CHINO BASIN
RECYCLED WATER GROUNDWATER RECHARGE PROGRAM

MODIFIED START-UP PERIOD REPORT FOR THE SAN SEVAINE BASINS

January 27, 2022

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January 27, 2022
Regional Water Quality Control Board, Santa Ana Region
Attention: Mr. Julio Lara
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Subject: **Transmittal of the Modified Start-Up Period Report for the San Sevaine Basins Chino Basin Recycled Water Groundwater Recharge Program**

Dear Mr. Lara:

The Inland Empire Utilities Agency (IEUA) and the Chino Basin Watermaster (CBWM) hereby submit the *Modified Start-Up Period Report for the San Sevaine Basins* for the Chino Basin *Recycled Water Groundwater Recharge Program* being implemented by IEUA and CBWM. The start-up period is a modification of that originally conducted for the San Sevaine Basins in 2010/11. This report is submitted pursuant to requirements in the following documents:

- 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, 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,
- California Regional Water Quality Control Board, Santa Ana Region, Order No. R8-2009-0057, Amending 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, October 23, 2009, and
- IEUA and CBWM, 2020, Modified Start-Up Protocol Plan for the San Sevaine Basins, May 28, 2020.

The following items highlight the findings of the Modified Start-Up Period Report for the San Sevaine Basins:

- The start-up period conducted largely at San Sevaine Basin 2 was approximately 14 months in duration, lasting from August 4, 2020 through September 21, 2021. The start-up period was extended beyond 180 days (6 months) to allow for observation of a maximal and relatively stable concentration of recycled water at the mound monitoring well SSV-2 and for potential arrival of storm water recharged during the 2020/21 winter storm season at monitoring well SSV-2.

- Recycled water was recharged periodically in Basin 1 during the start-up when Basin 2 reached capacity, thus allowing Basin 2 water to infiltrate and the basin regain capacity.
- Infiltration rates for San Sevaine Basin 1 during the start-up period ranged from 0.4 to 2.3 feet per day and were greater with increased basin water depth. Infiltration rates for San Sevaine Basin 2 during the start-up period ranged from 0.2 to 0.7 feet per day and were greater with increased basin water depth.
- Electrical conductivity (EC) can be an effective tracer of recycled water to monitor wells and lysimeters. However, failures of several San Sevaine Basin 2 lysimeters made the use of EC difficult for tracking shallow vertical recharge times. Samples could not be consistently collected from the 5- and 10-foot lysimeters. The 15- and 20-foot lysimeters also had intermittent inability to provide samples. The 25- and 30-foot lysimeters failed after about 7 months of sampling. With precision driven by the attempted sampling frequency of 7 days, the available EC data indicate similar travel times to the 15-foot through 30-foot lysimeters of approximately 2 weeks plus or minus one week.
- While the San Sevaine Basin 2 lysimeters could not be used to precisely evaluate travel time and Soil-Aquifer Treatment (SAT), the mound monitoring well, SSV-2, provided very good samples, which could be effectively evaluated for travel time and evaluation of SAT.
- Recharge travel time to the mound monitoring well SSV-2 is approximately 4.9 months as observed by the start of a notable increase in EC and chloride above the background concentrations. At the intermediate monitoring well, Unitex 91090, travel time of recycled water recharge had not yet been observed after 13.9 months of recycled water recharge as no notable changes in EC and chloride concentrations have been detected.
- The peak EC concentration observed at mound monitoring well SSV-2 after 9.5 months indicates an approximate 75% peak occurrence of recycled water at the well screen.
- SAT was effective at removing total organic carbon (TOC) and Total Nitrogen (TN) as observed at mound monitoring well SSV-2.
- No TOC was observed at the SSV-2 above background concentration, indicating 100% removal at a depth of 270 to 295 feet below ground surface. Due to lysimeter failures and excellent SAT efficiency, mound monitoring well SSV-2 is recommended for future compliance sampling point.
- The average SAT removal efficiency for TN at the monitoring well SSV-2 was 34%. The TN 20-week sample average was 2.93 mg/L. The TN values from the monitoring well were within the TN compliance limit of 5 mg/L (Order No. R8-2007-0039) with SAT.
- The Recycled Water Contribution (RWC) limit calculated from TOC data from monitoring well SSV-2 would be 100% (however, this is over the groundwater regulatory limit), and is thus limited to 50%.
- The Start-Up Period Report includes an RWC Management Plan forecasting the next 120 months of recharge with recycled water to maintain compliance with the proposed 50%

RWC limit. The plan shows a 37% RWC actual at 120 months following the end of the start-up period. All RWC Management Plans are updated annually in the Annual Report for the Recycled Water Groundwater Recharge Program.

- The Start-Up Period Report concludes with a proposed alternative monitoring plan for the San Sevaine Basins, including monthly sampling for one year (October 2021 through September 2022) from the basin surface water and mound monitoring well SSV-2 and intermediate monitoring well Unitex 91090 for EC, TOC, and TN plus weekly sampling from IEUA's recycled water delivery pipeline at RP-4.

If you have any questions, please do not hesitate to contact us.

Randy Lee

Digitally signed by Randy Lee
Date: 2022.02.07 15:11:26 -08'00'

Randy Lee, P.E.
Executive Manager of Operations/
Assistant General Manager

Peter Kavounas, P.E.
General Manager

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1. Introduction

Inland Empire Utilities Agency (IEUA) and Chino Basin Watermaster (CBWM) are co-permit holders for the Chino Basin Recycled Water Groundwater Recharge Program. IEUA and CBWM maintain and operate the program's recharge facilities together with Chino Basin Water Conservation District and San Bernardino County Flood Control District. The recharge program is an integral part of CBWM's Optimum Basin Management Plan goals of enhancing water supply reliability and improving groundwater quality in the Chino Basin. These goals are to be met by increasing the recharge of storm water, imported water, and recycled water.

