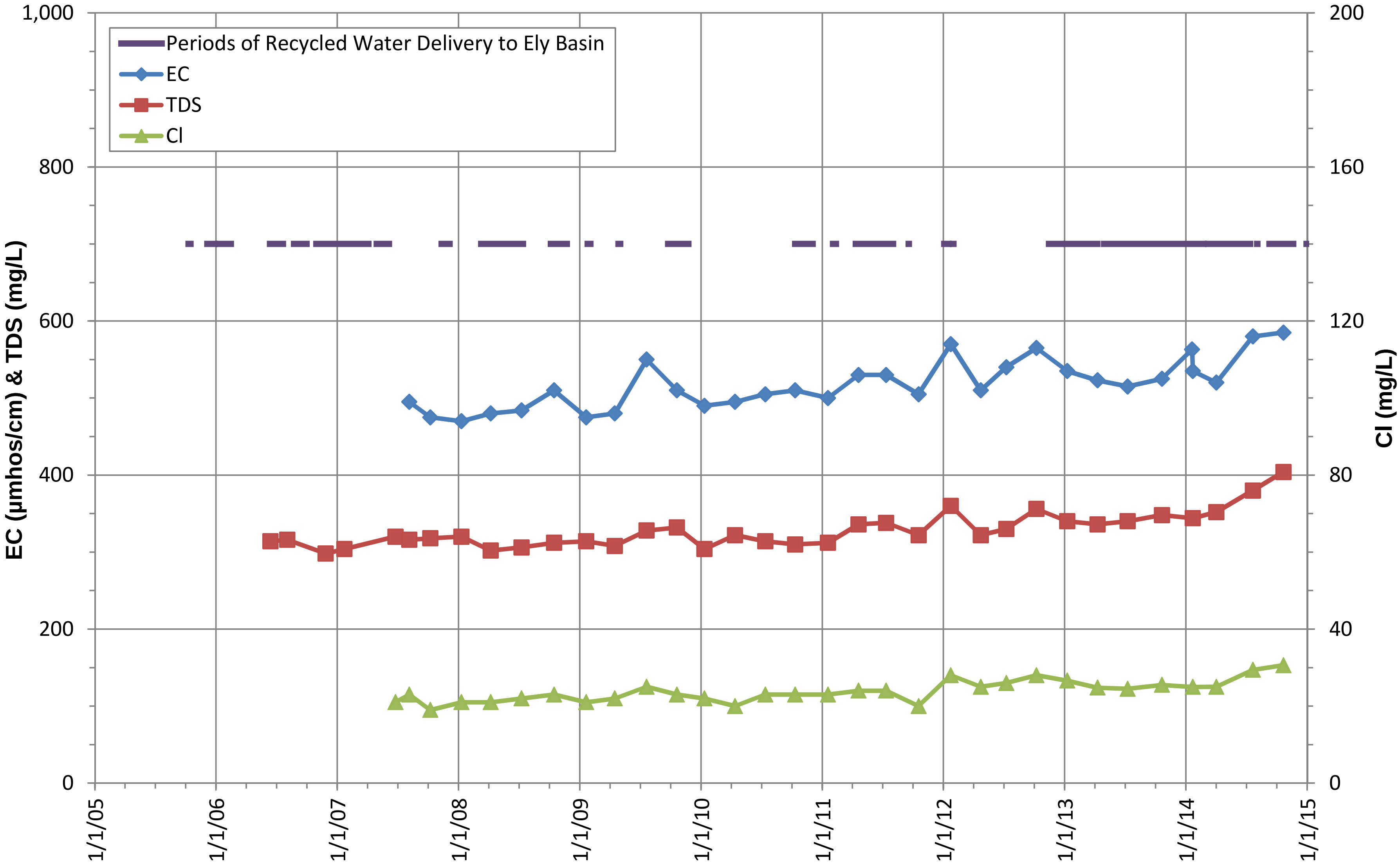

**EC, TDS, CHLORIDE TRENDS**
**BROOKS STREET BASIN**
**MW BRK-2/2**



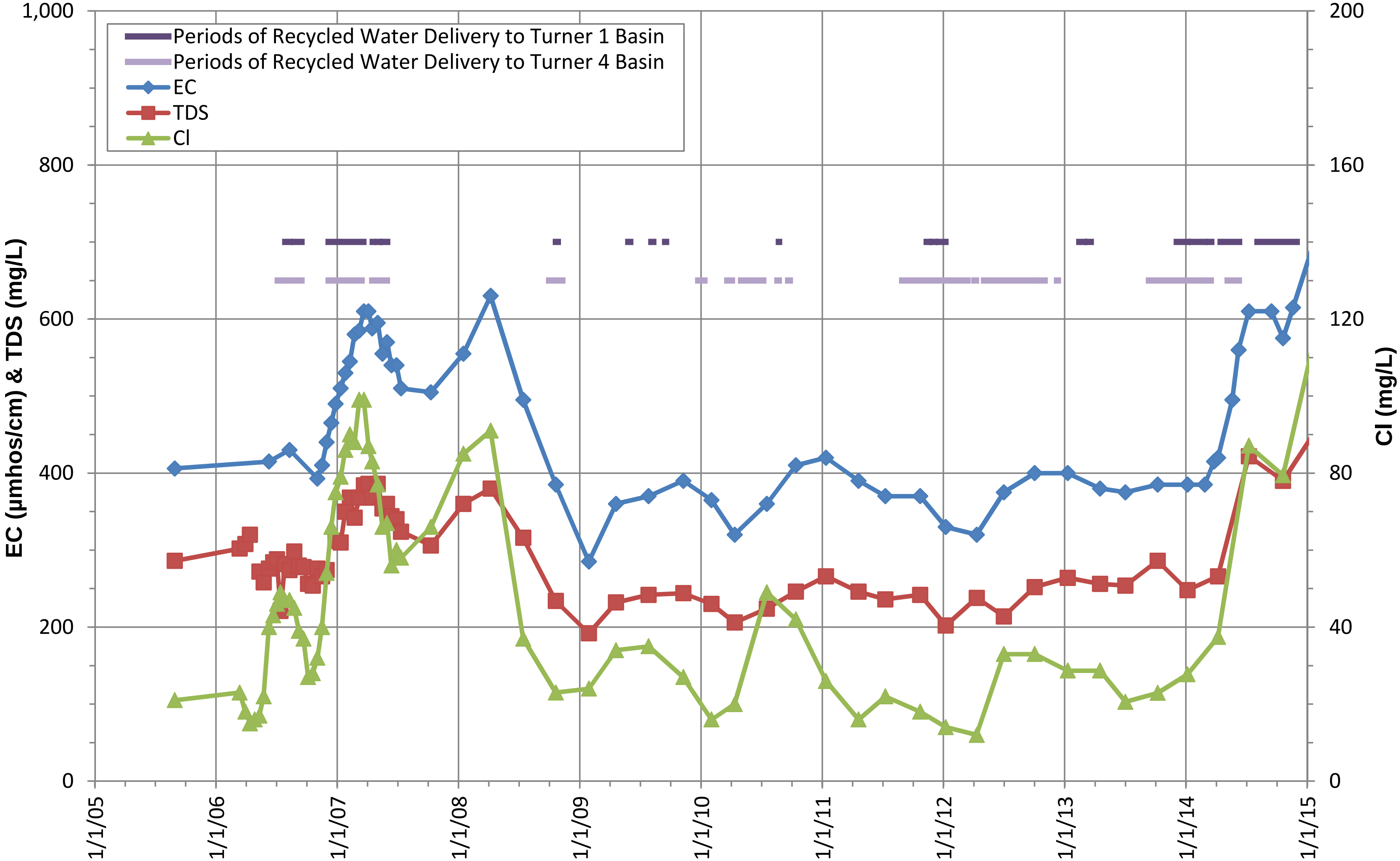

**EC, TDS, CHLORIDE TRENDS**
**ELY BASIN**
**PHILADELPHIA WELL**



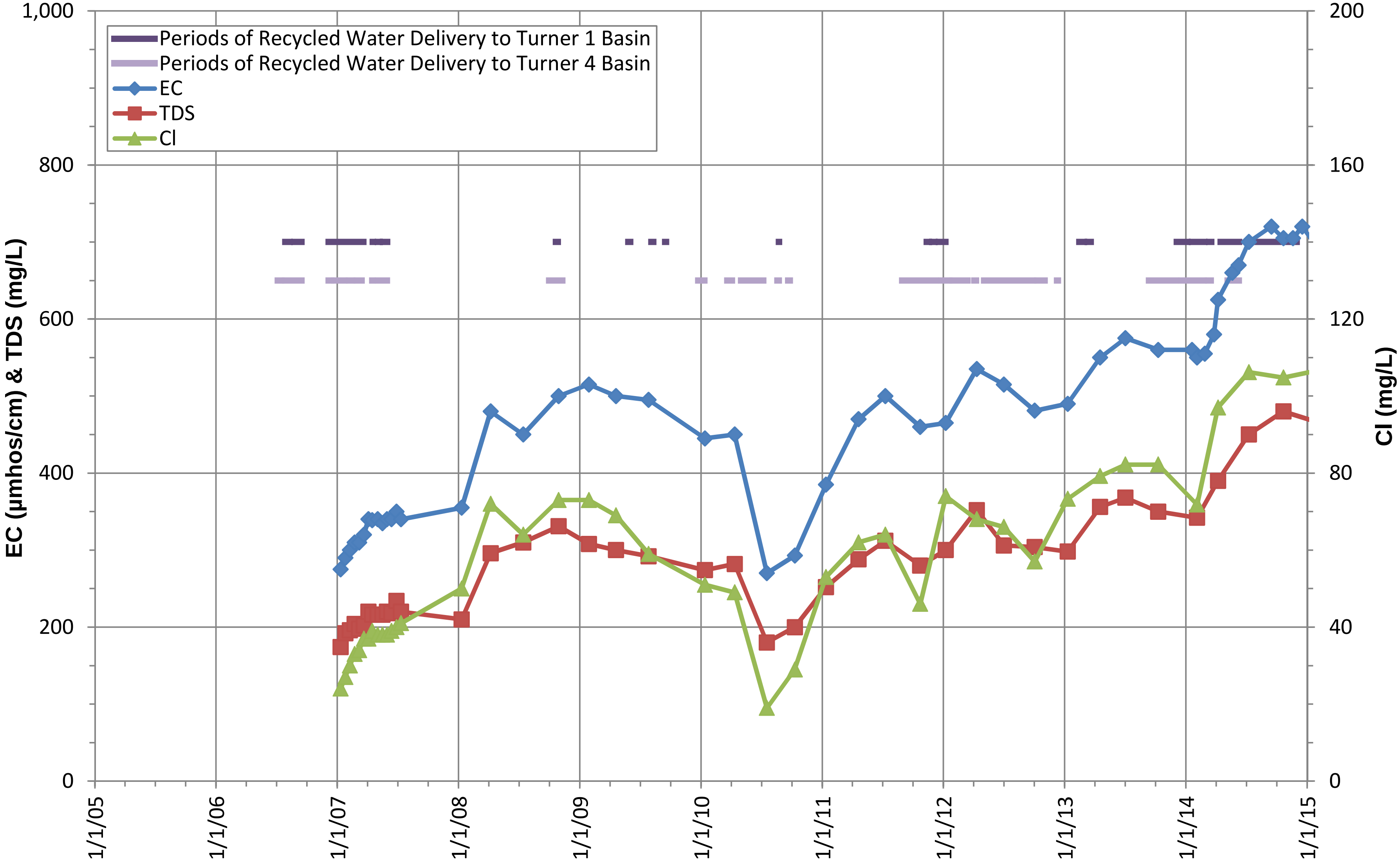

**EC, TDS, CHLORIDE TRENDS**
**ELY BASIN**
**WALNUT WELL**



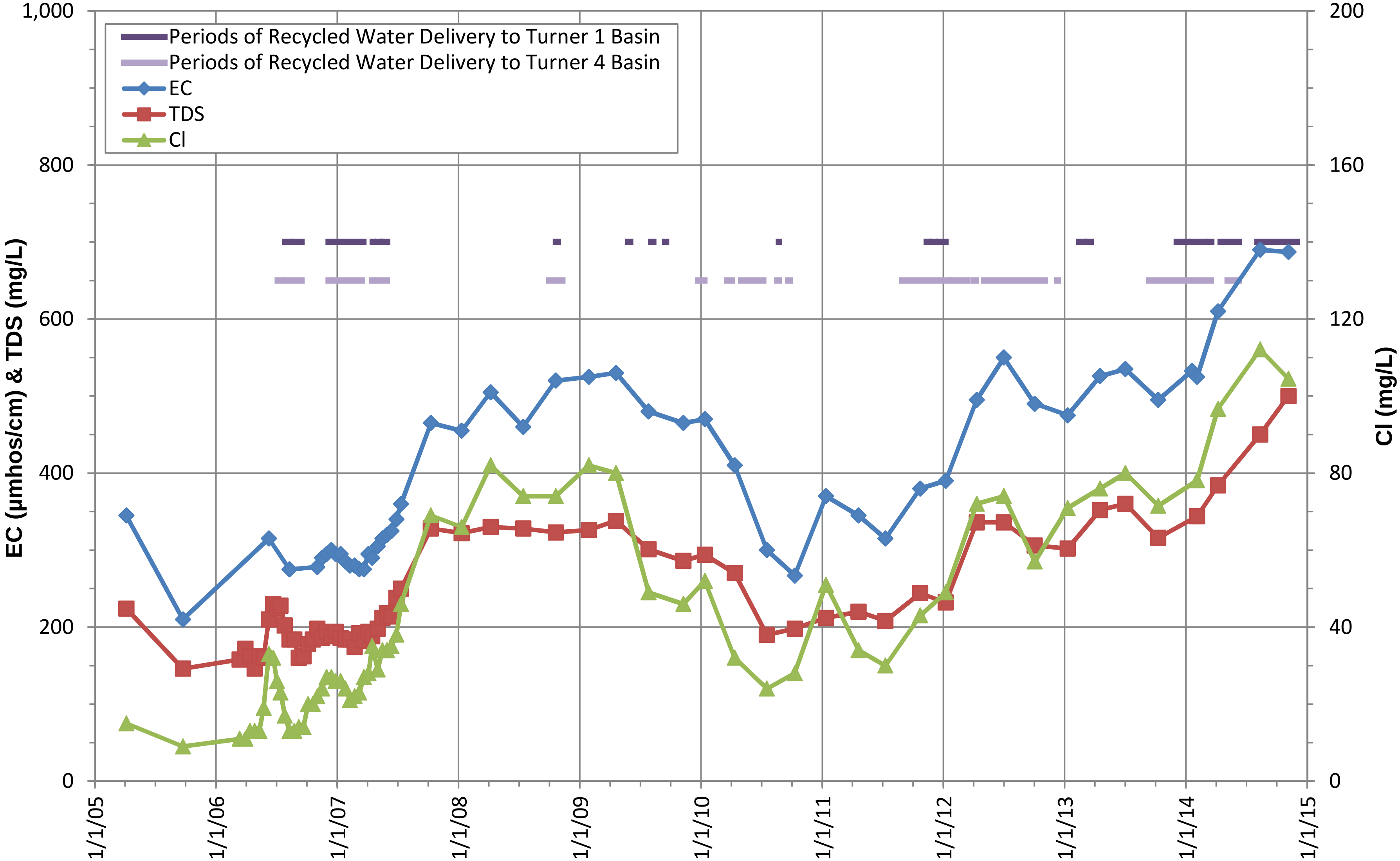

**EC, TDS, CHLORIDE TRENDS**
**ELY BASIN**
**RIVERSIDE WELL**



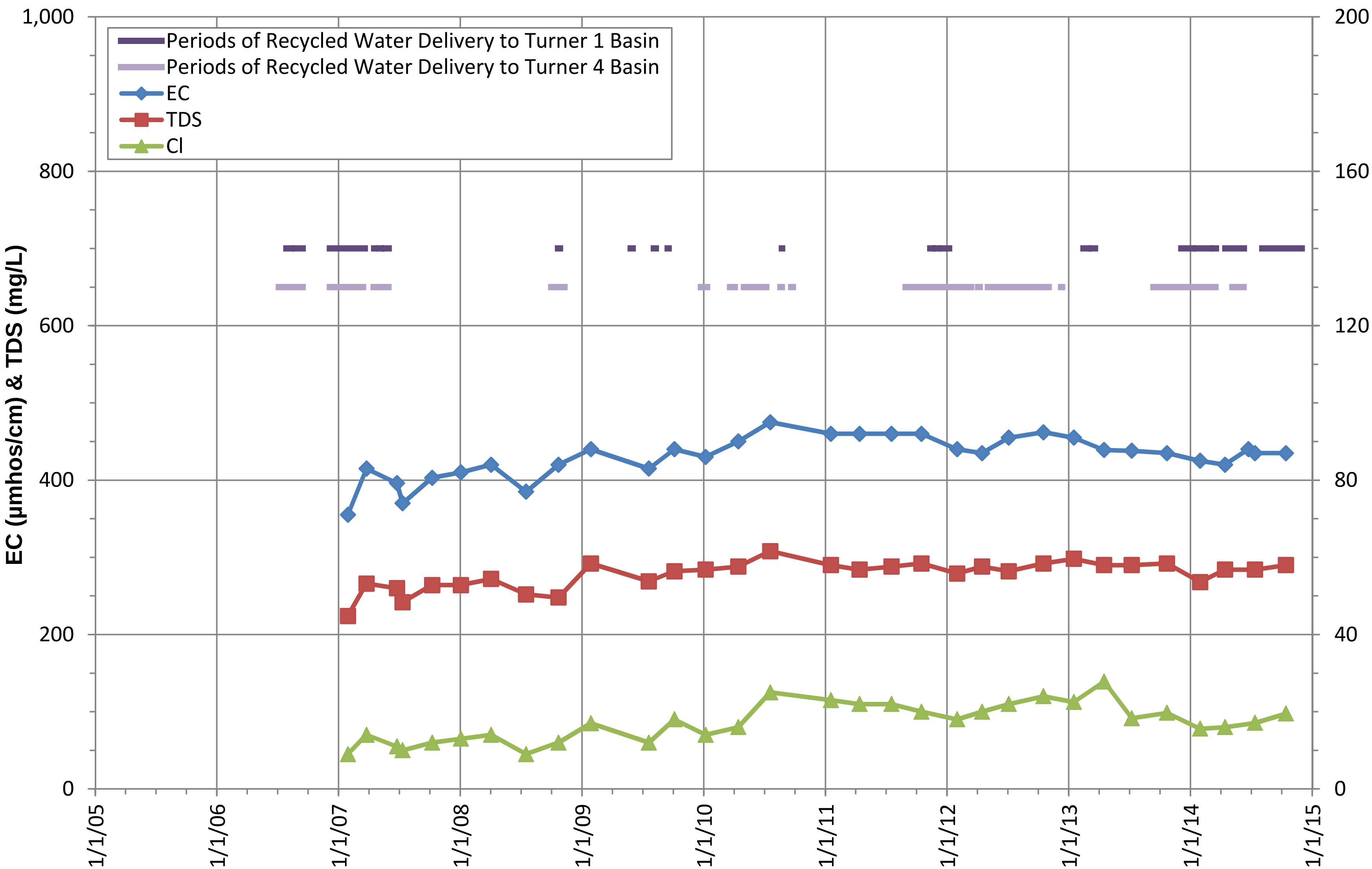

**EC, TDS, CHLORIDE TRENDS**
**TURNER BASINS**
**MW TRN-1/2**



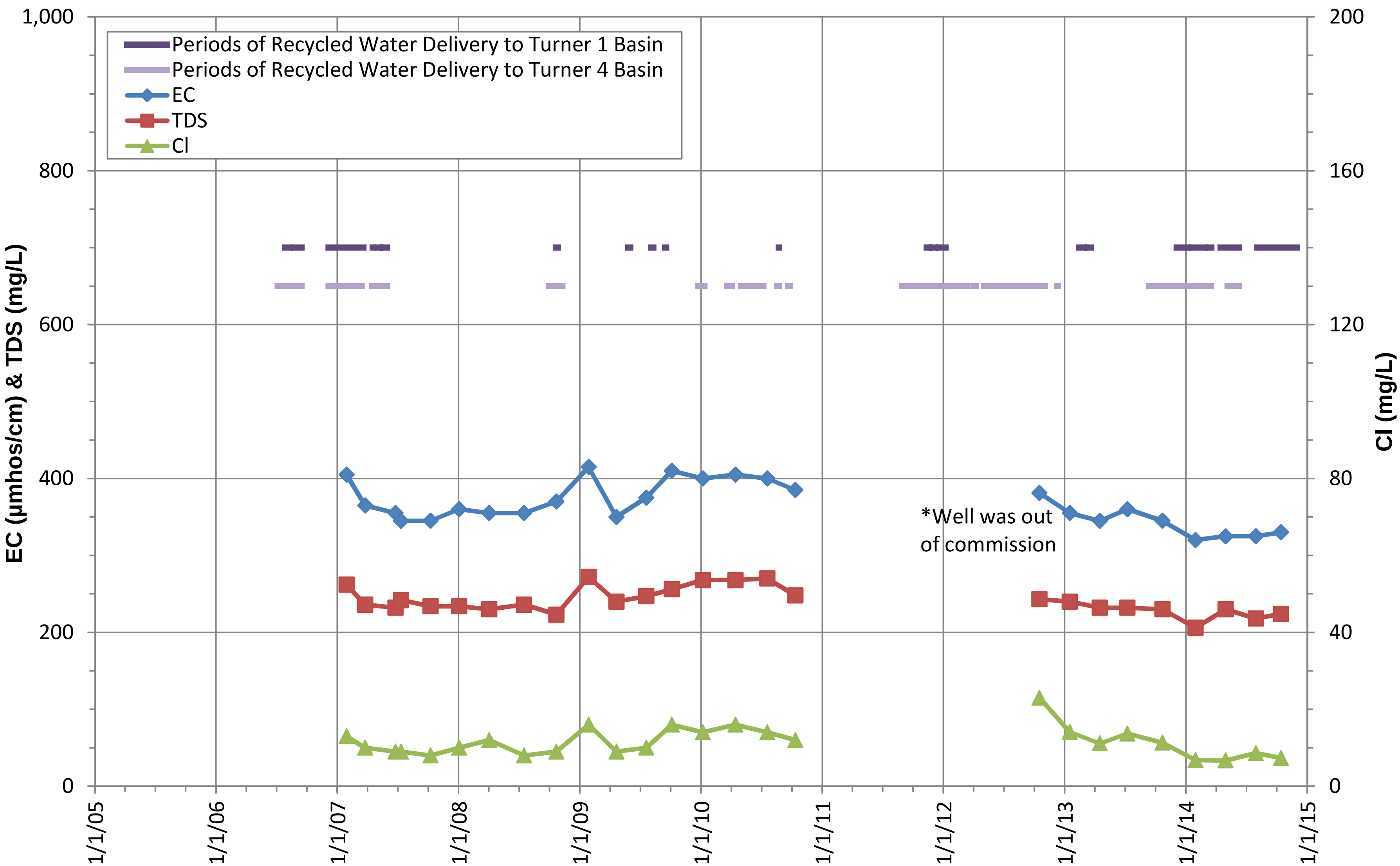

**EC, TDS, CHLORIDE TRENDS**
**TURNER BASINS**
**MW TRN-2/1**



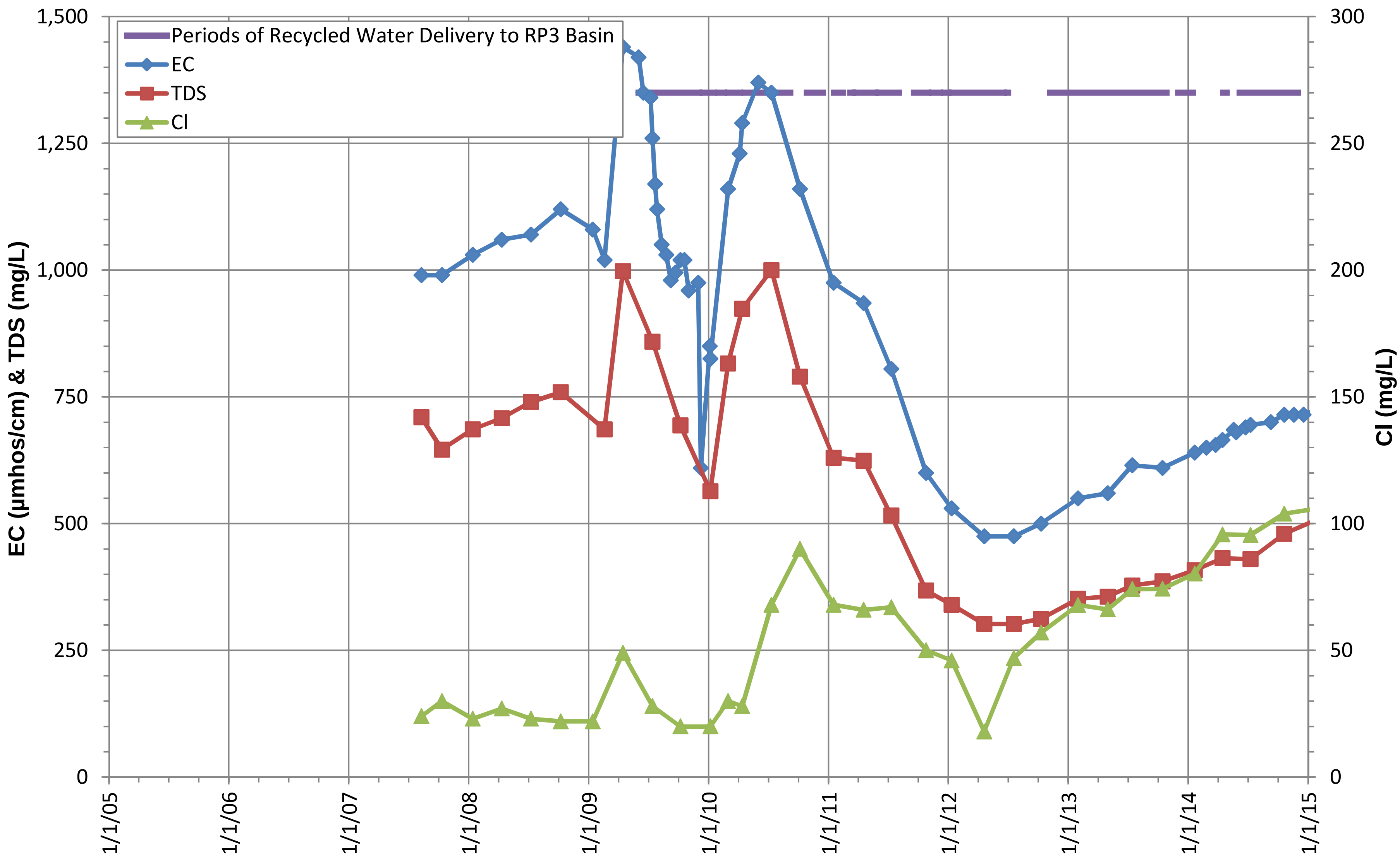

**EC, TDS, CHLORIDE TRENDS**
**TURNER BASINS**
**MW TRN-2/2**



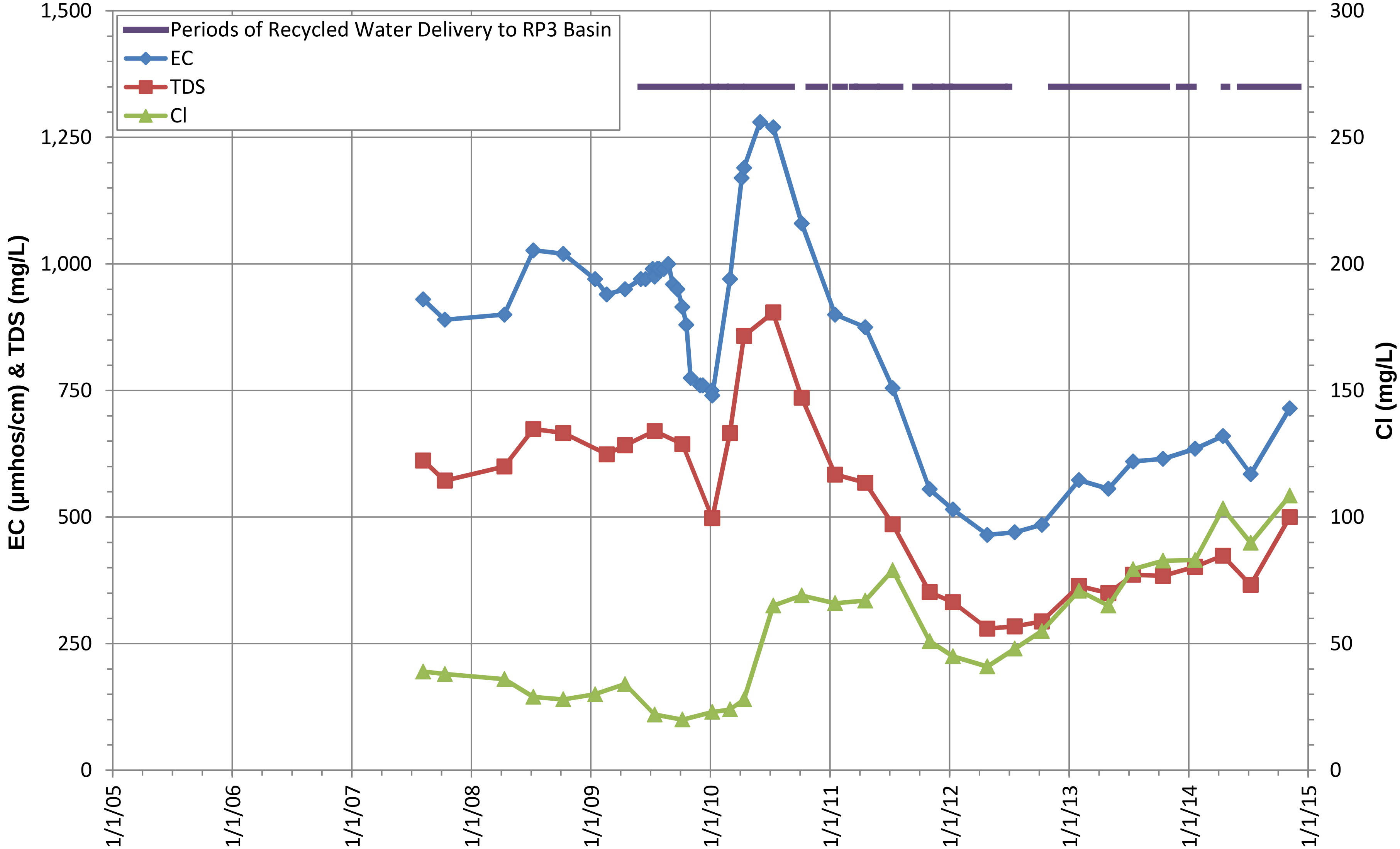