IEUA initiates groundwater recharge using recycled water at permitted recharge sites by following and reporting on a minimum 6-month long start-up period of recycled water delivery and intensive water quality testing. The locations of Recycled Water Groundwater Recharge Program basins including San Sevaine Basins 1 through 5 are shown on Figure 1-1. The San Sevaine Basins 1 through 5 were improved under the Chino Basin Facilities Improvement Project (CBFIP) to include telemetry of water levels and a hardened spill point in San Sevaine 5. The site also receives periodic maintenance to remove storm sediments that inhibit recharge activities. The hydrogeologic background for the San Sevaine Basins is described in the Chino Basin Phase I Recycled Water Groundwater Recharge Project Title 22 Engineering Report (CH2MHill, 2003).

The 2020/21 modified Start-Up Period for the San Sevaine Basins is a modification to the 2010/11 San Sevaine Basins Start-Up Period conducted at Basin 5. Following the suspension of recycled water to Basin 5 in May 2014, IEUA designed and built facilities to route recycled water and storm water to Basins 1, 2, and 3. Basin 4 does not have recharge improvements and was not included in the start-up period. The 2020/21 modified Start-Up Period for the San Sevaine Basins was conducted in accordance with the protocols approved by Regional Water Quality Control Board and set forth in the Modified Start-Up Protocol Plan for San Sevaine Basins (IEUA, 2020). This report documents recycled water recharge at Basins 1 and Basin 2 and subsequent sampling at two monitoring wells and a cluster of lysimeters at Basin 2. Testing results were used to evaluate soil-aquifer treatment (SAT) efficiencies for the removal of total organic carbon (TOC) and total nitrogen (TN) from recharged water. These findings are used for the determination of the maximum recycled water contribution (RWC) limit associated and the selection of a compliance point (e.g., a lysimeter or a monitoring well) for future monitoring.

1.1 Requirements of Order No. R8-2007-0039

The Chino Basin Recycled Water Groundwater Recharge Program is subject to the following requirements set forth by the 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, 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, June 29, 2007, and
- Regional Water Quality Control Board, Santa Ana Region, Order No. R8-2009-0057, Amending 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, October 23, 2009.

Recharge of recycled water at the San Sevaine Basin site was permitted by Order No. R8-2007-0039. Section F.4 of Order No. R8-2007-0039 describes the requirements for the Start-Up Period Report:

> The Start-Up Period report shall include: site specific determinations of percolation rates, soil aquifer treatment efficiency and optimum depths and locations of lysimeters to obtain representative compliance samples of recycled water after soil aquifer treatment. The report shall specify the date that the Start-Up Period ended. The report shall make recommendations for final compliance lysimeter placement and the monitoring plan to be employed during the initial year of operation, the initial year maximum average RWC and corresponding TOC limit, and generalized method that will be used to track recharge water in the vadose zone. The analytical results from weekly lysimeter samples shall be evaluated and reported along with conclusions regarding soil aquifer treatment (SAT) performance. This report is subject to approval by the CDHS [sic, now CDPH] and the Regional Board Executive Officer. The report recommendations shall be implemented upon approval.

Order No. R8-2009-0057 amended R8-2007-0039 to extend the previously 60-month volume-based RWC compliance calculation to 120 months and to allow that RWC calculation to include groundwater underflow as diluent water.

1.2 Organization of the Start-Up Period Report

Section 2 of this report describes the installation of the Basin 2 lysimeters and monitoring well. Section 3 details the recharge operations during the start-up period. Sections 4 and 5 discuss the lysimeter sampling and monitoring results and the SAT removal efficiency for TOC and TN. Section 6 describes the determination of the start-up period duration and recommendation of the site's compliance point. Section 7 discusses the determination of the site's maximum RWC limit and a RWC Management Plan to ensure that the RWC limit is not exceeded in the future. Section 8 is a proposed water quality monitoring plan for the initial year after the start-up period, and Section 9 lists cited references.

2. Lysimeter and Well Installation

Figure 2-1 is a map of the San Sevaine Basins site showing the five basins comprising the recharge site. Also shown on the figure are the locations of the San Sevaine Basin 2 lysimeter cluster and the two monitoring wells used to collect water samples during the start-up period.

In May 2019, a cluster of six lysimeters were installed in the southwest corner of the basin at depths of 5, 10, 15, 20, 25, and 30 feet. The San Sevaine Basin 2 lysimeter construction process and as-built drawings are summarized in the *Modified Start-Up Protocol Plan for San Sevaine Basins* (IEUA, 2020). Appendix A is an as-built diagram of the San Sevaine Basin 2 lysimeter construction. Throughout the report text, tables, and figures, water samples from the lysimeters are referred to as SS2-LYS-xx, where xx equals the nominal depth of the porous tip of the lysimeter below ground surface (bgs). Depending on context, the surface water samples referred to as a 00-depth sample or surface water sample. These samples represent grab samples of surface water collected from the basin near the lysimeter installation. During the start-up period, surface water depth in San Sevaine Basin 2 varied from about 2.0 to 4.0 feet.

The mound monitoring well SSV-2 was constructed July through August 2018. Appendix B is an as-built diagram of the SSV-2 well construction. The mound monitoring well is located approximately 100 feet southeast of the Basin 2 floor on the basin's perimeter road. The mound monitoring well is a 4-inch diameter casing with wire-wrapped screen at 370 to 395 feet below grade and is installed with a dedicated submersible pump. The depth to water was approximately 350-feet bgs at the time of construction. The nearest production monitoring well to the San Sevaine Basins is Unitex 91090. The Unitex 91090 was used as a groundwater monitoring point and is approximately 1,600 feet southeast from San Sevaine Basin 3 and 2,000 feet from San Sevaine Basin 2. This well is primarily used for irrigation at a small business property, but if found to be located greater than the minimum travel time of San Sevaine recycled water recharge, the well may be used in potable plumbing at the business. No subsurface construction data exist for Unitex 91090; however, the historical water levels of Unitex 91090 have been similar to those of SSV-2. The well screen at SSV-2 likely represents the uppermost water found at Unitex 91090.