**EC, TDS, CHLORIDE TRENDS**
**TURNER BASINS**
**ONTARIO NO. 25**



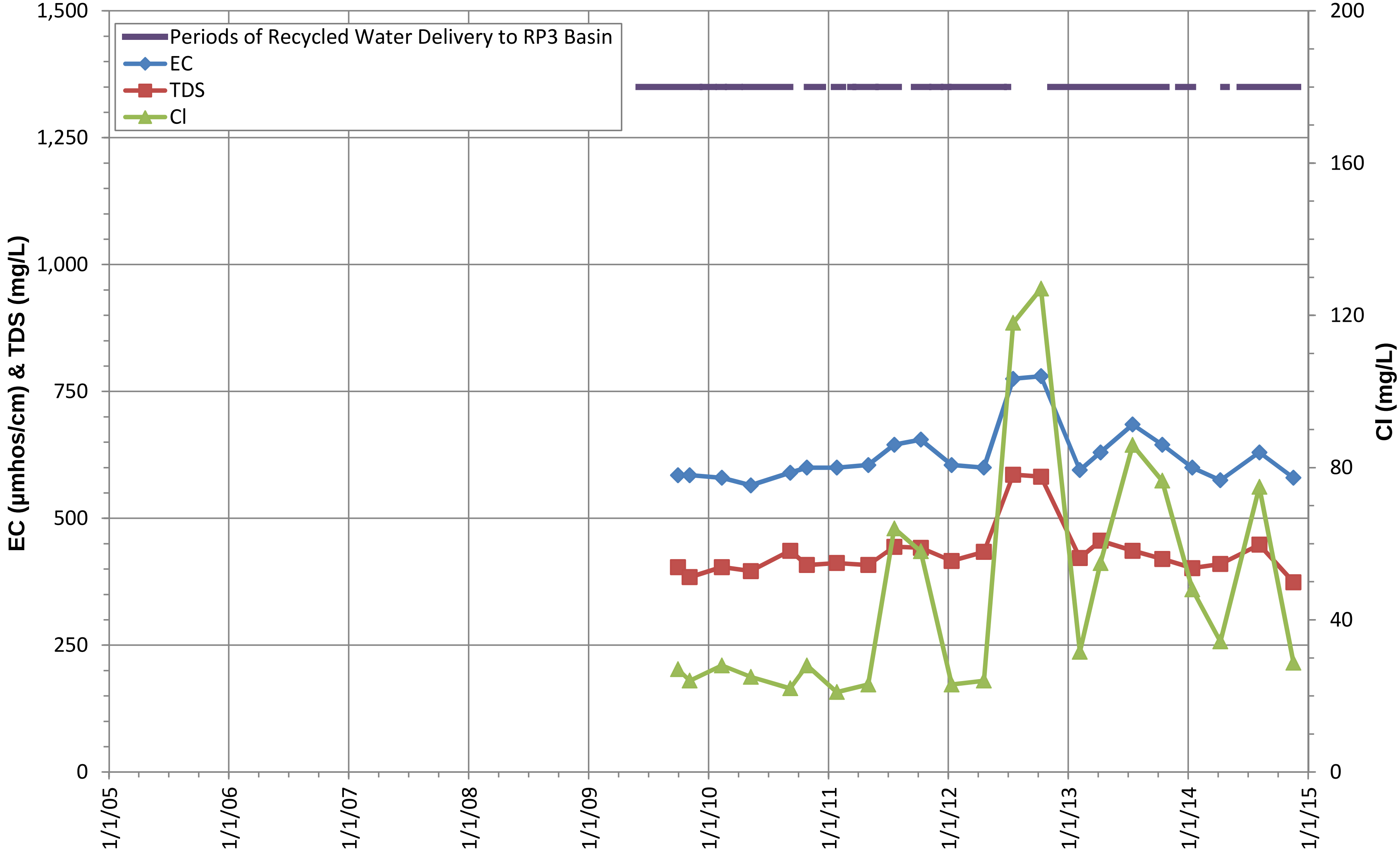

**EC, TDS, CHLORIDE TRENDS**
**TURNER BASINS**
**ONTARIO NO. 29**



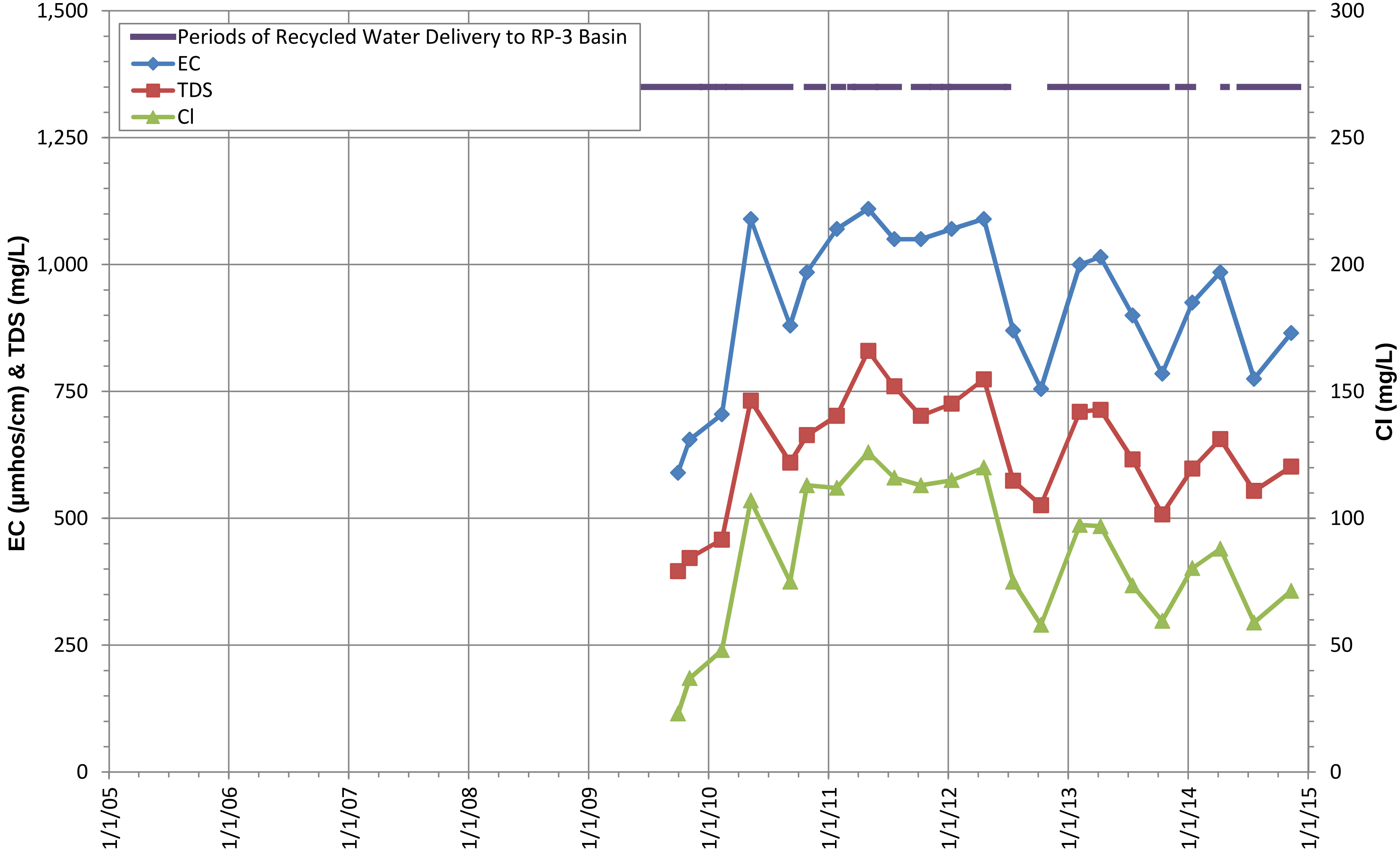

**EC, TDS, CHLORIDE TRENDS**
**RP3 BASINS**
**RP3-1/1**



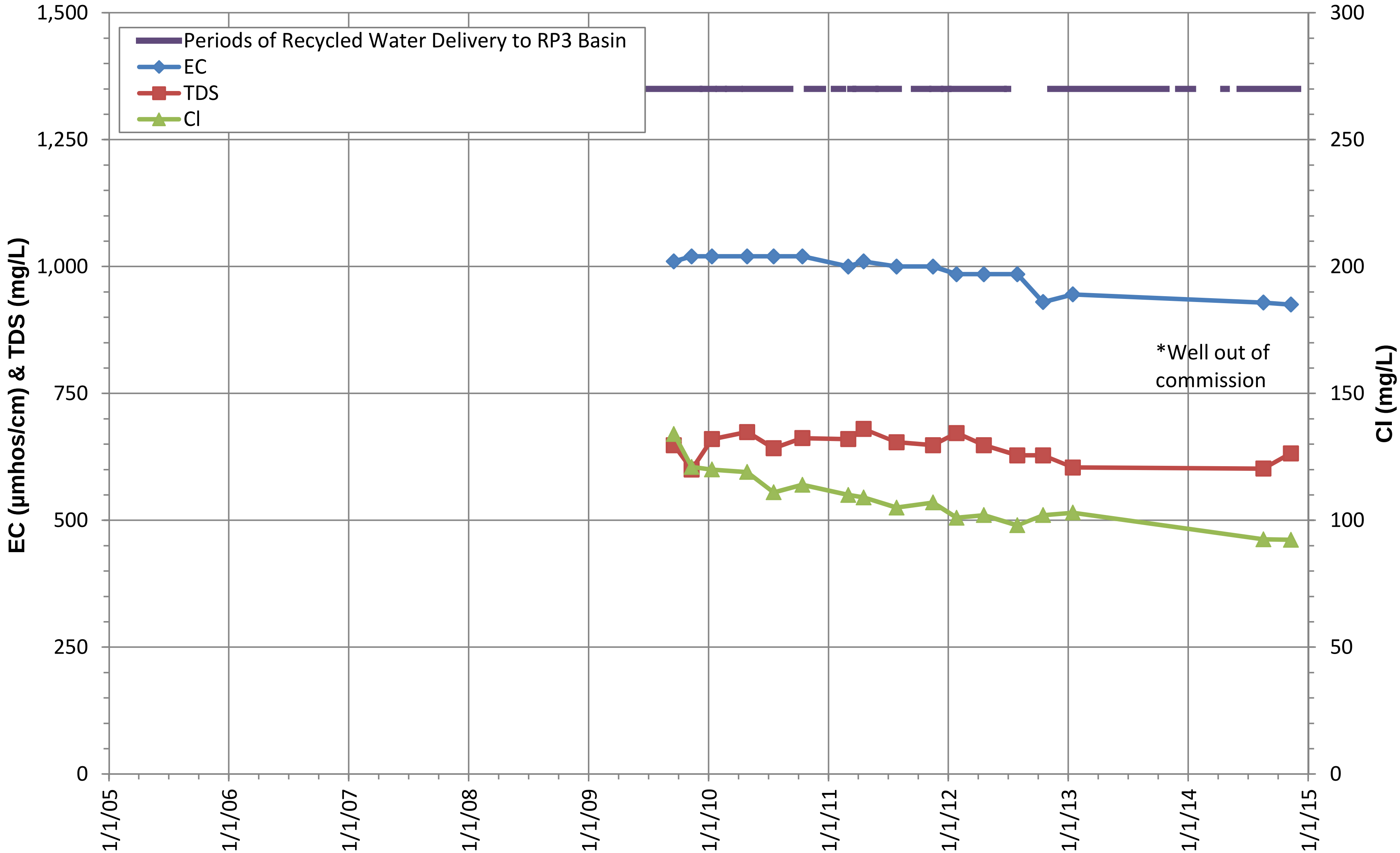

**EC, TDS, CHLORIDE TRENDS**
**RP3 BASINS**
**RP3-1/2**



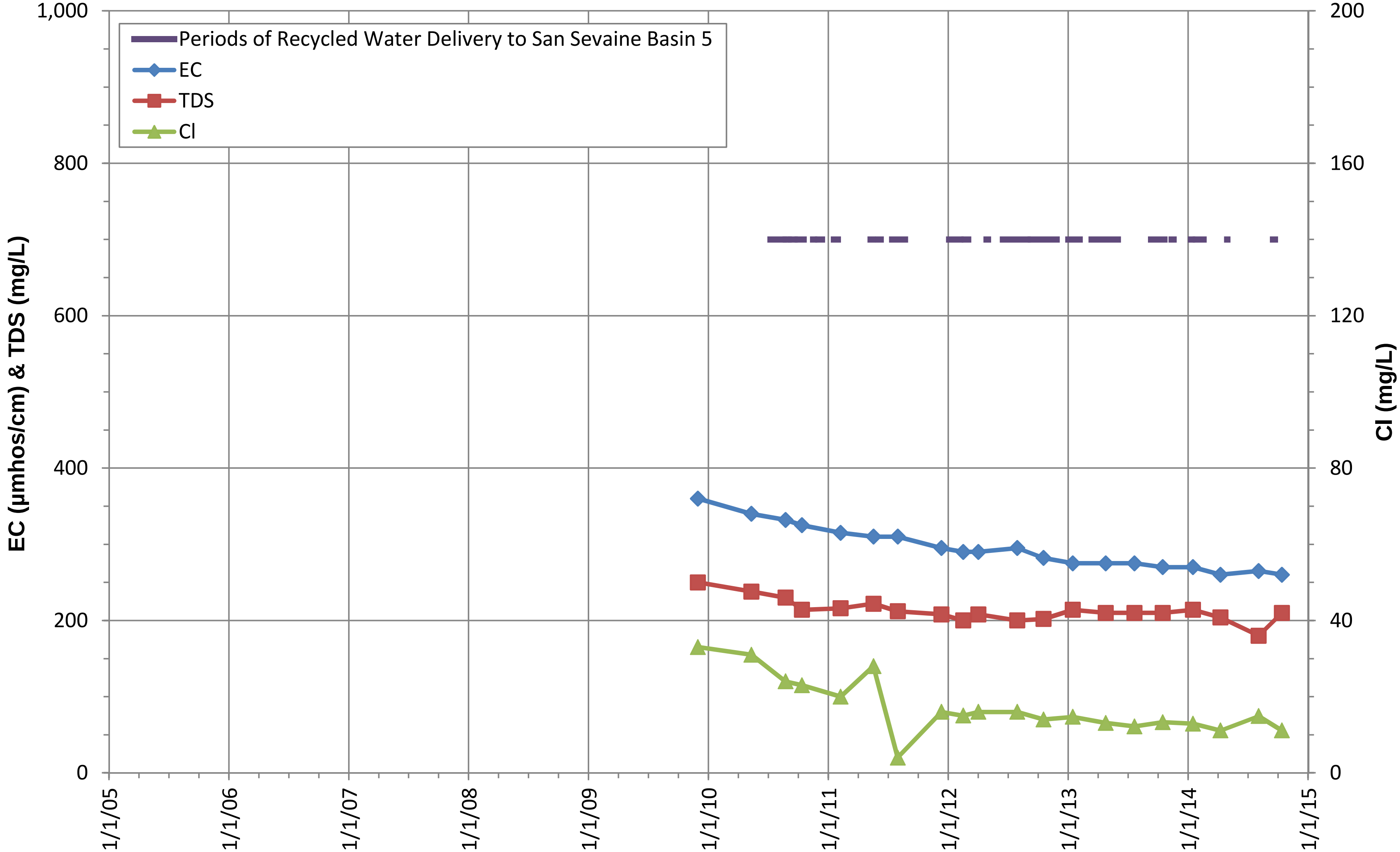

**EC, TDS, CHLORIDE TRENDS**
**RP3 BASINS**
**ALCOA MW-1**



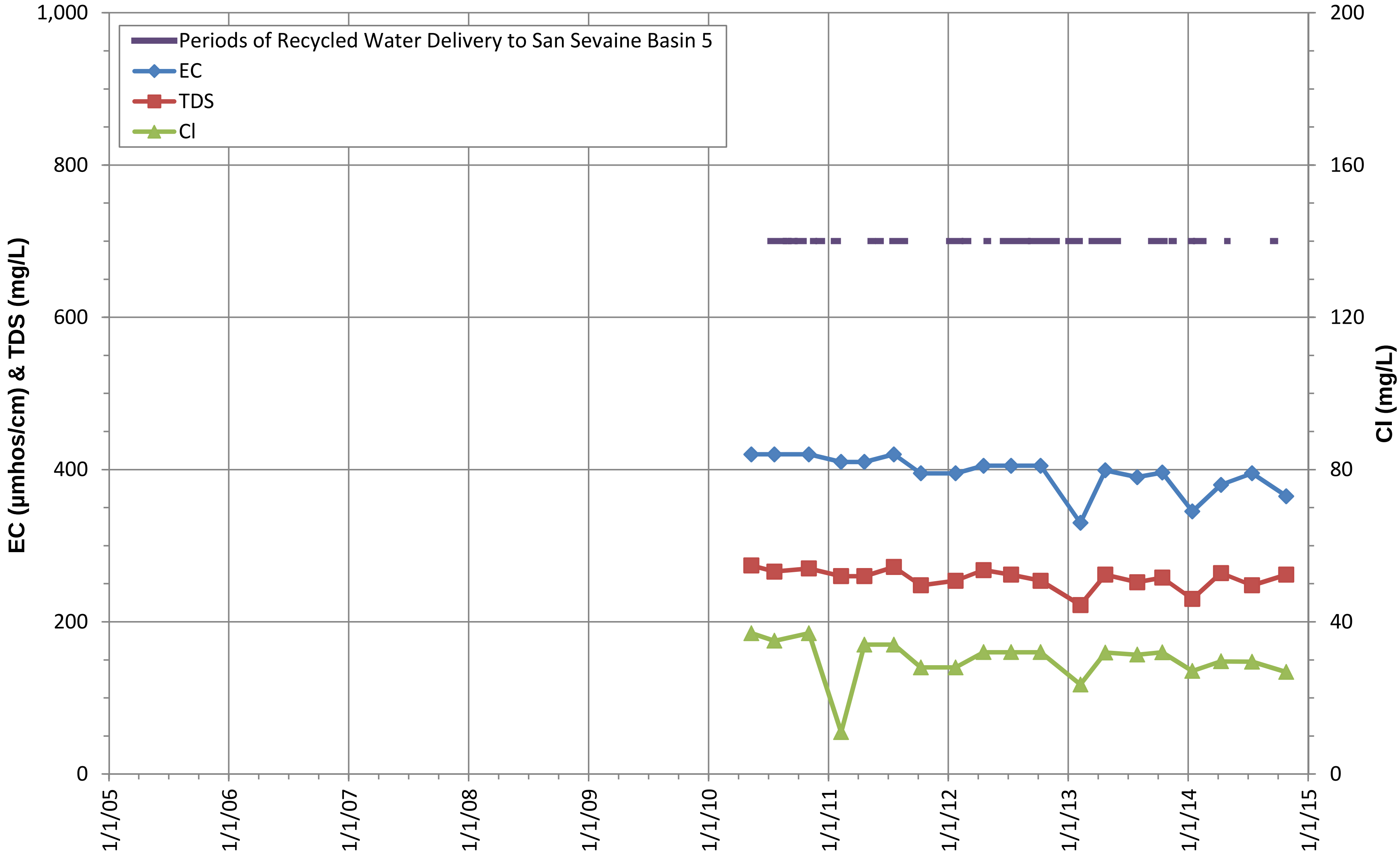

**EC, TDS, CHLORIDE TRENDS**
**RP3 BASINS**
**ALCOA MW-3**



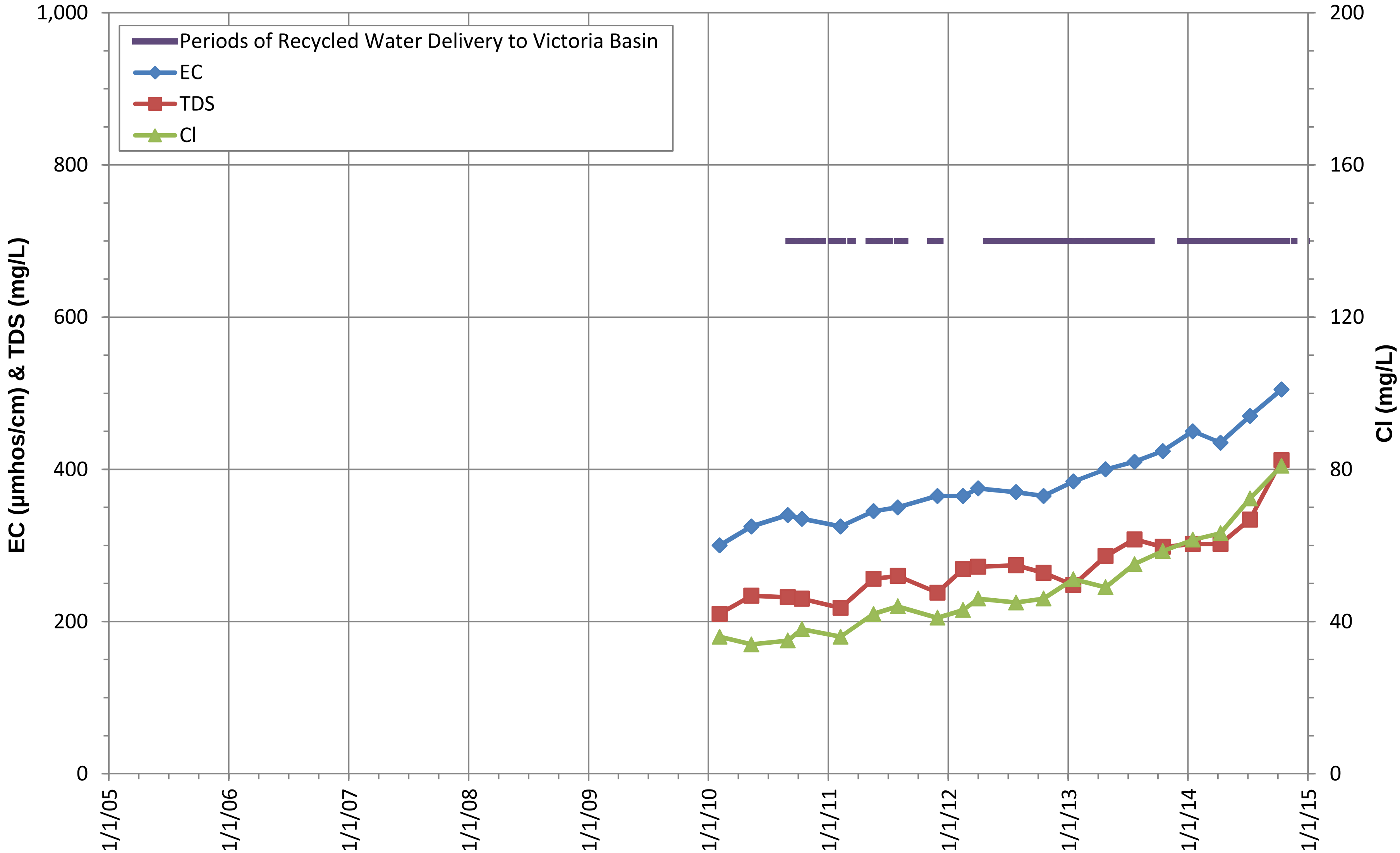

**EC, TDS, CHLORIDE TRENDS**
**RP3 BASINS**
**Southridge JHS Well**



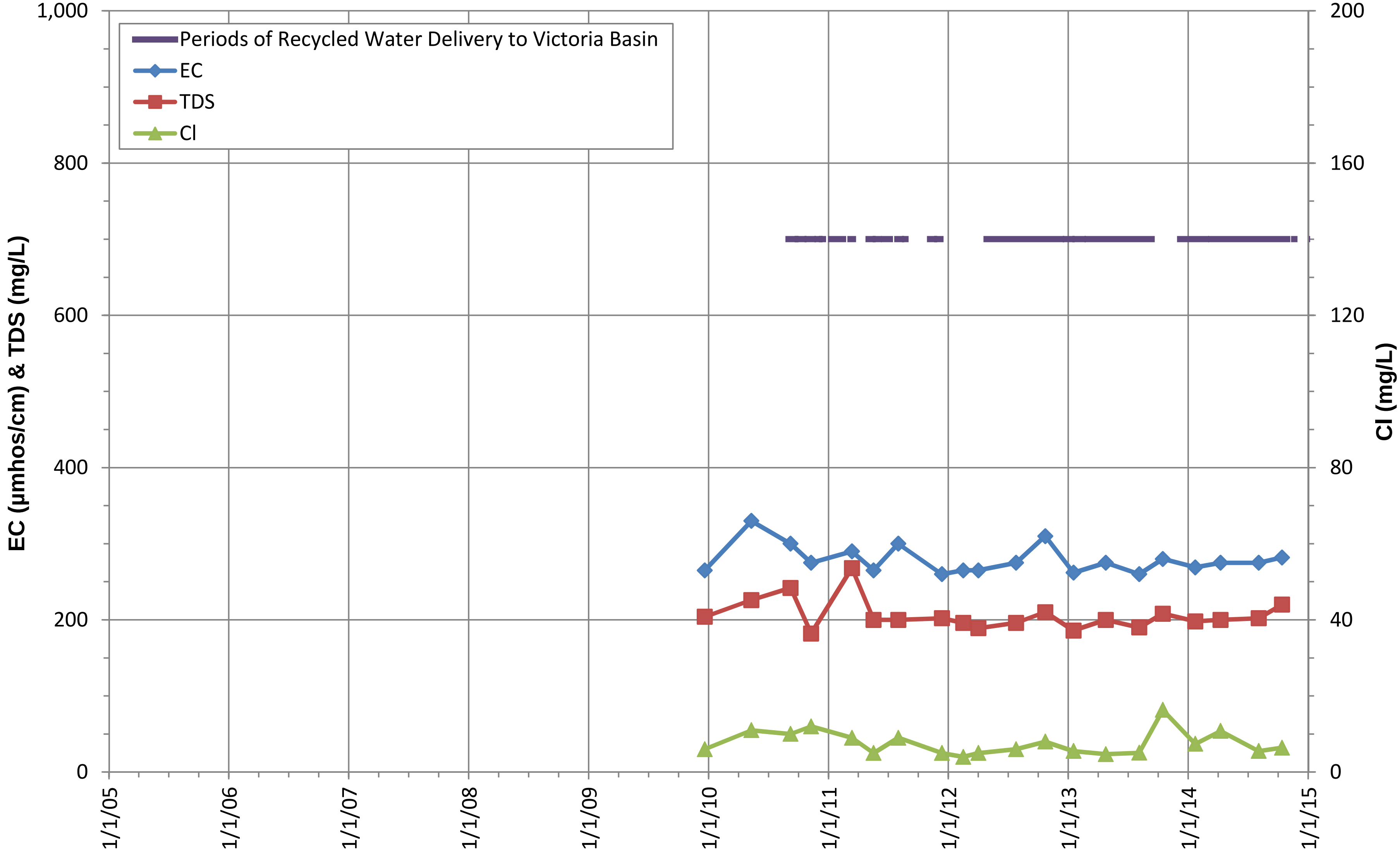