3. Recharge Operations

3.1 Volume of Historical Diluent Water Recharged

Diluent water is all water recharged that is not recycled water. Diluent water recharge in San Sevaine Basins has historically been estimated from field staff gauge observations, telemetered water depth changes during storm water activities, and from periodic stream gauging of dry weather flows. Imported water recharge is noted from metered data from Metropolitan Water District. Table 3-1 lists the direct recharge historical diluent water volumes measured for the San Sevaine Basins between July 2005 and August 2021. Since 2005, the fiscal year diluent water recharge for San Sevaine Basins 1 through 5 ranged from 225 acre-feet (AF) (for a dry year with no imported water purchase) to 10,521 AF (for a wet year with imported water purchases).

Although not tabulated as in-basin recharge in Table 3-1, groundwater underflow will be credited as diluent water in the 120-month running average RWC calculation (discussed in Section 7). For San Sevaine Basins 1 through 5, groundwater underflow is estimated at approximately 3,335 AF per year (278 AF per month) using a Darcian methodology approved by an expert panel (National Water Research Institute, 2010). San Sevaine Basin groundwater underflow is also underflow to the Victoria Basin, which is located approximately 4,000 feet southwest and down gradient of San Sevaine Basin 5. For the San Sevaine and Victoria basins which share the flow path of groundwater underflow, the underflow volume is used for both basins as the travel time between these basins exceeds that required for drinking water wells, and thus any upstream blend has become groundwater again upon reaching the downstream basin. Initial RWC plans for these basins divided the underflow flow equally, but later (February 2017) were allowed by DDW to be used independently for both basins.

Table 3-2 list historical monthly water deliveries to the San Sevaine Basins and the 120-month running totals used to calculate the 120-month running average ratio of recycled water volume to total recharge. This ration is used to determine the RWC compliance limit for San Sevaine Basins (see discussion in Section 7). Table 3-2 also lists and the 120-month running average (percent recycled water to total recharge volume) as will be required for the maximum RWC limit compliance for the San Sevaine Basin site. Table 3-2 does not repeat the data from the initial San Sevaine Start-Up Report but includes data starting in 2013/14 when the recycled water deliveries to Basin 5 ended. The RWC calculation is discussed further in Sections 5 and 6. Table 3-3 lists daily water inflow to the San Sevaine Basins during the start-up period.

3.2 Recharge Operations during the Start-Up Period

During the start-up period, water delivered to the San Sevaine Basins included recycled water, storm water flows and minor dry weather. Basins 1 through 5 can received stormwater. Storm flows enter Basin 1 from the north via the wide and unlined San Sevaine Creek. Dry weather flows (small unmeasured volumes) enter Basin 1 from the northeast via a storm drain. Basin 2 receives storm water only when Basin 1 reaches capacity and overflows into Basin 2. San Sevaine Basin 3 receives storm flows from the east via a flood control channel that drains from the 15-Freeway, but can also receive storm water that spills when Basin 2 reaches capacity in large extended duration storms.

Basin 4 only receives storm water when Basin 3 spills in large extended duration storms and then quickly fills and spills into Basin 5. Basin 5 can receive storm flows via the concrete-lined Etiwanda Creek to the west and both dry weather and storm flows from four storm drains. Storm water recharge volumes were estimated using measured increases in water depth correlated with the basins' depth-to-volume curves. Infiltration volumes during storms are estimated using measured infiltration rates, basin areas, and the inflow duration.

Basins 1, 2, 3 and 5 can receive recycled water via an IEUA pipeline. Basin 4 is shallow, relatively small in area, and does not have recharge improvements. During the start-up period, recycled water was delivered predominantly to Basin 2 until it reached about 4 feet in depth. At that point, recycled water delivery was switched to Basin 1 to allow water in Basin 2 to infiltrate and regain capacity. The purple horizontal bars on Figures 4-1 through 4-3 show the periods of recycled water delivery to San Sevaine Basins 1 and 2. In this manner, recycled water flow was generally continuous during the start-up period. Periods of storm inflow into Basins 1 and 2 are also shown on the time series graphs. Because the start-up period occurred during a very dry year, very little storm water reached Basin 2 during testing. Storm water only reached Basin 2 on December 28, 2020 (5.8 AF) and on January 29, 2021 (1.8 AF).

3.3 Estimated Infiltration Rates

Infiltration rates of San Sevaine Basins 1 through 2 were calculated during the startup period from water level data collected from water level sensors installed at each basin. Basin 3 infiltration rates are from water level changes observed during December 2021 rainfall events. The average data were calculated from best fit formulas of multiple measurements at each basin. Basins 1 and 2 infiltration rates increase slightly with increased depth.

Table 3-4 summarized the average infiltration rates of Basins 1, 2, and 3. Nominally, the infiltration rates of Basins 1, 2, and 3 at a water depth of 3 feet are 1.1 feet per day, 0.5 feet per day, and 2.8 feet per day. Basin 3 infiltration rates are somewhat anomalous in that the increase with decreased depth. This is likely due to poor porosity sediments on the basin floor at those deeper depth areas.

Infiltration rates can vary by water depth, seasonal impacts, and maintenance status. For instance, deeper surface water can contact higher infiltration rate soils not yet adversely impacted by fine-grained sediment introduced by storm water and can therefore yield higher rates. San Sevaine Basin 5 infiltration rates are not discussed here as the basins infiltration rates are generally <0.1 ft/d and were discussed in the original San Sevaine Start-Up Report. The low Basin 5 infiltration rates are one reason why IEUA built a pump station in Basin 5 to move storm water to Basins 1, 2, and 3.

4. Surface Water and Lysimeter Sampling Results

4.1 Surface Water, Lysimeter, and Monitoring Well Sampling Results

The monitoring schedule from the approved *Modified Start-Up Protocol Plan for the San Sevaine Basins* (IEUA, 2020) included weekly sampling for surface water and lysimeter water, and analyses for:

- Electrical Conductivity (EC),
- TOC,
- Nitrate as Nitrogen (NO_3-N), Nitrite as Nitrogen (NO_2-N), Ammonia as Nitrogen (NH_3-N), and Total Kjeldahl Nitrogen (TKN), and
- TN, calculated as the sum of NO_3-N, NO_2-N and TKN.

The plan also included monthly sampling of monitoring wells SSV-2 and Unitex 91090 for these same water quality parameters. The lysimeter and monitoring well water quality data are summarized in Tables 4-1 through 4-6. Table 4-1, Table 4-2, and Table 4-3 contain lysimeter results for EC, TOC, and TN, respectively. Table 4-5 and Table 4-6 contain monitoring well water quality results for SSV-2 and Unitex 91090, respectively.

Time-series graphs of EC from San Sevaine Basin 2 lysimeters and monitoring wells (SSV-2 and Unitex 91090) are presented on Figure 4-1a and Figure 4-1b, respectively. Time-series graphs of TOC from San Sevaine Basin 2 lysimeters and monitoring wells are presented on Figure 4-2a and Figure 4-2b, respectively. Time-series graphs of TN from San Sevaine Basin 2 lysimeters and monitoring wells are presented on Figure 4-3a and Figure 4-3b, respectively. In the upper part of all the time-series graphs, horizontal series denote periods when various sources of water were routed into San Sevaine Basins 1 and 2. While time-series graphs and tabularized data are presented in this section, they are interpreted and discussed in Section 5 (Soil-Aquifer Treatment Efficiency) and Section 6 (Start-Up Period).

The EC measured from the surface water at Basin 2 ranged between 700 to 900 µmhos/cm during the Start-Up Period (Figure 4-1a). Due to limitations of sample volume collection, there are less than 5 EC data points measured for the 5- and 10-foot lysimeters and limited EC values for the 15- and 20-foot lysimeters. The EC of water measured for the 15- and 20-foot lysimeters ranged between 670 to 870 µmhos/cm. The EC of water measured for the 25- and 30-foot lysimeters, before failing, was also relatively consistent (ranging between 650 to 870 µmhos/cm).

The detection limits for nitrate, nitrite, and TKN are 0.1 mg/L, 0.05 mg/L and 0.5 mg/L, respectively. The TN sample results that are non-detect are averaged and graphed at half the detection limit (detection lime is 0/6 mg/L) on Figure 4-3. When the results of some of the nitrogen species are detected and the sum of their concentrations is less than 0.6 mg/L but greater than 0.3 mg/L, TN is reported as <0.6 mg/L but are averaged and graphed on Figures 4-3 with the summed value. When there is insufficient sample to analyze for TKN, NH_3-N is substituted for TKN into the calculation of TN. This is done as the other components of TKN (e.g., organic nitrogen and NH_3-N) are typically removed during the wastewater treatment process. If there is insufficient sample volume following the collection of the TOC sample for NO_3-N, TKN, or NH_3-N analysis, then TN is not calculated.

4.2 Recharge Travel Times

The travel time for recharge water to reach the various sample depths is key to the evaluation of the start-up period data and development of future monitoring protocols. Surface water travel times to the lysimeters were evaluated to identify offset times for the pairing of surface and lysimeter data. The paired data are then used to estimate SAT efficiencies. Travel time data are also important for the development of monitoring plans such that the collected lysimeter or monitoring well samples can be referenced to a prior surface water sample. Travel times along recharge flow paths were estimated by comparison of EC time-series variations of surface water and of water at the lysimeter and monitoring well.

Exact matching of water parameter concentrations is not always possible due to many reasons, including but not limited to the following:

- Daily recharge volumes over the study period are not constant, resulting in variations in surface water depth and percent water saturation of underlying soils.
- Recharge waters blend with water already in the soil which can mute chemical changes from correlative changes from the recharged water.
- Seasonal water quality changes (such as in EC) in background groundwater at monitoring wells can be more significant than changes in the vadose zone using the overlying lysimeters.
- Lysimeter failures to provide samples can leave gaps in the data set.

The initial arrival of recharged water at groundwater can be indicated by initial changes in a chemical parameter at a mound well and can approximate the quickest travel time, but the peak arrival may be delayed and be a more suitable event for purposes of sample comparison. While intrinsic parameters such as EC can be used to conservatively estimate travel times, the parameters TOC and TN are not suitable tracers, because their concentrations change through SAT as they travel through the soil. Chloride is intrinsically present in recycled water above storm water and native groundwater. While not analyzed from lysimeter samples, Chloride was sampled in the monitoring wells and was used as an intrinsic tracer for recycled water arrival.

4.2.1 Lysimeter Monitoring

Recharge travel times from the basin surface to the various depth lysimeters can typically be estimated by observation of delays in transition from lower EC diluent (storm) water to higher EC of recycled water. The travel time estimates can vary throughout the start-up period depending on changes in basin operation, basin soil conditions, and sediment saturation. Evaluation of the lysimeter EC data shows that most of the lysimeters responded to changes in source water being recharged in the San Sevaine Basin 2**.** While operable when first constructed, the 5- and 10-foot lysimeters were not operable during the Start-Up Period. The 15- and 20-foot lysimeters had an intermittent inability to provide water and were operational for about 40% of the Start-Up Period. The 25- and 30-foot lysimeters failed after about seven months of sampling. Despite sampling failures, weekly sampling attempts continued. In September 2021, it was decided that sampling attempts change from weekly to biweekly during the Start-Up Period. Evaluation of the exposed components of the lysimeters could not resolve the sampling failures.