**EC, TDS, CHLORIDE TRENDS**
**SAN SEVAINE BASINS**
**SS-1/1**



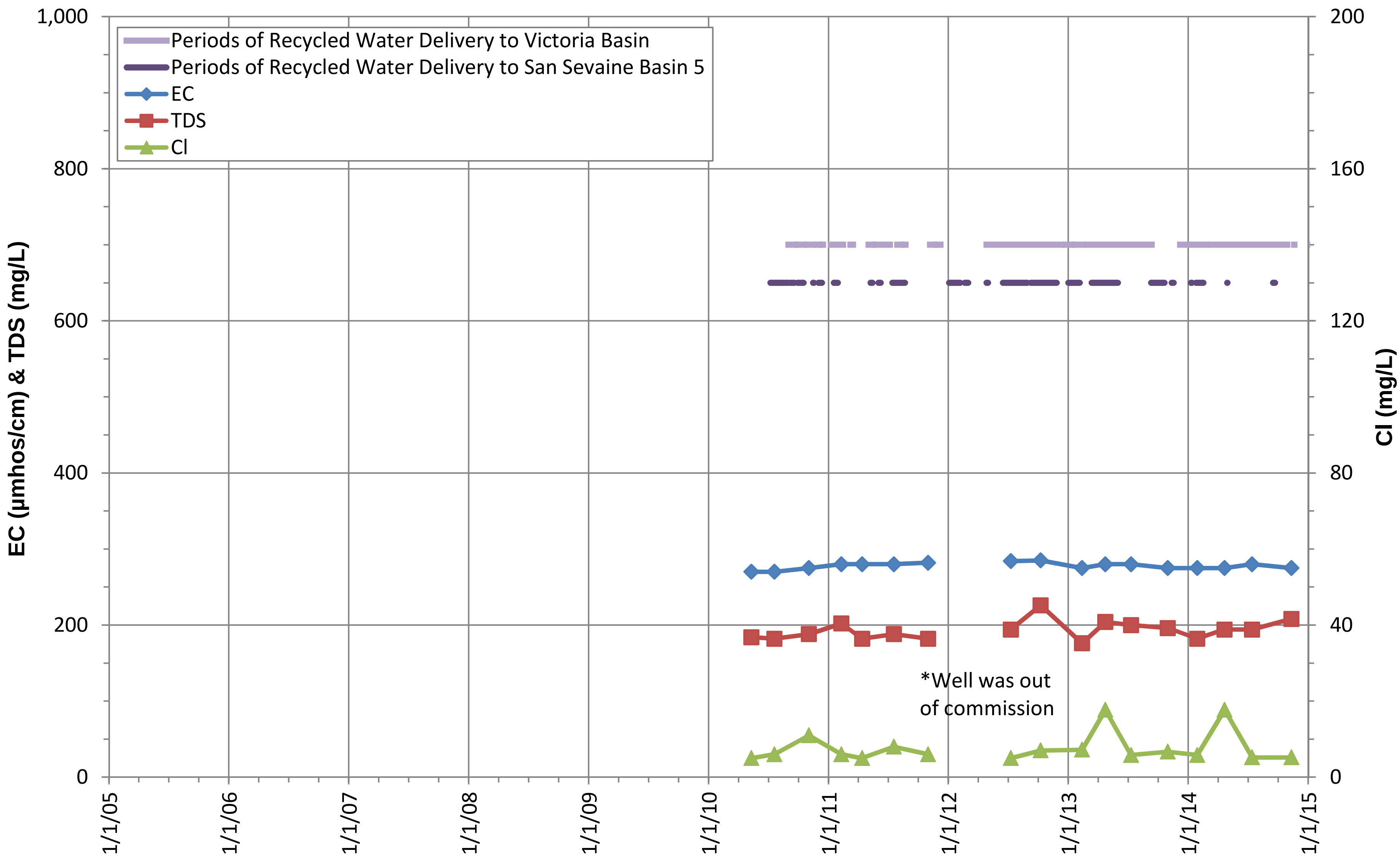

**EC, TDS, CHLORIDE TRENDS**
**SAN SEVAINE BASINS**
**Unitex 91090**




**EC, TDS, CHLORIDE TRENDS**
**VICTORIA BASIN**
**VCT-1/1**



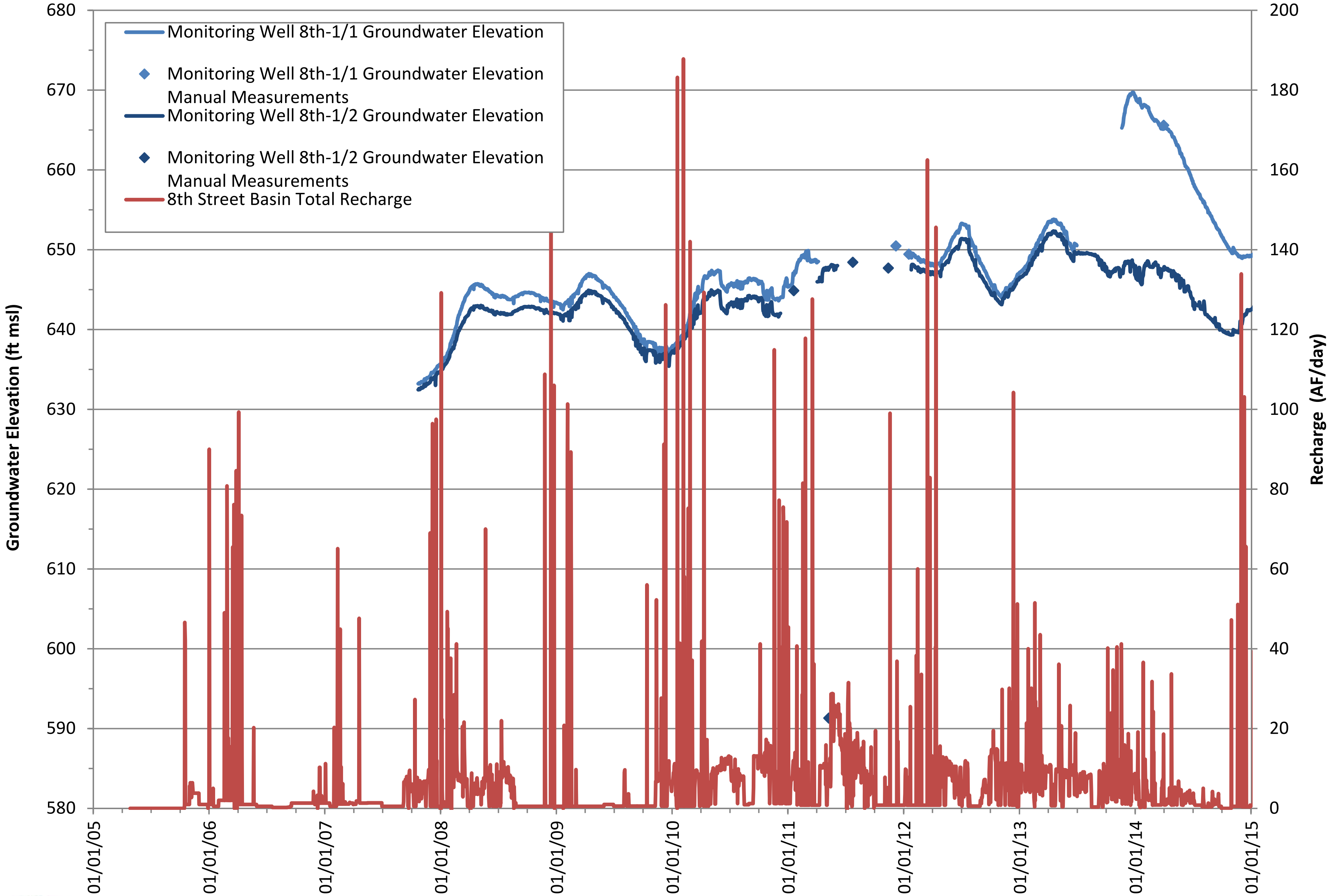

**EC, TDS, CHLORIDE TRENDS**
**VICTORIA BASIN**
**VCT-2/2**



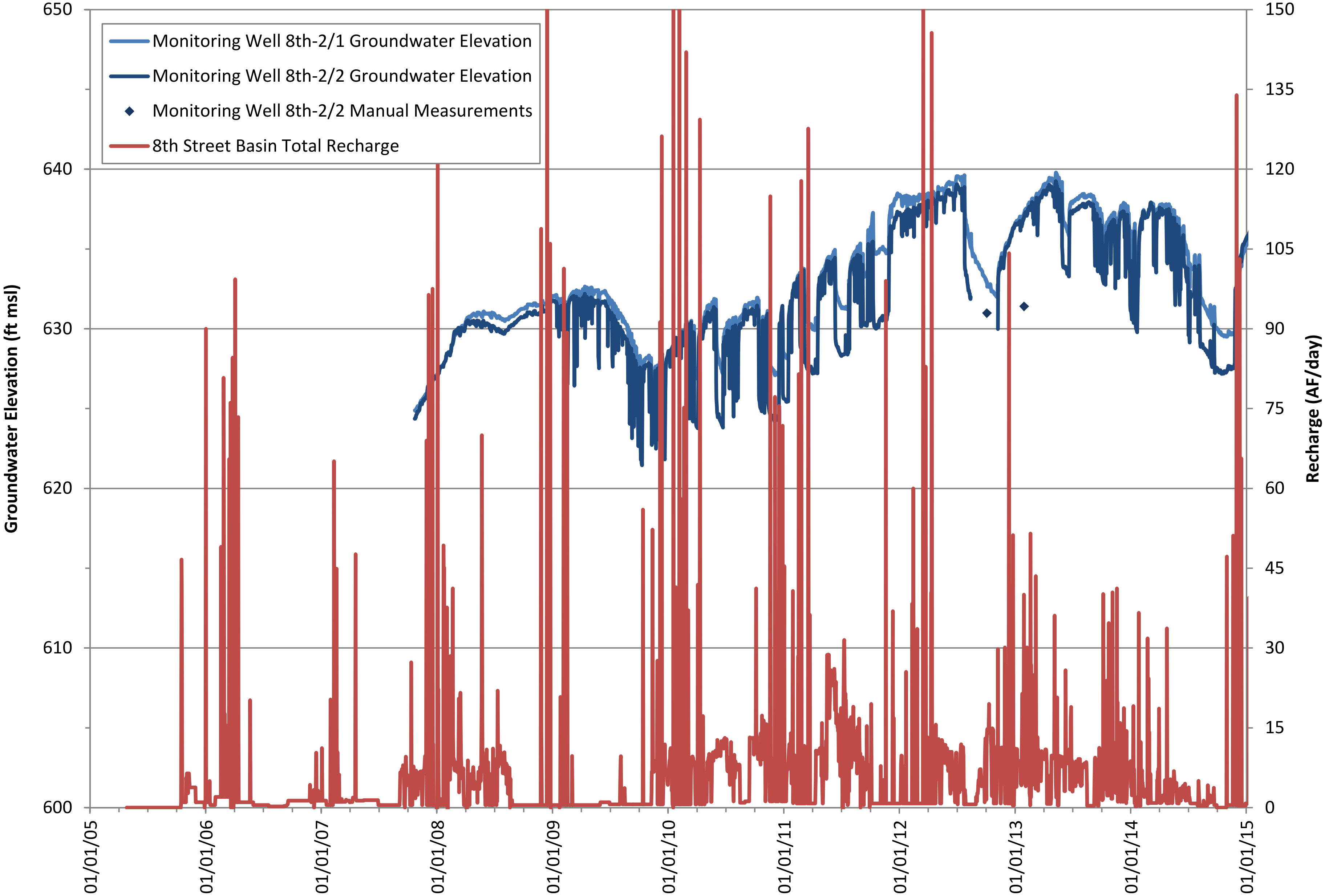

**EC, TDS, CHLORIDE TRENDS**
**SAN SEVAINE & VICTORIA BASINS**
**CVWD Well No. 39**

# APPENDIX E

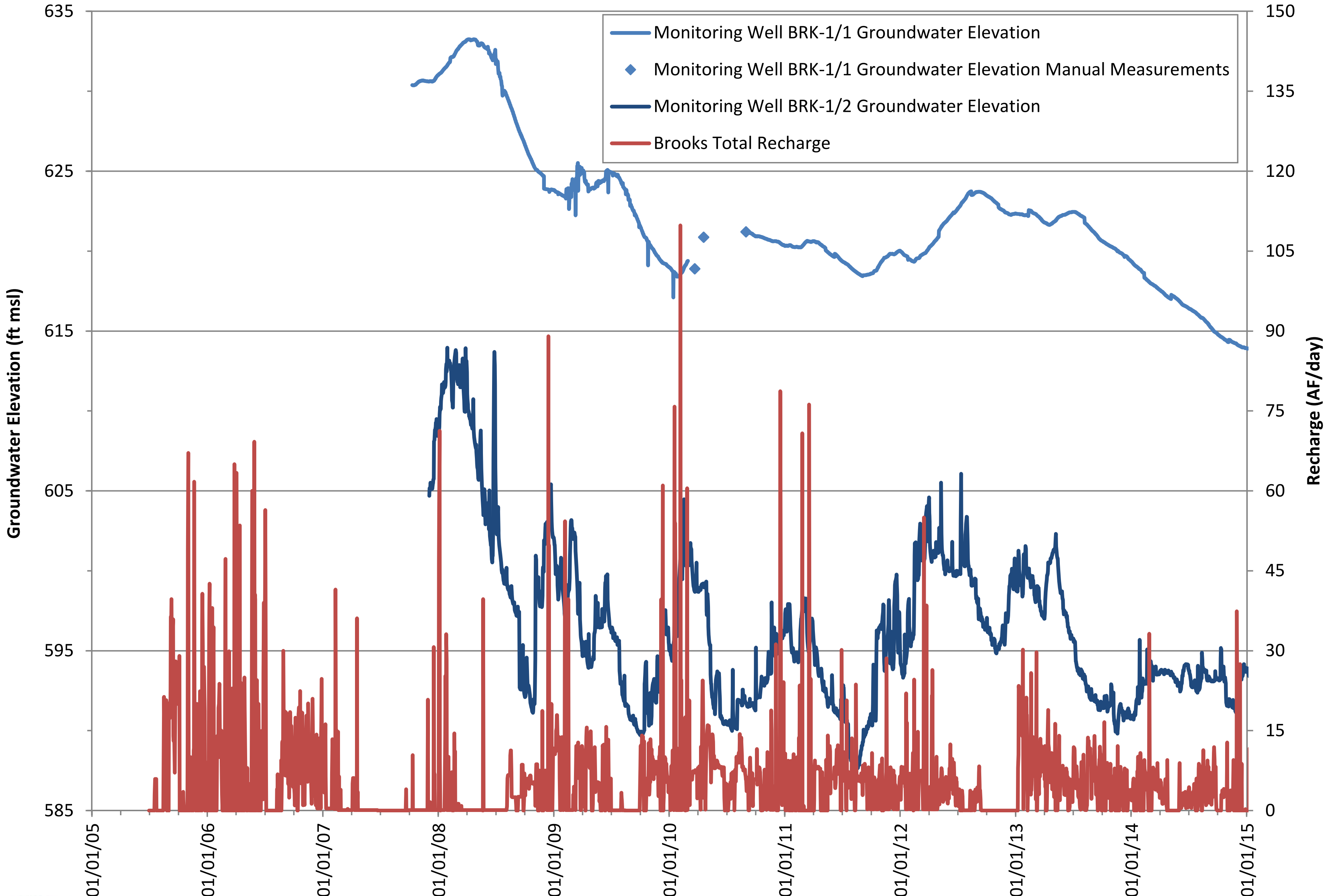
# MONITORING WELL HYDROGRAPHS



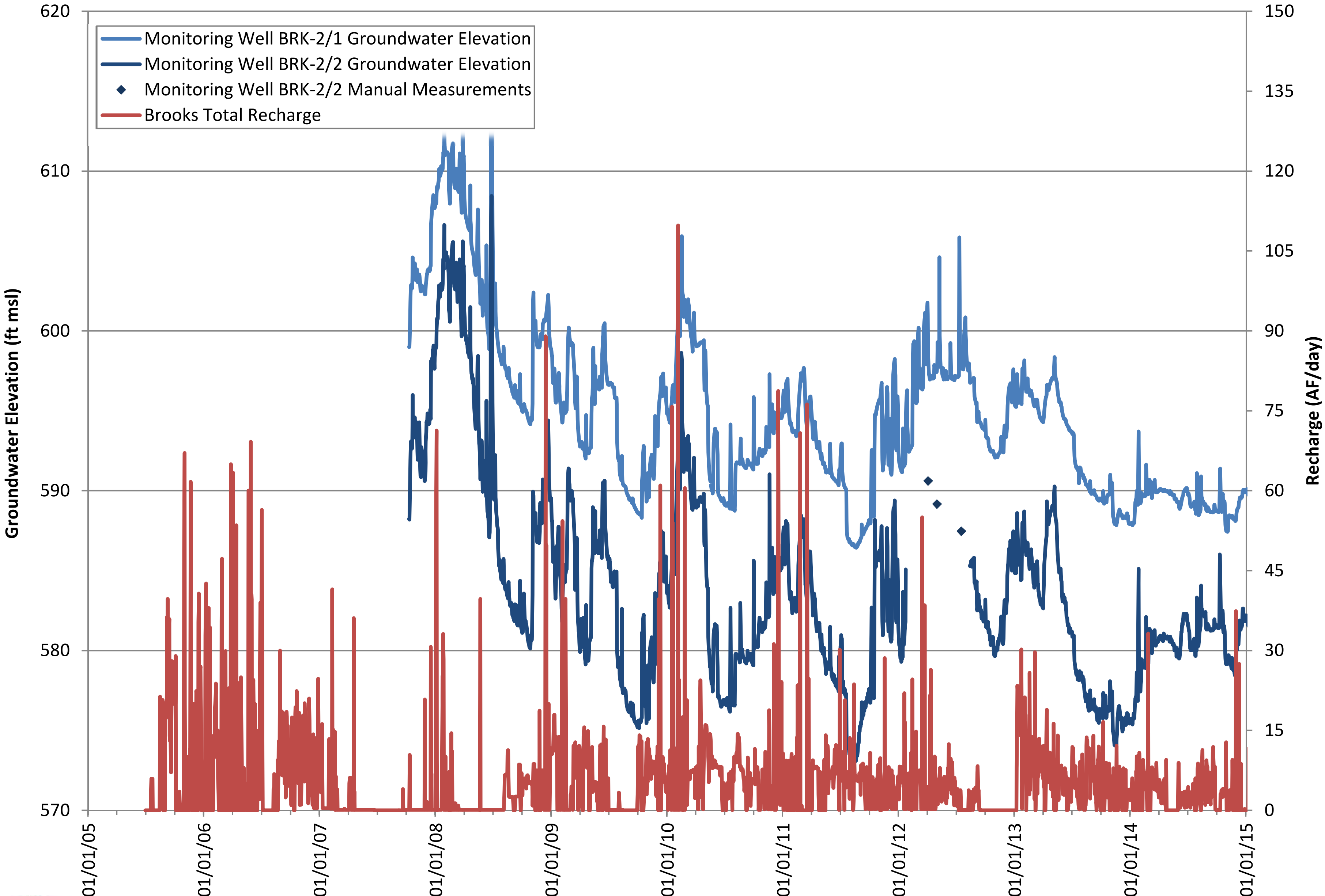

**HYDROGRAPH**
**MW 8TH-1/1 & 8TH-1/2**



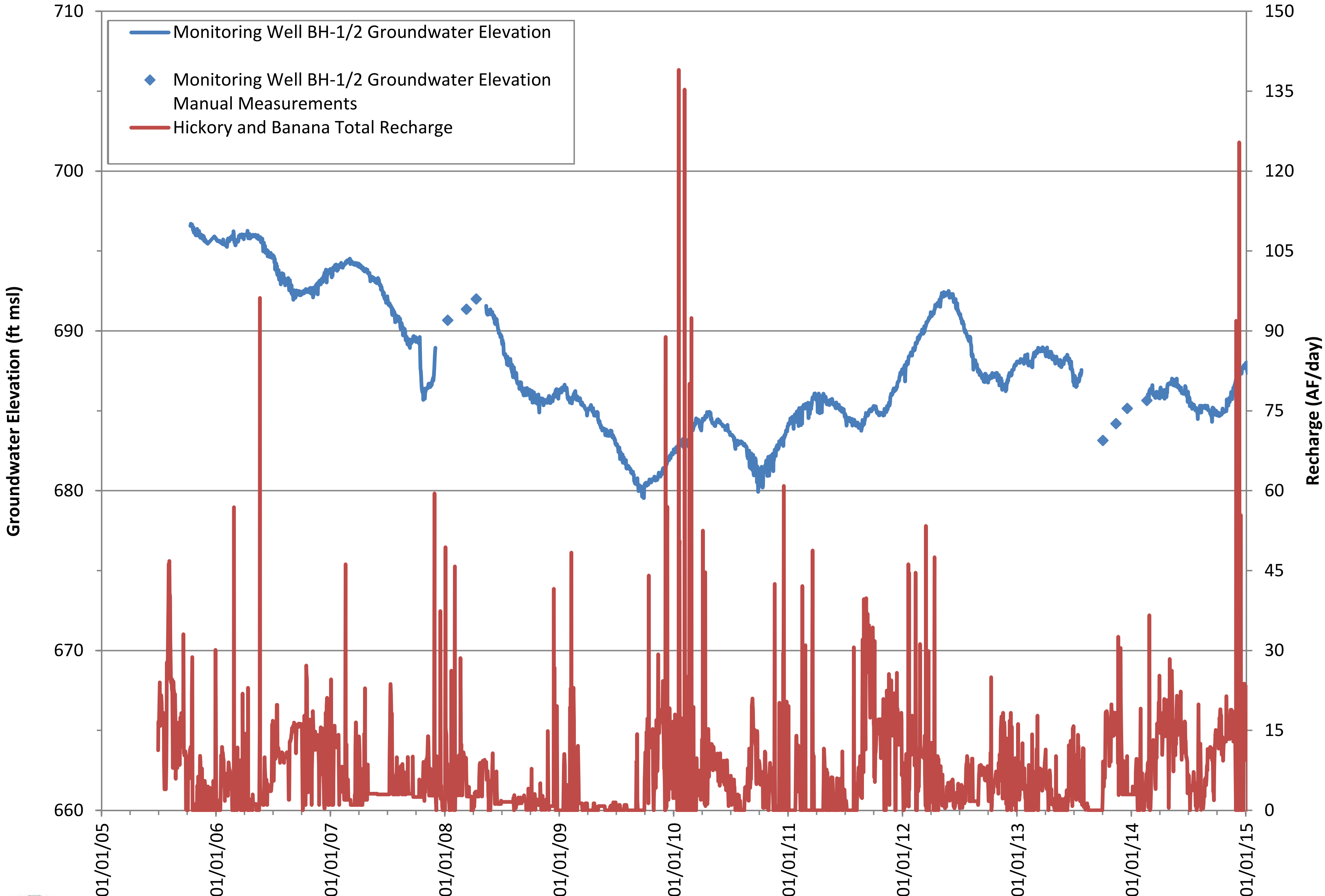

**HYDROGRAPH**
**MW 8TH-2/1 & 8TH-2/2**



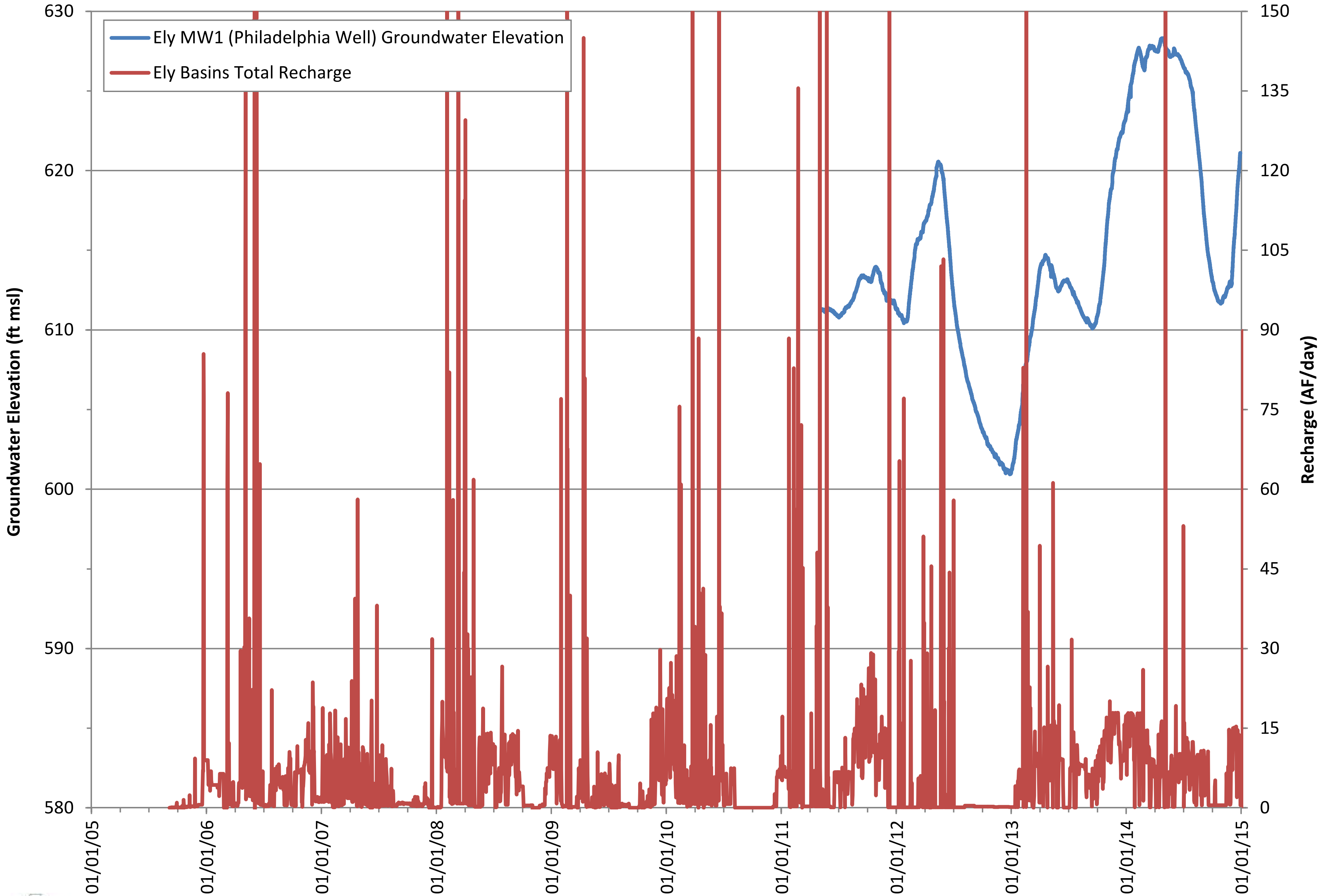

**HYDROGRAPH**
**MW BRK-1/1 & BRK-1/2**



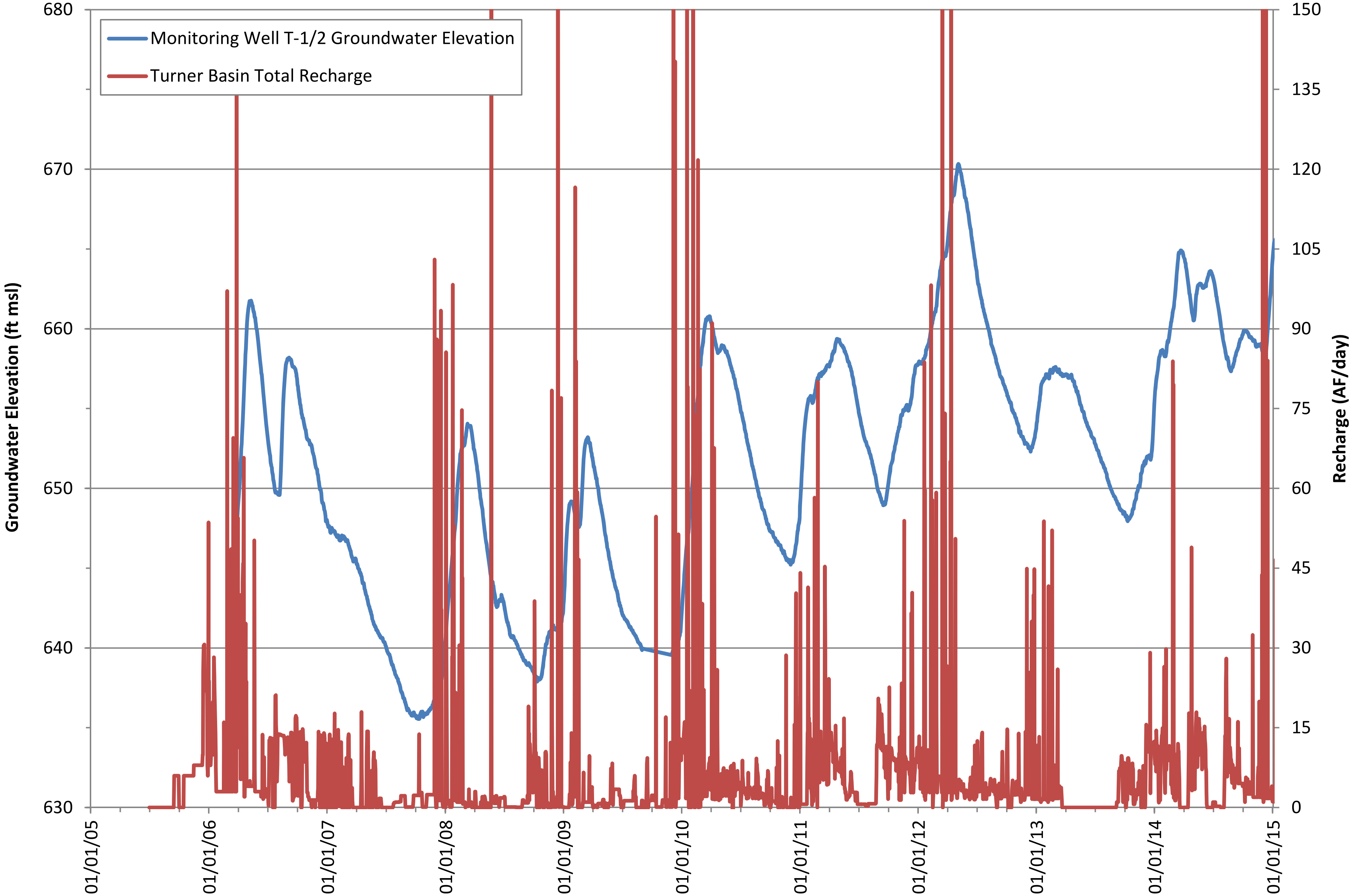

**HYDROGRAPH**
**MW BRK-2/1 & BRK-2/2**



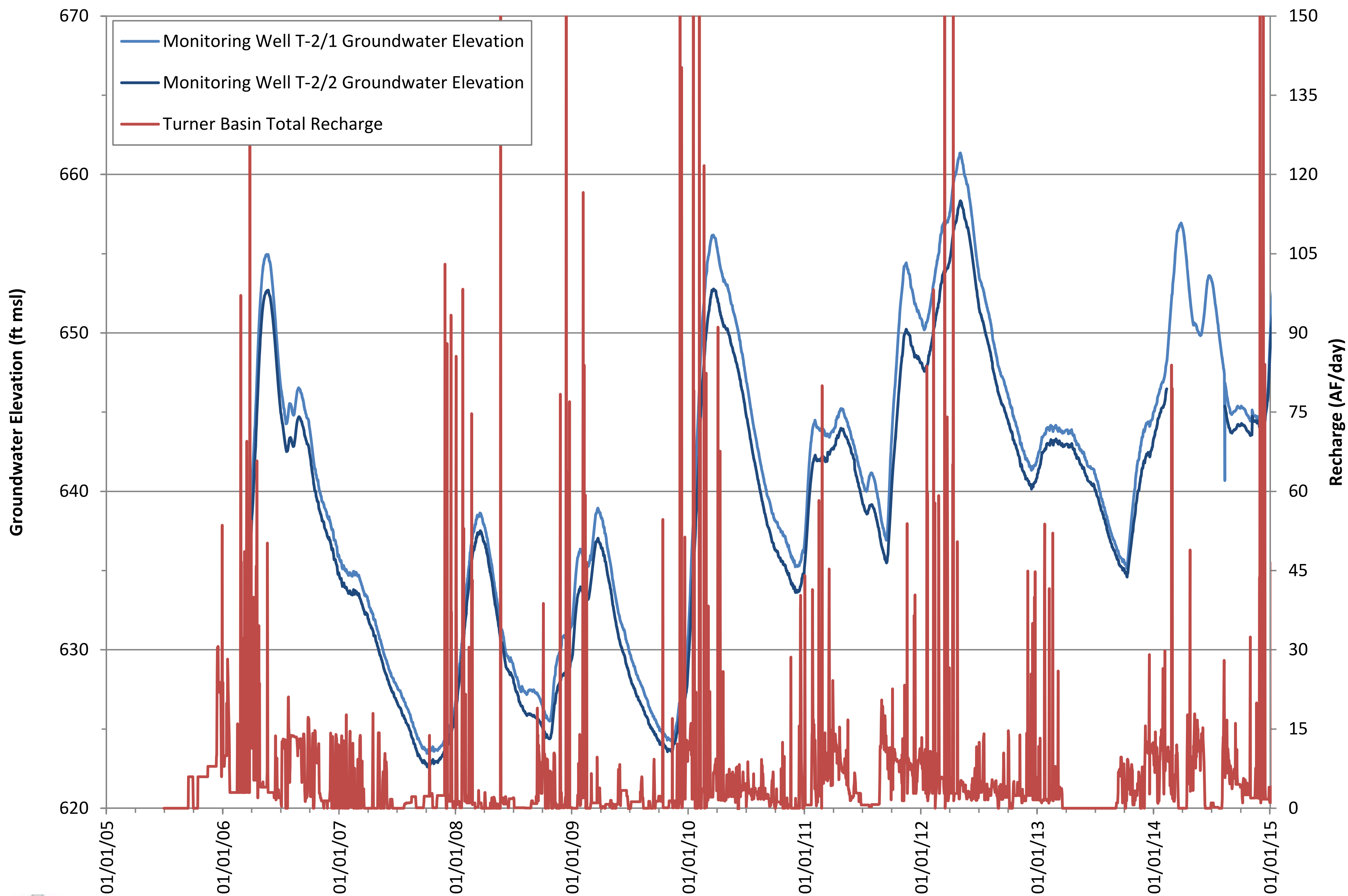

**HYDROGRAPH**
**MW BH-1/2**



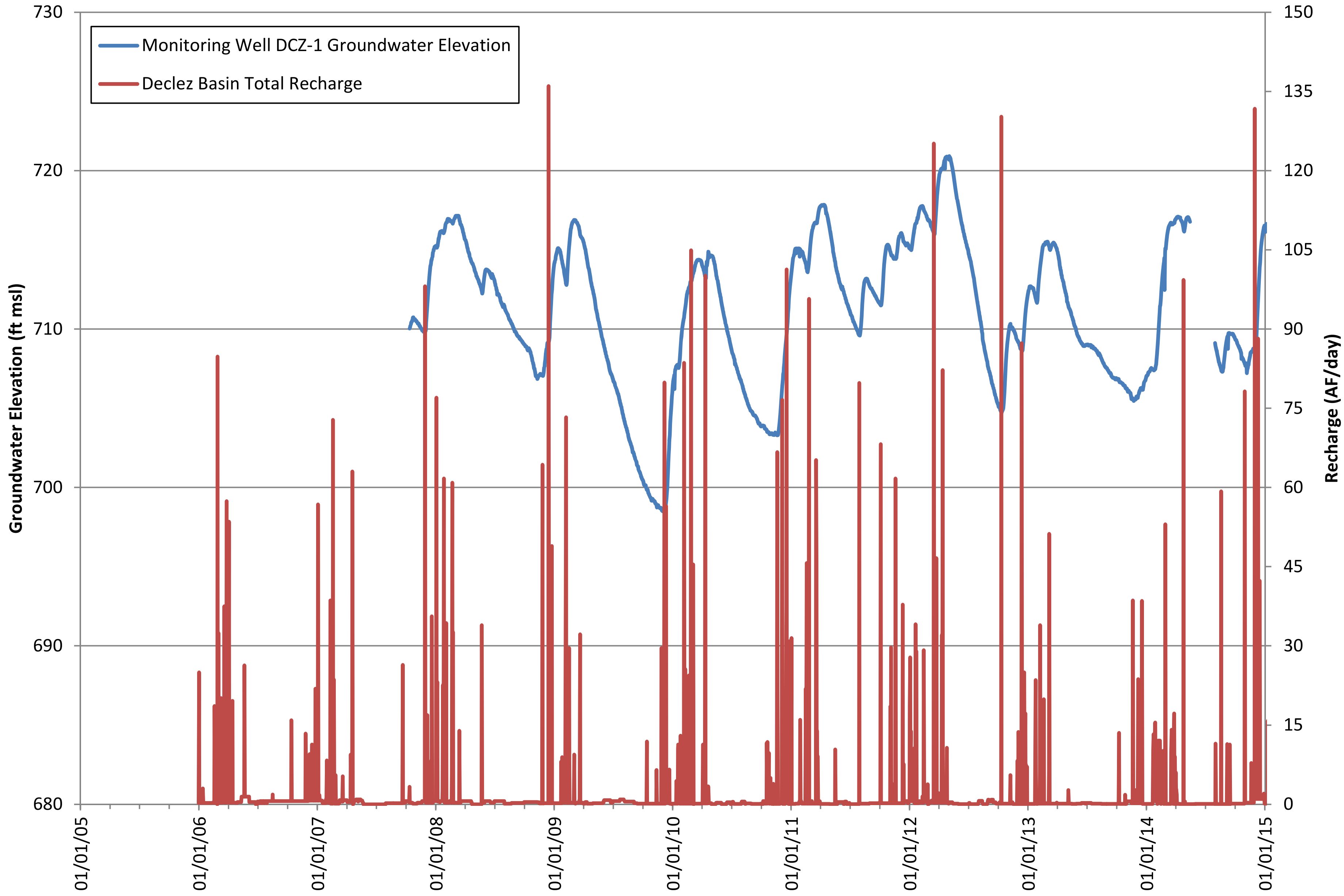

**HYDROGRAPH**
**Ely MW1 (Philadelphia Well)**



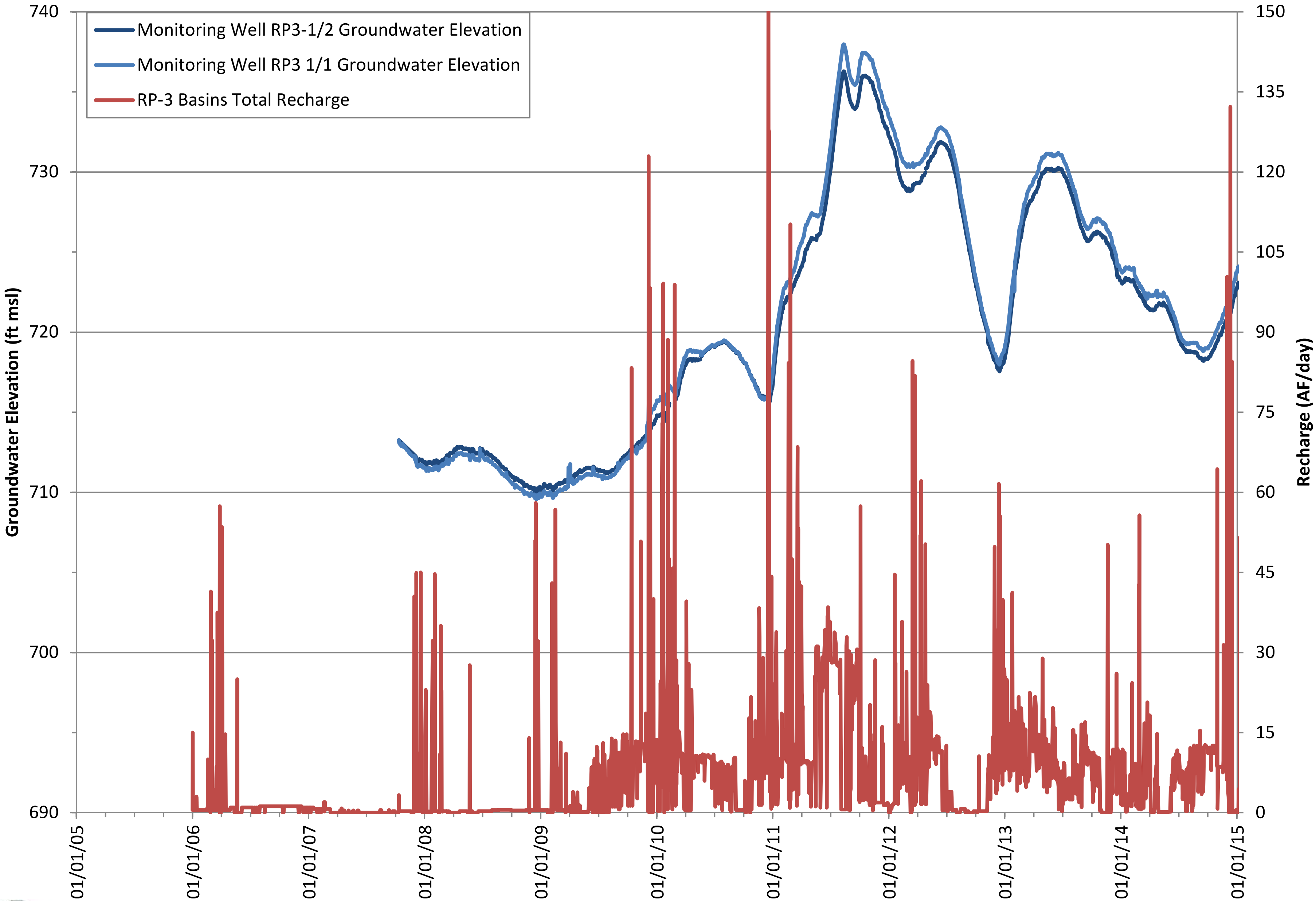

**HYDROGRAPH**
**MW TRN-1/2**



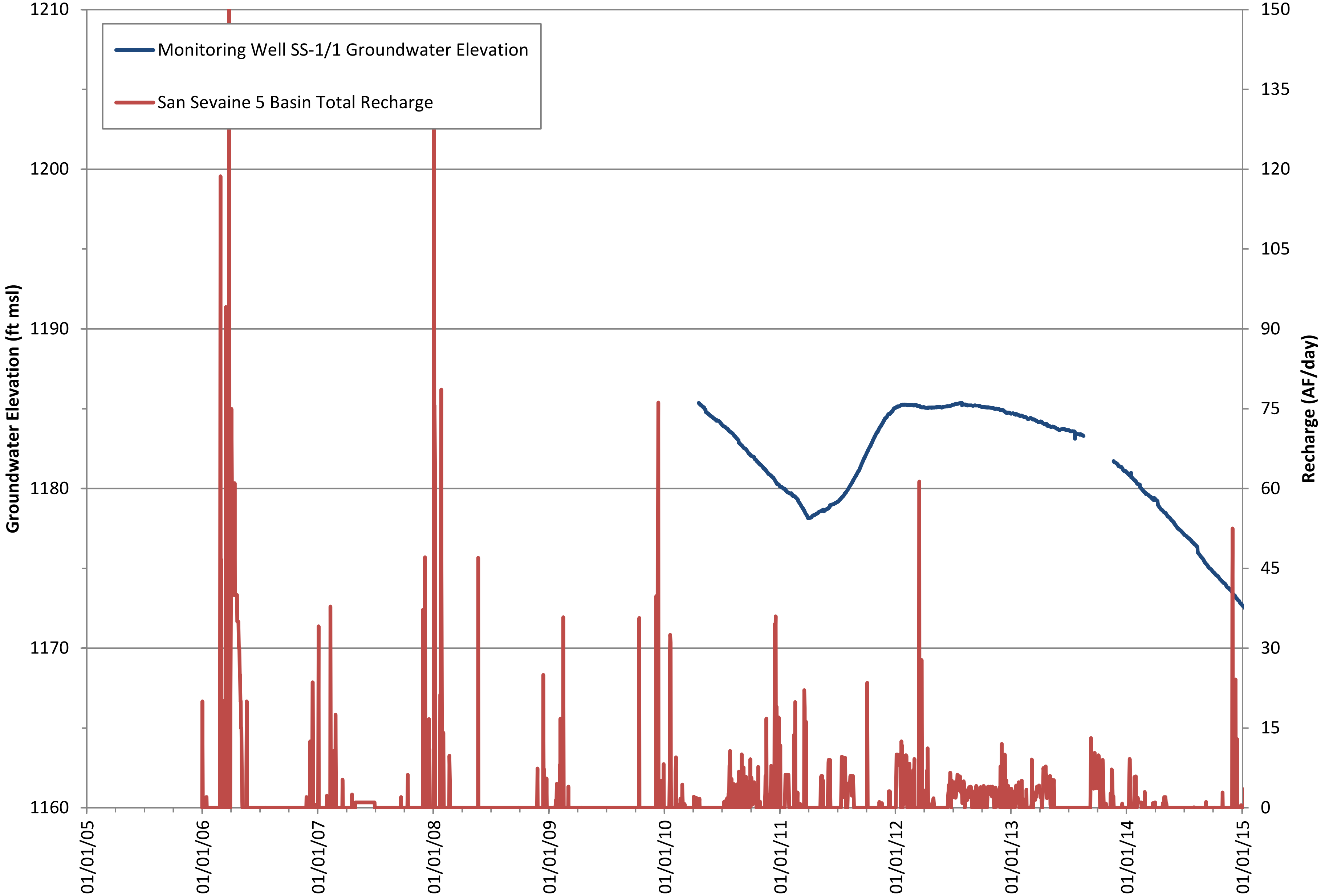

**HYDROGRAPH**
**MW TRN-2/1 & TRN-2/2**



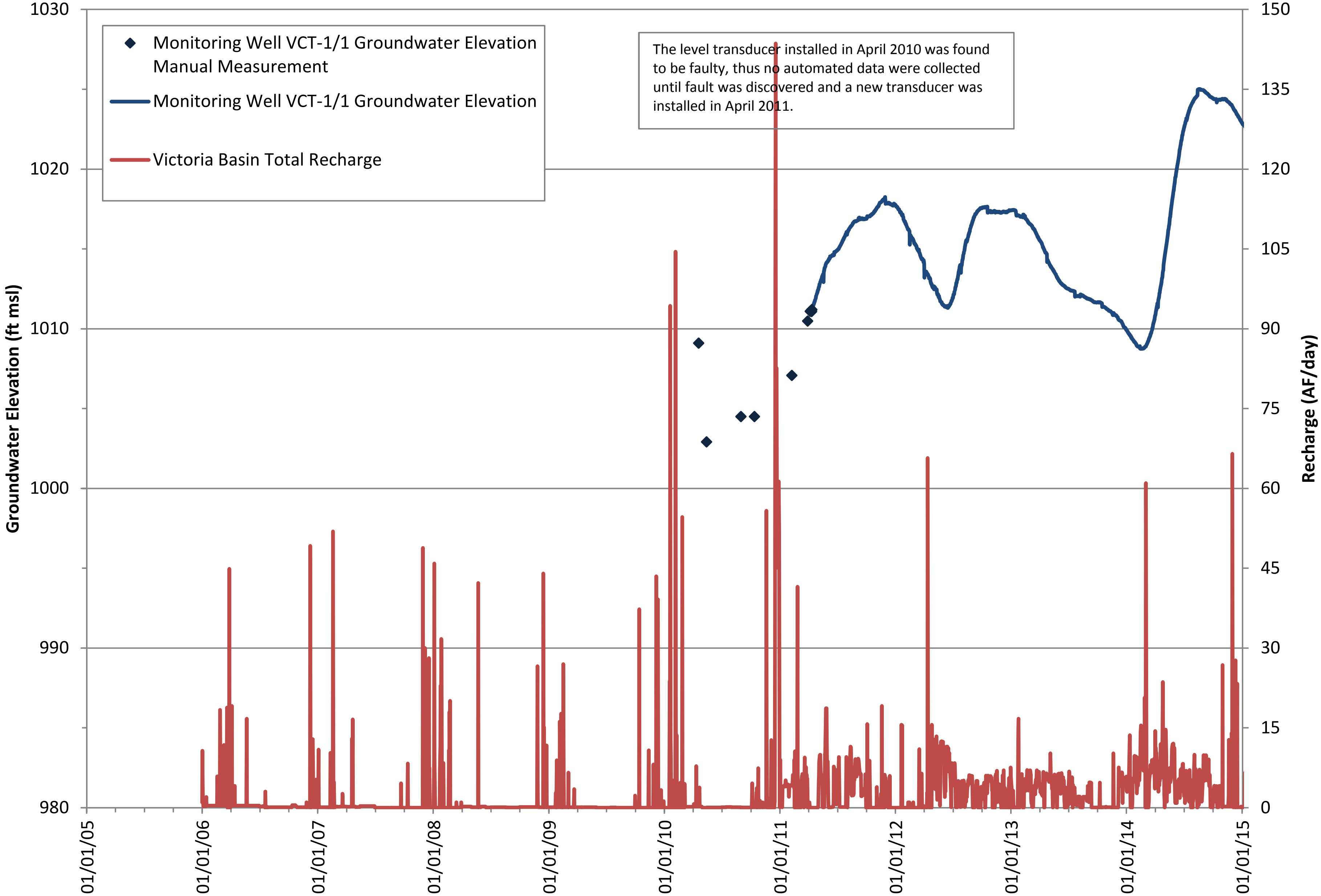

**HYDROGRAPH**
**MW DCZ-1**



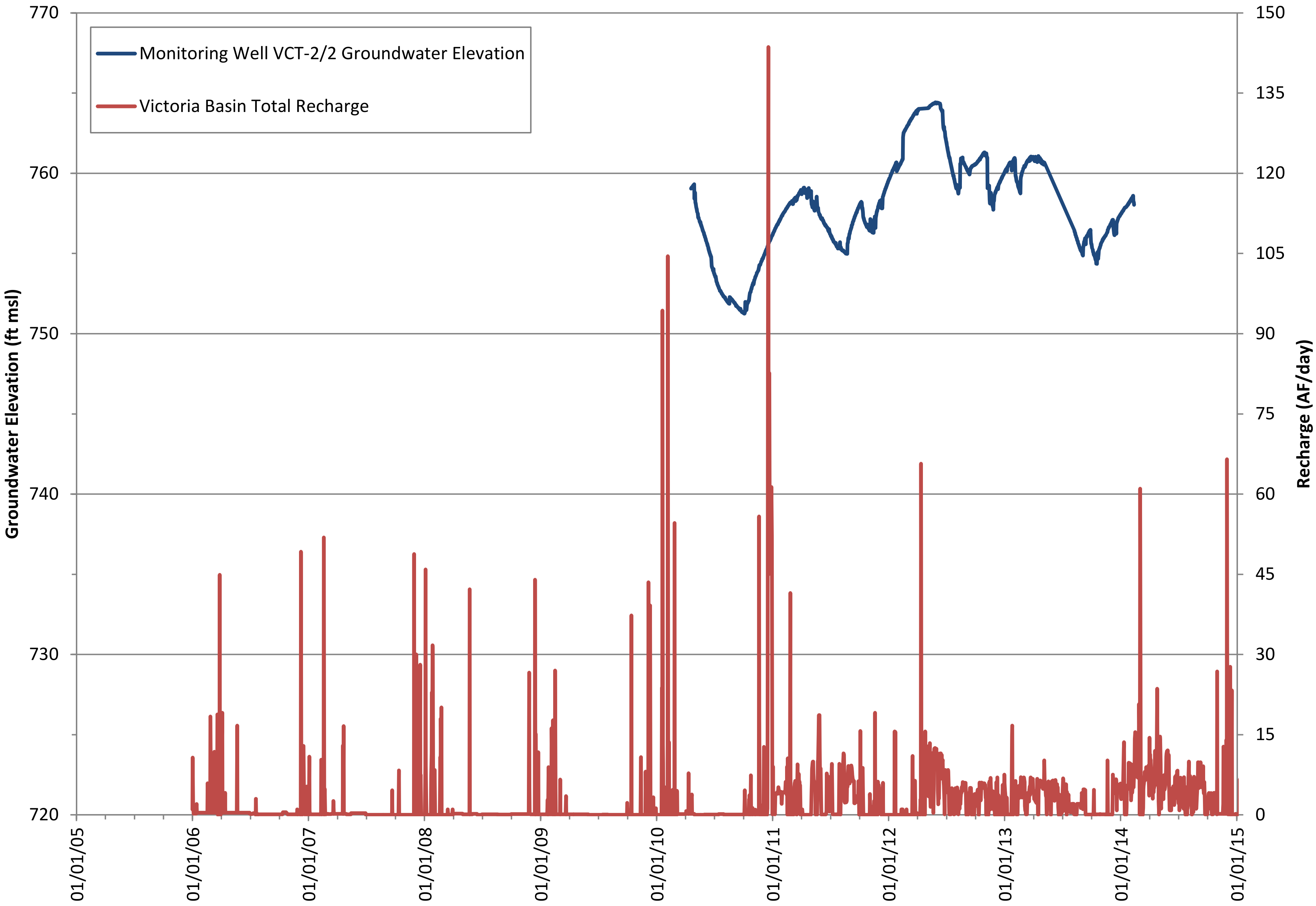

**HYDROGRAPH**
**MW RP3-1/1 & RP3-1/2**




**HYDROGRAPH**
**MW SS-1/1**



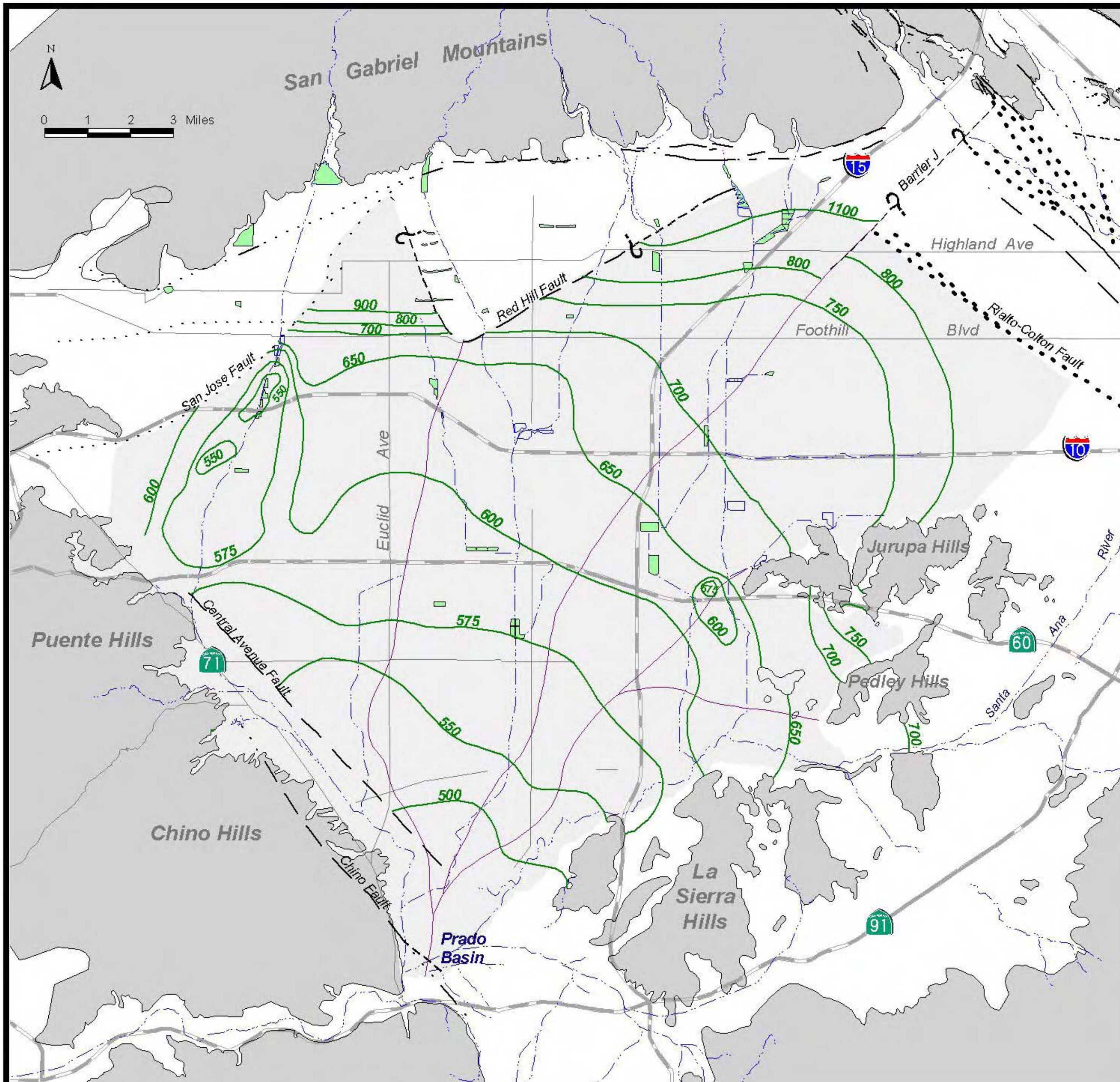