From the correlation of the limited EC change observations, general travel times to each lysimeter depth can only be approximated. However, it was difficult to effectively trace recycled water using the lysimeters due to the intermittent ability to sample several lysimeters throughout the start-up period. Travel times to the 5- and 10-foot lysimeters could not be tracked due to the inability of these lysimeters to provide water. Approximate travel times were estimated by tracking changes in EC trends (shown on Figure 4-2a) following the storm event of December 28, 2020. Using the available data, approximate travel times to 15-, 20- 25- and 30-foot lysimeter are estimated to be 7 to 14 days. However, due to the minimal storm events and insufficient lysimeter data, it is difficult to conclude more precise travel time to each depth.

4.2.2 Well Monitoring

Monitoring wells SSV-2 and Unitex 91090 were sampled monthly during the start-up period. Mound monitoring well, SSV-2, is located southeast of the San Sevaine Basin 2 on the basin's perimeter road. Intermediate monitoring well, Unitex 91090, is located roughly 1,850-ft south-southeast of SSV-2.

Monitoring travel time to a monitoring well can often be characterized by changes in intrinsic water quality parameters of the recharge water, such as EC. Figure 4-1b is a time-series graph of EC of both San Sevaine Basin monitoring wells, and for comparison also shows the EC of San Sevaine Basin 2 surface water and lysimeters at all depths. The EC data for SSV-2 and Unitex 91090 are listed in Table 4-5 and Table 4-6, respectively. The EC of groundwater at monitoring well SSV-2 prior to the start of recycled water recharge ranged between 270 to 490 µmhos/cm. The EC of groundwater at Unitex 91090 prior to the start of recycled water recharge ranged between 370 to 450 µmhos/cm. Recycled water delivered to San Sevaine Basins 1 and 2 generally ranged from 730 to 900 µmhos/cm. Following initiation of recycled water recharge at Basin 2, a notable rise in EC and chloride above background concentration was observed at 4.9 months in mound monitoring well SSV-2 indicating the approximate recharge travel time to the well. There has been no observable change in the groundwater EC and chloride at nearby Unitex 91090 after 13.6 months of recycled water recharge indicating recycled water recharge has not reached Unitex 91090 during the start-up period.

TOC and TN time-series trends for SSV-2 and Unitex 91090 are shown on Figure 4-2b and Figure 4-3b, respectively. For comparison, both figures also include data from San Sevaine Basin 2 surface water. Trending of groundwater TOC and TN at Unitex 91090 indicate no significant changes above background concentrations during the 14-month long start-up period. Due to its distance from the recharge activity, recycled water arrival was not expected at Unitex 91090 during the start-up period. The arrival and presence of recycled water at the Unitex 91090 well was not indicated by changes in EC concentration. For SSV-2, recycled water has had a continued presence for nearly 9 months after its first arrival_without no notable increases in TOC. However, after arrival 9-month long gradual increase in TN was measured from about 1.0 to 3.5 mg/L. These data support the occurrence of full removal of recycled water TOC and a slight increase in TN above the background level after 14 months of recharge water.

5. Soil-Aquifer Treatment Efficiency: TOC & TN Removal

Soil-Aquifer Treatment (SAT) is a natural biodegradation process occurring beneath a recharge basin as recharge water flows through shallow soil where TOC and TN concentrations are reduced. As allowed in Order R8-2007-0039, demonstrated SAT reduction of TOC concentration can be a significant influence on the RWC limit based on the formula:

$$TOC_{average} = \frac{0.5mg/L}{RWC_{average}}$$

Figure 5-1 is a graph of the average TOC and TN concentrations as a function of increasing depth at San Sevaine Basin 2. Data for this graph come from the average data at the bottom of Table 4-2 and Table 4-4. The surface water grab sample is represented by the 00-foot depth, while the other depths correspond to the lysimeter depths, in feet. Monthly mound monitoring well samples during this period had TOC values generally between non-detect and 0.6 mg/L. Monthly mound monitoring well samples during this period had TN values generally less than 3.0 mg/L. The TN values evaluated at SSV-2 are consistently less than the compliance limit of 10 mg/L.

Figure 4-2b and Figure 4-3a are time-series graphs of TOC and TN, respectively, from the San Sevaine Basin 2 surface water, lysimeter and monitoring well samples. Data for these figures are found in Table 4-2 and Table 4-4, respectively. In the upper part of these time-series graphs are horizontal bars denote periods when various sources of water were diverted into San Sevaine Basins 1 and 2.

Due to the sample collection issues at the lysimeters, the lysimeters could not be used to evaluate SAT. However, the mound monitoring well SSV-2 provided very good data for an SAT evaluation. SAT removal efficiencies were estimated for recycled water arriving at the monitoring well. Based on the end member EC concentrations (ranging between 330-360 µmhos/cm for groundwater background and ranging between 760-780 µmhos/cm for recycled water recharge), the maximum recycled water percentage reached at SSV-2 is estimated to was approximately 75% (ranging between 650-690 µmhos/cm).

A comparison was made of average of surface water TOC and TN and average monitoring well TOC and TN once a time offset had been made for the observed travel time. Table 5-1 lists the TOC and TN SAT removal efficiency and the data used to estimate them. These data are from the key recharge events used to track travel time to SSV-2 and the 20-week average TOC and TN values.