**HYDROGRAPH**
**MW VCT-1/1**




**HYDROGRAPH**
**MW VCT-2/2**

# APPENDIX F

# GROUNDWATER ELEVATION CONTOUR MAPS




Optimum Basin Management Program
Chino Basin Watermaster

## Legend

- Fall 1997 Groundwater Elevation (ft-msl)
- Fault
  - Dashed Where Approximate
  - Dotted Where Concealed
  - Queried Where Uncertain
  - Large Dots Where Groundwater Barrier (Suspected Fault)
- Rivers & Streams
- Management Zone Boundary
- Hydrologic Chino Basin
- Recharge Basins
- Bedrock

Management Zone Index Map

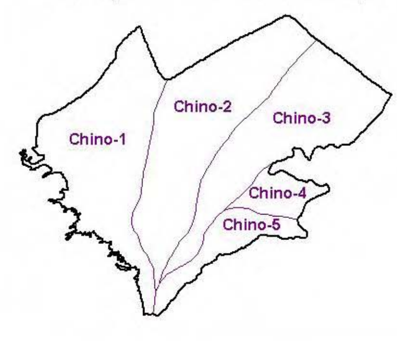
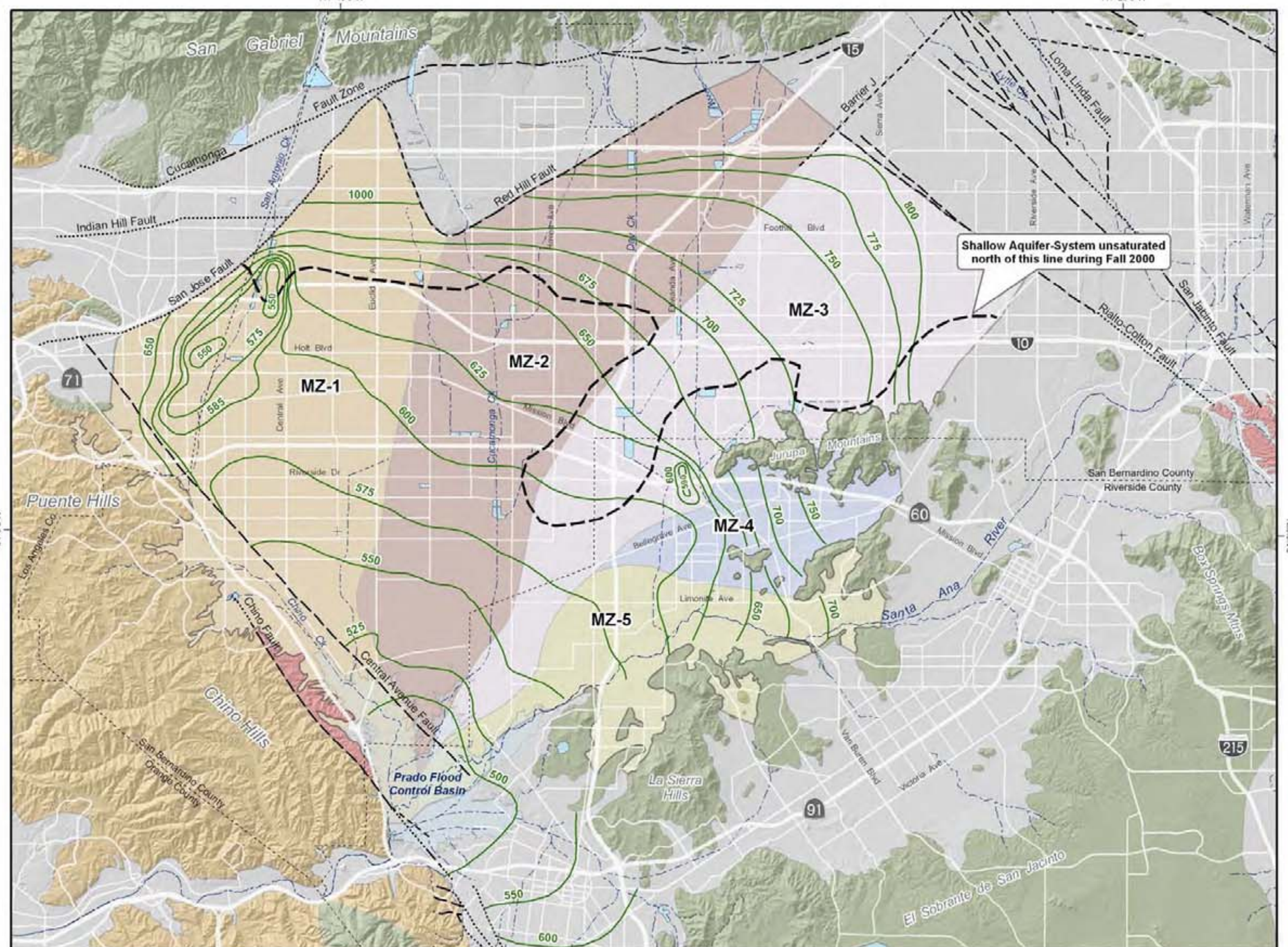



Figure 2-19
Fall 1997
Groundwater Elevation Map

WE WILDERMUTH ENVIRONMENTAL, INC.

*Date: August 19, 1999*