Due to lysimeter failures, there is insufficient data to determine a definitive average of 20 weekly samples. Instead, a 20-week sample average was calculated using the surface water and SSV-2. However, the 20-week sample average TOC and TN of SSV-2 includes less than 20 samples since samples were collected monthly. The 20-week sample average TOC and TN of SSV-2 will be calculated using the last 4.9 months (February 2021 through September 2021) of the Start-Up Period. The 20-week sample average TOC and TN of the surface water were calculated using the 4.9-month travel time offset (September 2020 through April 2021) of recharge to SSV-2. **As**

shown in Table 5-1, the 20-week sample average SAT removal efficiencies for TOC was 92% with a 20-week sample TOC average was 0.57 mg/L.

Figure 4-3b is a time-series graph of TN from San Sevaine Basin 2 surface water, lysimeter and monitoring well samples. Data for lysimeters and monitoring well in this figure are found in Table 4-4 and Table 4-5, respectively. While TN concentration reduction through SAT does not increase the volume of recycled water that can be recharged under Order R8-2007-0039, it does assist in consistently meeting the TN compliance limit of 10 mg/L. Monthly SSV-2 TN samples were less than the compliance limit of 10 mg/L. These data were used to estimate TN removal by SAT of recharge traveling to groundwater. **As shown in the bottom of Table 5-1, the 20-week sample running average SAT removal efficiencies for TN at the monitoring well was 34% with a 20-week sample TN average is 2.93 mg/L.**

6. Start-Up Period

6.1 Determination of the Start-Up Period

Order R8-2007-0039 establishes a start-up period for each recharge basin in the Chino Basin Recycled Water Groundwater Recharge Program (Finding 11, page 4):

> . . . a Start-Up Period will be used at the outset of recycled water recharge operations. The purposes of each Start-Up Period are to establish site characteristics, including percolation rates, the physical characteristics of the vadose zone and soil aquifer treatment efficiency, and to establish a sampling regime, based on these characteristics, that is representative of recycled water following soil aquifer treatment. The length of the Start-Up Period at each basin will be contingent on site characteristics, including percolation rates and recycled water transit time in the subsurface. The Start-up Period shall last up to 180 days following commencement of recharge of recycled water to each basin, except if recharge of recycled water at that basin is significantly interrupted, for example due to storm event(s). . . . This Order requires IEUA to submit for CDHS [sic, now CDPH] and Regional Board approval a proposed Start-Up Period protocol at least two weeks prior to beginning each Start-Up Period. A Start–Up Period report will be prepared at the close of each Start-Up Period and will include recommendations for the optimum depths and locations for placement of lysimeters that will be used to measure compliance, and for a compliance-monitoring program. The report will also include recommendations for the maximum running monthly average Recycled Water Contribution and maximum running average Total Organic Carbon (TOC) limit for the initial year of recharge operations following the Start-Up Period.

The start-up period for each basin will be long enough to demonstrate effective TOC removal. As long as TOC concentrations continue to decline over time, the basin is still deemed to be in the start-up period, up to 180 days unless interrupted.

Recycled water recharge for the modified start-up period for San Sevaine Basins began on August 4, 2020 and ended September 21, 2021. At that time, sufficient data had been collected to prepare this report. During the start-up period, periodic small-volume storm events occurred between November 2020 through March 2021. While the storms did not disrupt the recharge of recycled water, they did provide minor opportunities (difference in EC) to evaluate travel times to the various lysimeter depths. Diluent water was not available prior to the start-up period, which would have allowed such estimates at the beginning of the start-up period. The start-up period was extended beyond 180 days to allow for a peak arrival of recycled water at SSV-2 and possible arrival at Unitex 91090 within one year plus 2 months to allow for a possible uncertainty due to the precision of the 1-month sampling frequency.

6.2 Compliance Point Selection

Due to poor results and limited sample volume from the lysimeters, the monitoring well SSV-2 was selected to be the compliance point. This selection is supported by the arrival of recycled water at the well site after 4.9 months.

6.3 Alternative Monitoring Plan

Section B.6 of Order R8-2007-0039 allows either lysimeter monitoring or an "alternative-monitoring plan" be used to demonstrate both SAT performance and compliance with requirements of the order. The compliance point may be any point prior to groundwater that is predominately recycled water. Order R8-2007-0039 states in Section B6:

> . . . An alternative-monitoring plan may be approved upon submission of sampling results that demonstrate that an equal level of public health protection is achieved. (See also Provision G.8 and G.9.) Upon development of a soil-aquifer treatment factor using recharge demonstration studies, lysimeter based compliance monitoring may be replaced with recycled water measurements leaving the treatment plant and the application of the treatment factor with prior approval by the CDHS[sic] and the Regional Board Executive Officer.

An alternative monitoring plan for the San Sevaine Basins is needed, in part, due to poor sample volume limitation at all the lysimeters. IEUA and CBWM therefore propose an alternative sampling plan for monitoring recycled water recharge at the San Sevaine Basins. As discussed in Section 5, the SAT is quite effective at -SSV2. For the alternative monitoring plan, a longer sampling interval than the typical weekly frequency is proposed due to the 4.9-month travel time to the well screen (350-fee bgs). **As an alternative monitoring plan, it is recommended to conduct monthly sampling of San Sevaine Basins surface water and mound monitoring well SSV-2. After one year of the alternative monitoring plan confirming the SAT removal efficiencies, the SAT removal efficiency conversions for both TOC and TN (at this time 92% and 34%, respectively) will be used on recycled water pipeline samples for RWC compliance purposes. The one-year monitoring period will be from October 2021 to September 2022.**

6.4 Maximum RWC Determination

The maximum RWC is determined as specified within Order R8-2007-0039. Finding 12 of the Order states:

> This Order does not establish maximum average recycled water contributions (RWC) at each basin, but requires the users to determine the maximum average RWC through the Start-Up Period for each recharge basin. The determined RWC must be approved by CDHS [sic, now CDPH] and the Regional Board.