s:\clients\cbwm\obmp\task order 2\obmp documents\section 2\figures\figure 2-19.apr




## Main Features

800 / 775 — Groundwater Elevation Contours -- Fall 2000 (feet above mean sea level)

## Geology

*Water-Bearing Sediments*

- Quaternary Alluvium

*Consolidated Bedrock*

- Plio-Pleistocene Sedimentary Rocks
- Cretaceous to Miocene Sedimentary Rocks
- Pre-Tertiary Igneous and Metamorphic Rocks

*Faults*

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain

## Other Features

- Flood Control and Conservation Basins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Author: AEM
Update: WEL
Date: 20050714
File: Figure 8-03.mxd

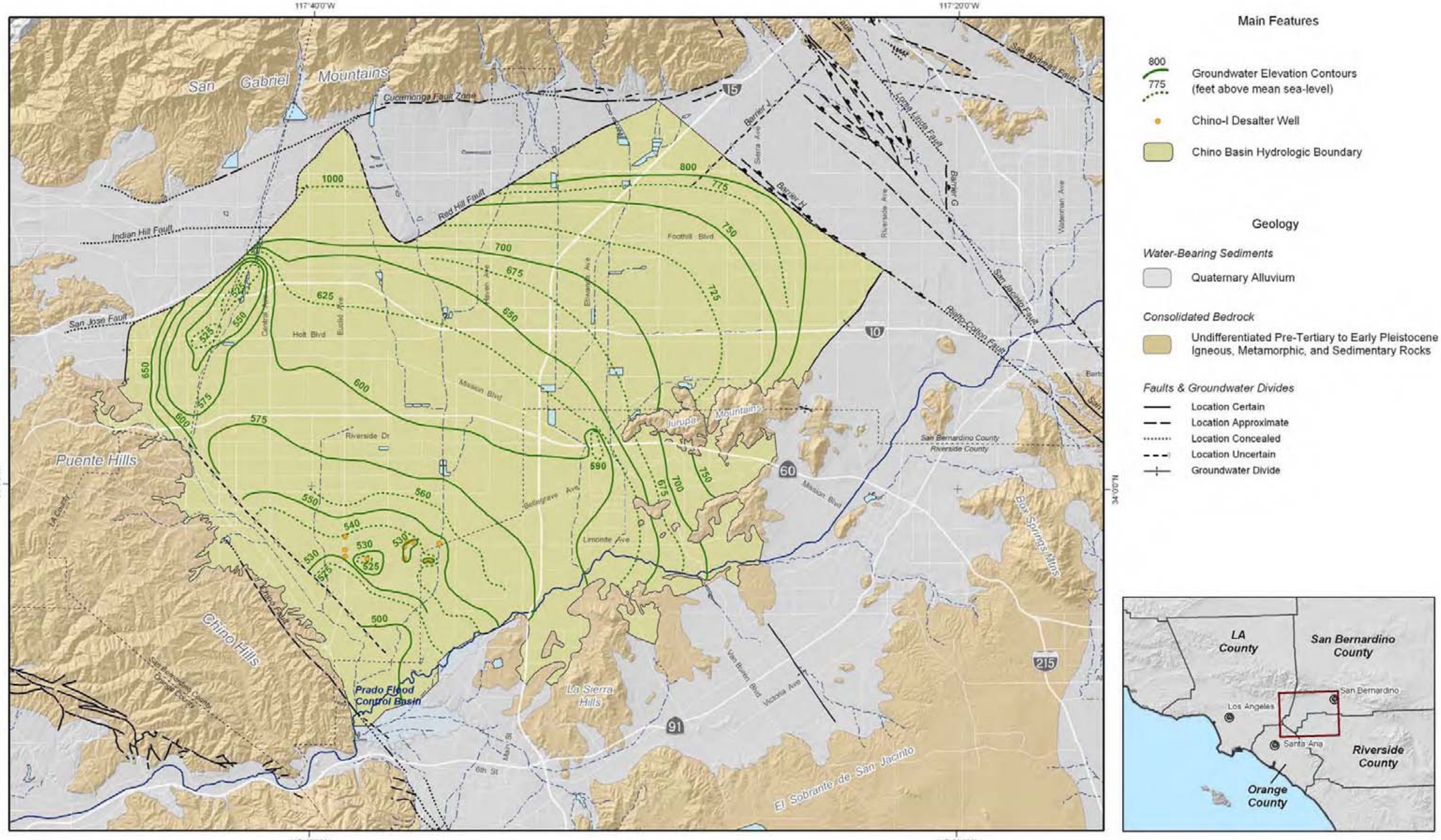
0 1 2 3 4 Miles
0 2 4 6 KM

Inland Empire Utilities Agency

**Phase II Recycled Water Groundwater Recharge Project**

**Groundwater Elevation Map Fall 2000**

**Figure 8-3**

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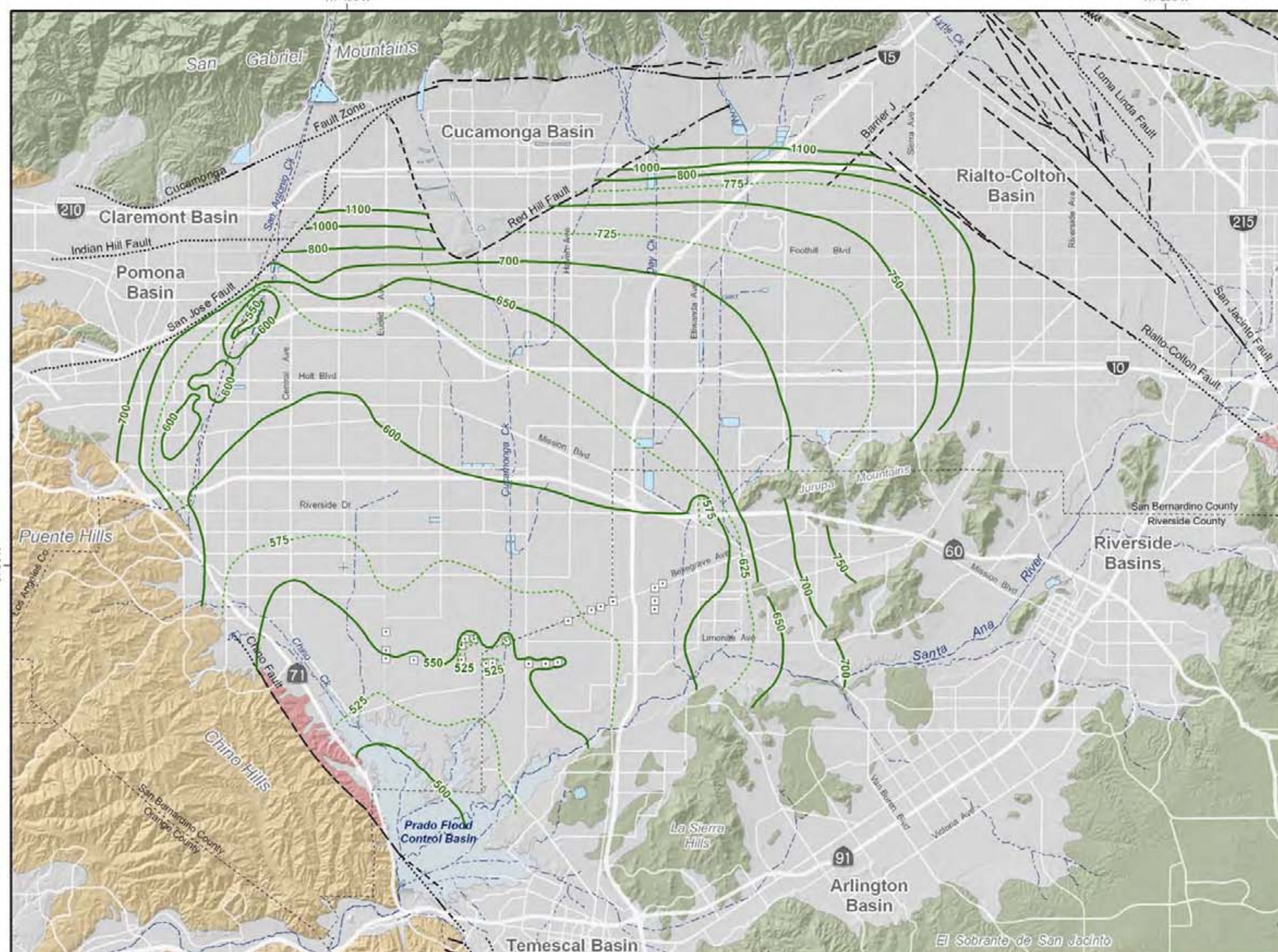
Author: KD
Date: 20050627
File: Figure_3-6.mxd

0 1 2 3 4 Miles
0 2 4 6 KM

State of the Basin Report -- 2004
*Groundwater Basin Operation and Response*

**Groundwater Elevation Contours**
*Fall 2003 -- Chino Basin*

**Figure 3-6**





Groundwater Elevation Contours (feet above mean sea-level)

## Other Features

- Chino Desalter Well
- Flood Control and Conservation Basins

## Geology

*Water-Bearing Sediments*

- Quaternary Alluvium

*Consolidated Bedrock*

- Plio-Pleistocene Sedimentary Rocks
- Cretaceous to Miocene Sedimentary Rocks
- Pre-Tertiary Igneous and Metamorphic Rocks