Recycled Water Quality Specification Section A.10 states,

> At each recharge basin, the monthly average TOC concentration of the recycled water prior to reaching the regional groundwater table shall not exceed the average TOC value calculated from the following formula:
>
> TOCaverage = 0.5 mg/L ÷ RWCaverage

Section B.6 of Order R8-2007-0039 states:

> Compliance with average TOC concentration limits specified in Recycled Water Quality Specifications A.11., above, shall be determined based on a lysimeter-based monitoring program performed at each individual recharge basin and allowing for recycled water percolation to the lysimeters to demonstrate soil aquifer treatment efficiency, unless recycled water TOC compliance can be demonstrated prior to recharge. Compliance shall be based on the running average of the most recent 20 lysimeter sample test results representative of recycled water samples.

The 20-week sample average TOC concentration for SSV-2 is calculated using TOC concentration for the last five months of the startup period and coincides with recycled water being present. As shown in Table 5-1, **the 20-week sample average TOC concentration at SSV-2 is <0.50 mg/L. The maximum RWC limit for San Sevaine Basin 2 is calculated at 100% but is limited to the maximum allowable RWC limit of 50%.** California Groundwater Recharge Regulations and Order R8-2007-0039 limit maximum RWC to 50% for recycled water produced by tertiary treatment that is subsequently used for recharge by surface spreading.

7. RWC Management Plan

RWC management is needed to keep a basin's volume-based RWC within the maximum RWC limit determined by the 20-sample running average TOC. A basin's volume-based RWC is determined by a 120-month running average ratio of recycled water volume to total recharge volume. Total recharge volume is the combined recharge volume from all sources including storm water, local runoff, groundwater underflow, imported water, and recycled water. Per Order R8-2009-0057, during the start-up period and up to 120-months after initiation of recycled water recharge, the volume-based RWC may exceed the maximum RWC limit but must be within the limit by month 120.

Order R8-2009-0057, Section F.20

> The Discharger shall submit a RWC Management Plan to the CDPH and the Regional Board that includes estimates of future average RWCs based on anticipated recharge operations over the first 120 months of recycled water recharge at each recharge site. The RWC Management Plan shall be submitted with the Start-Up Period Report and updated with IEUA's annual report to the Regional Board during the first 120-months and shall clearly identify the plan to achieve compliance with the maximum recycled water contribution by the 120th month at each recharge site. IEUA shall update the basin-specific RWC plans annually to reflect the estimated diluent water and recycled water contributions for the upcoming year. For the purpose of the diluent water projections, implementation of a weighted averaging should be considered when it is known that imported water supplies will not be available for purposes of recharging the aquifer. The underflow of the Chino Basin aquifer may be used as a source of diluent water. CDPH may consider crediting a fraction of the flow as diluent water, which would be dependent on the accuracy of the method used to measure the flow, its distribution, and the ability to meet the other diluent water criteria in the draft regulation.

An RWC Management Plan is developed for a recharge site by preparing a history of past recharge and then determining future recharge that will keep the volume-based RWC within the maximum RWC limit. Future recharge must be estimated. Future diluent water is estimated based on past availability of the various sources of diluent water and is expressed as monthly averages for the recharge site's historical recharge. Recycled water recharge is then added to the plan at regular intervals to keep the RWC in compliance. The RWC generally has five distinct time periods: 1) Historical Diluent, 2) Start-Up Period, 3) Short-Term Compliance, 4) Start-Up Period Roll Off, and 5) Long-Term Stability.

Historical Diluent Recharge is that period of diluent water recharge prior to initiation of recharge using recycled water. Start-Up Period Recharge is the approximately 6 months of predominately recycled water recharge during the start-up period when a rapid rise in the volume-based RWC may occur. Short-Term Compliance (Interval 3) is the period when the volume-based RWC is brought to within the RWC compliance limit by month 120. Start-Up Period Roll Off (Interval 4) is an approximately 6-month long period when the recharge for the start-up period drops off from the running-average RWC and is characterized by a potentially rapid decrease in the volume-based RWC. Long-Term Stability (Interval 5) is the period after the first 120 months of recharge using recycled water when a long-term average diluent water history is available and recycled water deliveries can be regularly scheduled to maintain RWC limit compliance. Intervals 3, 4, and 5 had the potential for more rapid changes in RWC until the 2009 permit amendment (Regional Water Quality Control Board, 2009) lessened that potential by allowing underflow as diluent water and a 120-month RWC calculation.

An updated RWC Management Plan for San Sevaine Basins is presented in Table 7-1 and graphed on Figure 7-1. The first 60 months of historical data are shown on Figure 7-1. The historical data are shown as dark colored solid lines and dark filled symbols while the 120 months of planned deliveries are shown as solid lines and symbols of a similar, yet lighter color. While an RWC calculation is provided starting on the first month of recycled water recharge, the RWC compliance will not be enforced until after 120 months (10 years) of recycled water recharge operations. For the purposes of the modified startup RWC tracking, month 1 of recycled water recharge was moved from the beginning of the original start-up period (October 2010) to the beginning of the modified start-up period (August 2020), nearly a 10-year difference.

The San Sevaine Basins RWC Management Plan will be updated in each Annual Report of the Recycled Water Groundwater Recharge Program to show actual recharge and revised planned deliveries. As of October 2021, the volume ratio of recycled water to all recharge (volume-based RWC) was 12% and is less than the proposed 50% maximum RWC for San Sevaine Basins. With the forecast assumptions made here, 120 months after initiation of the modified Start Up Period (July 2030), the RWC for the San Sevaine Basin site is forecasted to be 38%.