*Faults*

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain

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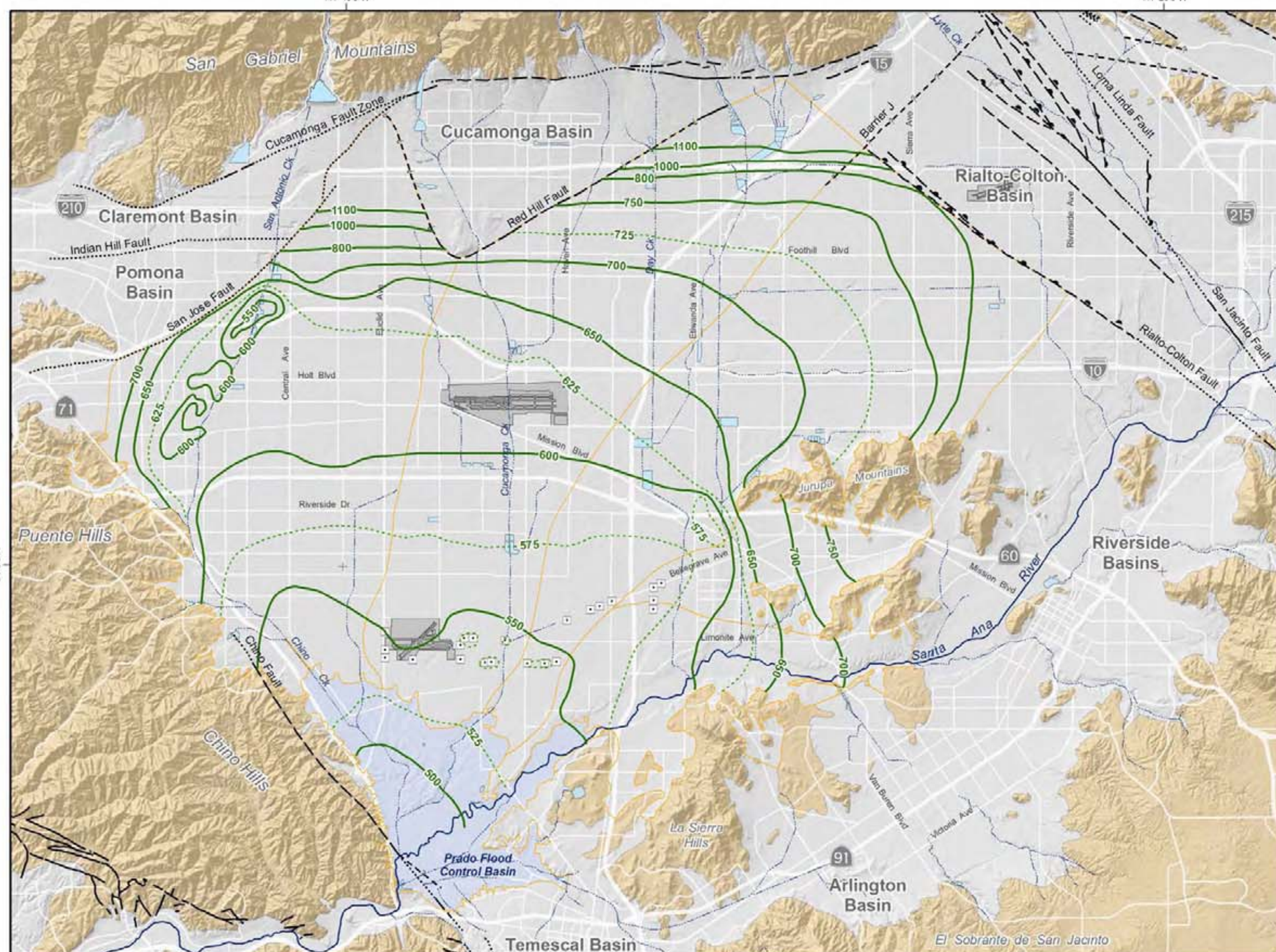
Author: ETL
Date: 20070511
File: Figure_3-18.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 KM

**DRAFT - 2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description**
*Hydrogeologic Setting*

**Groundwater Elevation Contours**
*Fall 2006 -- Chino Basin*

**Figure 2-7a**




Groundwater Elevation Contours (feet above mean sea-level)

800 — 775

### Other Features

Management Zone Boundary

Chino Desalter Well

Streams & Flood Control Channels

Flood Control & Conservation Basins

### Geology

*Water-Bearing Sediments*

Quaternary Alluvium

*Consolidated Bedrock*

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

*Faults*

Location Certain — Location Approximate — Location Concealed — Location Uncertain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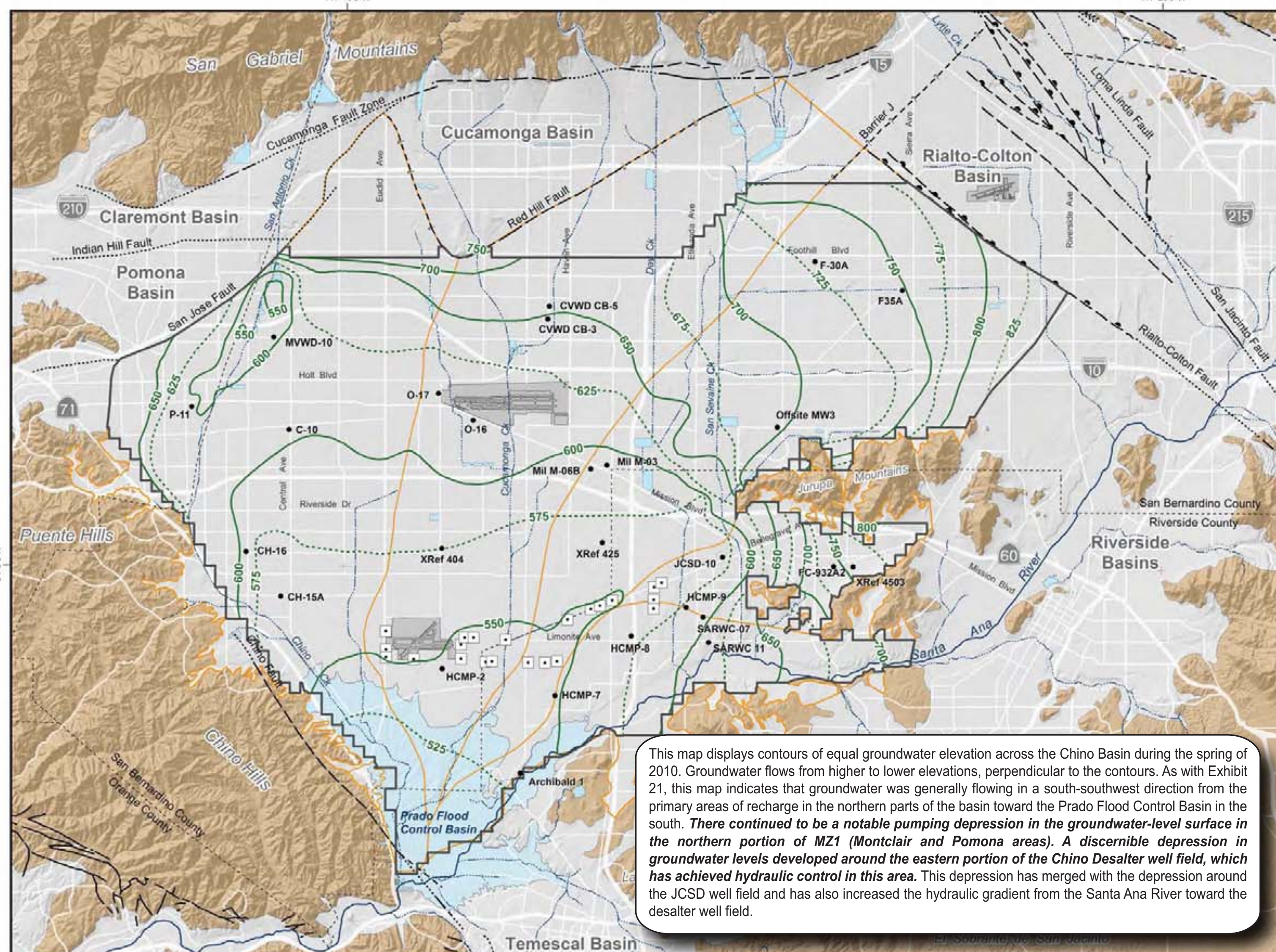
Author: ETL/CML
Date: 20090401
File: Figure_3-19.mxd

0 1 2 3 4 5 Miles
0 2 4 6 8 KM

**2008 State of the Basin Report**
*Groundwater Levels*

**Groundwater Elevation Contours**
*Fall 2008 -- Chino Basin*

**Figure 3-19**




This map displays contours of equal groundwater elevation across the Chino Basin during the spring of 2010. Groundwater flows from higher to lower elevations, perpendicular to the contours. As with Exhibit 21, this map indicates that groundwater was generally flowing in a south-southwest direction from the primary areas of recharge in the northern parts of the basin toward the Prado Flood Control Basin in the south. ***There continued to be a notable pumping depression in the groundwater-level surface in the northern portion of MZ1 (Montclair and Pomona areas). A discernible depression in groundwater levels developed around the eastern portion of the Chino Desalter well field, which has achieved hydraulic control in this area.*** This depression has merged with the depression around the JCSD well field and has also increased the hydraulic gradient from the Santa Ana River toward the desalter well field.

800 / 775 Groundwater Elevation Contours (feet above mean sea-level)

Boundry of Contoured Area (contours are not shown outside of this boundary due to lack of water level data)

Well used for Time History Analysis (Exhibits 16 through 20)

OBMP Management Zones

Chino Desalter Wells

Streams & Flood Control Channels

Flood Control & Conservation Basins

**Geology**

*Water-Bearing Sediments*

Quaternary Alluvium

*Consolidated Bedrock*

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

*Faults*

Location Certain

Location Approximate

Approximate Location of Groundwater Barrier

Location Concealed

Location Uncertain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Author: TCR
Date: 20111027
File: Exhibit_22.mxd

0 1 2 3 4 5 Miles

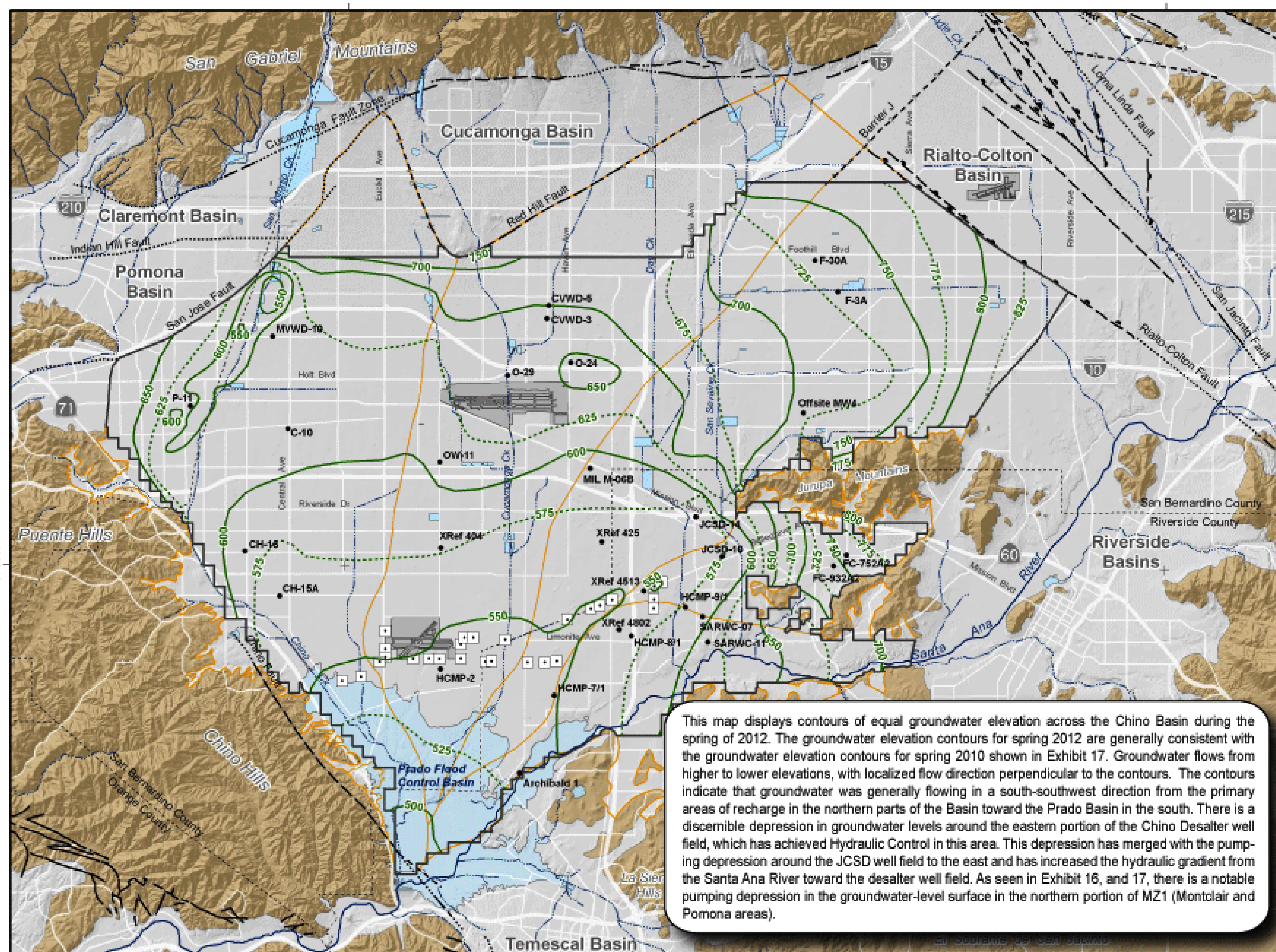
0 2 4 6 8 KM

**2010 State of the Basin**
*Groundwater Levels*

**Groundwater Elevation Contours**

*Spring 2010*

**Exhibit 22**




This map displays contours of equal groundwater elevation across the Chino Basin during the spring of 2012. The groundwater elevation contours for spring 2012 are generally consistent with the groundwater elevation contours for spring 2010 shown in Exhibit 17. Groundwater flows from higher to lower elevations, with localized flow direction perpendicular to the contours. The contours indicate that groundwater was generally flowing in a south-southwest direction from the primary areas of recharge in the northern parts of the Basin toward the Prado Basin in the south. There is a discernible depression in groundwater levels around the eastern portion of the Chino Desalter well field, which has achieved Hydraulic Control in this area. This depression has merged with the pumping depression around the JCSD well field to the east and has increased the hydraulic gradient from the Santa Ana River toward the desalter well field. As seen in Exhibit 16, and 17, there is a notable pumping depression in the groundwater-level surface in the northern portion of MZ1 (Montclair and Pomona areas).

Groundwater Elevation Contours (feet above mean sea-level)

Boundry of Contoured Area (contours are not shown outside of this boundary due to lack of water level data)

Well With a Water-Level Time History Plotted on Exhibits 24 through 28.

OBMP Management Zones

Chino Desalter Wells

Streams & Flood Control Channels

Flood Control & Conservation Basins

***Geology***

*Water-Bearing Sediments*

Quaternary Alluvium

*Consolidated Bedrock*

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

*Faults*

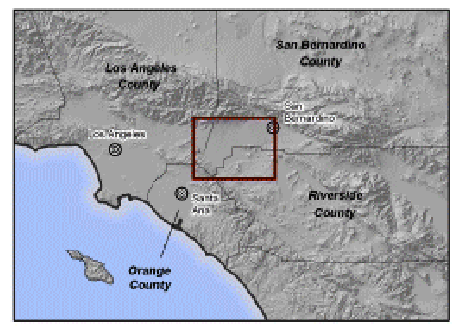
Location Certain

Location Approximate

Approximate Location of Groundwater Barrier

Location Concealed

Location Uncertain

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Date: 20121130
File: Exhibit_18.mxd

0 1 2 3 4 5 Miles

0 2 4 6 8 KM

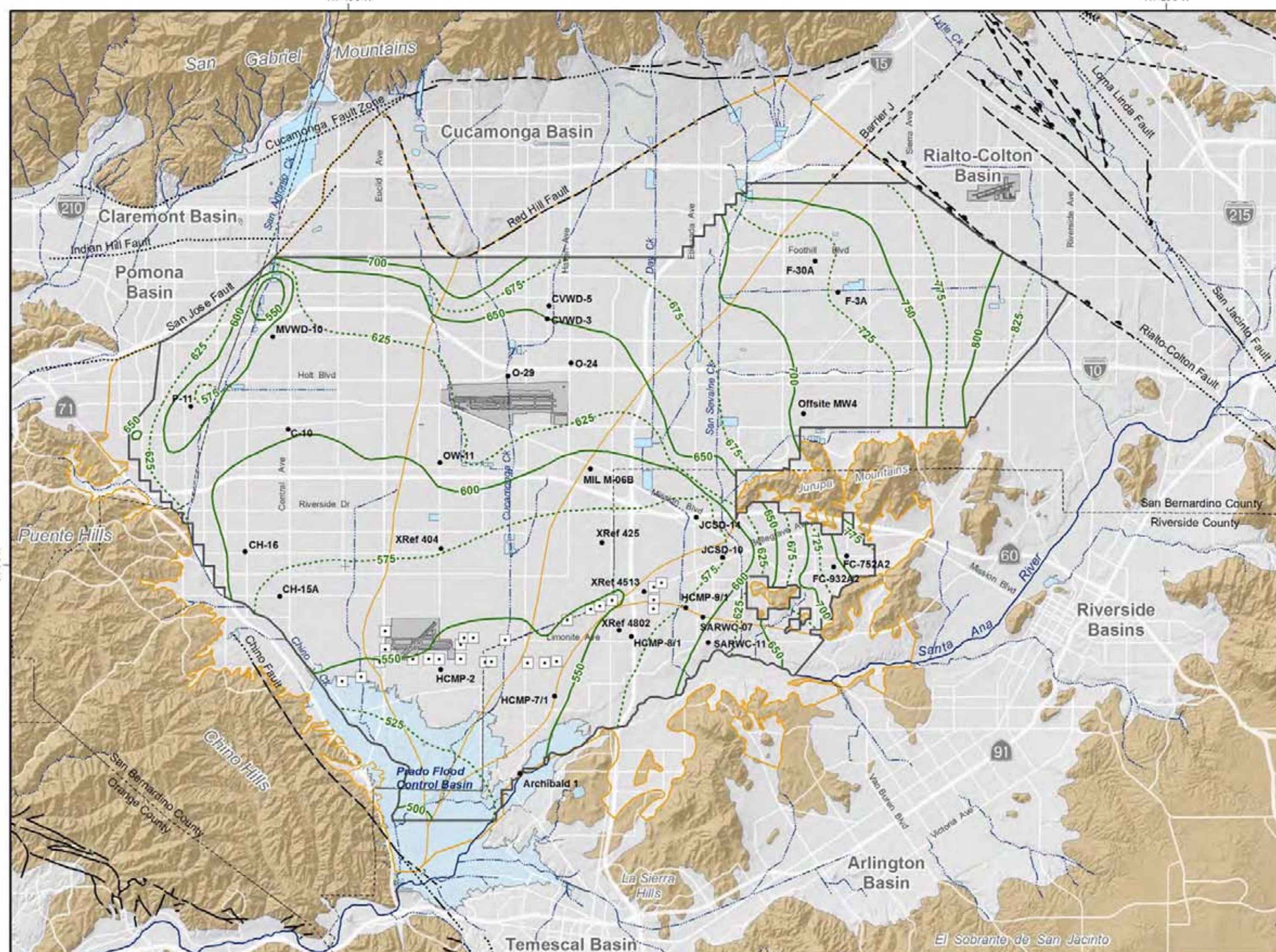
2012 State of the Basin
*Groundwater Levels*

## Groundwater Elevation Contours in Spring 2012

*Shallow Aquifer System*

**Exhibit 18**

117°40'0"W 117°20'0"W




117°40'0"W 117°20'0"W
34°0'0"N

Groundwater Elevation Contours (feet above mean sea-level)

Boundry of Contoured Area (contours are not shown outside of this boundary due to lack of groundwater level data)

Well With a Water-Level Time History Plotted on Exhibits 24 through 28

OBMP Management Zones

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*Water-Bearing Sediments*

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*Faults*

Location Certain

Location Approximate

Approximate Location of Groundwater Barrier

Location Concealed

Location Uncertain


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Document Name: 20150403_Exhibit_18_sp2014_copyfor IEUA_Draft

0 1 2 3 4 5 Miles
0 2 4 6 8 KM

DRAFT

2014 State of the Basin DRAFT
*Groundwater Levels*

## Groundwater Elevation Contours in Spring 2014

*Shallow Aquifer System*

**Exhibit 18**