The RWC Management Plan is conservative with respect to planned recharge of imported water, storm water and recycled water sources. Due to the unpredictability of imported water availability, none is forecast for planned recharge, but will be listed as actual recharge once it occurs. Forecast storm water and dry weather recharge are based on historical average monthly storm water recharge at the site since the inception of the recharge program in 2005. Recycled water delivery is then forecast over storm water up to the basin's recharge capacity and if needed lowered should the forecasted RWC exceed the RWC limit. Lowering of the recycled water forecasting was not needed for the San Sevaine RWC Management Plan. With these assumptions, the forecasted actual RWC (recharge volume based) is conservatively high until actual source water recharge occurs.

The San Sevaine Basins RWC Management Plan incorporates groundwater underflow as diluent water. Underflow was first used in October 2009 when the recharge permit was amended to allow its use. The groundwater underflow of San Sevaine Basins site is also the underflow for the down gradient Victoria Basin. There are no production wells in between these two sites that would remove underflow from reaching the more downgradient site. An expert panel found IEUA's method of estimating underflow (a Darcian calculation) to be reasonable (National Water Research Institute, 2010). IEUA estimated underflow of both sites to be 3,335 AF per year (278 AF/month) in the upper aquifer).

Groundwater underflow common to Victoria and San Sevaine Basins was initially divided evenly for tracking each basin's RWC in the 2010 Annual Report for the Chino Basin Recycled Water Groundwater Recharge Program (IEUA and CBWM, 2010). After January 2017, underflow was used in whole for both sites at 278 AF/month credit. For San Sevaine and Victoria basins which share the flow path of groundwater underflow, the underflow volume is used in whole for both basins as the travel time between these two sites exceeds that required regulated time of recycled water recharge to drinking water wells, and thus any upstream blend of recharge has become groundwater again upon reaching the downstream basin. San Sevaine and Victoria share a common underflow as do the program's RP3 and Declez Basins.

8. Initial Year Monitoring Plan

The start-up period reporting requirements include an initial year monitoring plan to verify the longer-term concentrations and SAT removal efficiencies for TOC and TN. As discussed in the prior sections, the running average TOC was 0.57 mg/L having been reduced by 92% from surface water TOC through SAT by the time recharge arrived at the 350-foot depth of groundwater at monitoring well SSV-2. Similarly, the running average TN as 2.93 mg/L having been reduced by 34%.

Due to insufficient data and operational failure of the lysimeters during the start-up period, it is recommended that **the initial year monitoring plan consist of monthly sampling of TOC, TN, and EC from the basin surface water and mound monitoring well SSV-2**. Following the initial year monitoring plan, sampling will continue quarterly. **Following confirmation of SAT performance during the initial year of monitoring, it is recommended that the monthly well monitoring be discontinued with continued monitoring of the recycled water from the delivery pipeline**.

The SAT removal efficiency used in the alternative monitoring plan are consistent with the existing alternative monitoring plans for Turner, Ely Basins, Victoria, 8th Street, Brooks, and RP3 Basins, wherein SAT removal efficiencies are applied to pipeline samples based on SAT removal efficiency for removal of TOC and TN calculated during their respective start-up periods. The initial year of operation is defined herein to be the 365 days beginning with the recycled water recharge following submission of the Start-Up Period Report.

The pipeline sampling location will be the DDW-approved sample location at the RP-4 1299 Pressure Zone Pump Station (RW Blend). The sampling point has been used for quarterly and annual sampling for the past several years and is a common sampling location for other IEUA recharge basin's alternate monitoring plans. The delivery pipeline at the RP-4 sample location generally has daily recycled water flow and typically contains a blend of recycled water from both IEUA's Regional Plant No. 1 and Regional Plant No. 4.

9. References

California Regional Water Quality Control Board, Santa Ana Region. 2005. Order No. R8-2005-0033, Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster, Phase 1 Chino Basin Recycled Water Groundwater Recharge Project, San Bernardino County, April 15, 2005.

California Regional Water Quality Control Board, Santa Ana Region, 2007a, 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, June 29, 2007.

California Regional Water Quality Control Board, Santa Ana Region, 2007b, 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.

California Regional Water Quality Control Board, Santa Ana Region, 2009, Order No. R8-2009-0057, Amending 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, October 23, 2009.

CH2MHill, 2003, Phase I Chino Basin Recycled Water Groundwater Recharge Project Title 22 Engineering Report, November 2003.

IEUA, 2010, Start-Up Protocol Plan for San Sevaine Basins (San Sevaine 5), May 27, 2010.

IEUA and CBWM, 2010, Chino Basin Recycled Water Groundwater Recharge Program, 2009 Annual Report, May 1, 2010.

National Water Resources Institute, 2010, Final Report of the February 8-9, 2010, Meeting of the Independent Advisory Panel, for the Inland Empire Utilities Agency's Groundwater Recharge Permit Amendment, April 14, 2010.

Wildermuth Environmental, Inc., 1999, Chino Basin Optimum Basin Management Program, Phase 1 Report, Prepared for the Chino Basin Watermaster, 1999.

TABLES

Table 3-1
San Sevaine Basins
Historical Diluent Water Direct Recharge
(acre-feet)

Fiscal Year	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2005/06	435	213	558	575	1,142	986	968	1,124	964	1,187	1,386	949	10,487
2006/07	15	1,030	1,006	1,011	565	1,019	936	342	5	3	31	30	5,994
2007/08	0	0	2	6	37	75	553	29	0	0	47	0	749
2008/09	0	0	0	0	8	86	16	107	8	0	0	0	225
2009/10	0	0	0	56	21	334	290	223	16	53	0	0	993
2010/11	0	0	139	234	220	722	152	282	204	139	144	139	2,375
2011/12	0	0	0	39	32	20	55	54	160	76	0	0	436
2012/13	0	1	0	1	14	79	21	9	13	5	4	0	147
2013/14	0	0	0	11	39	6	0	69	20	17	0	0	162
2014/15	0	6	1	0	18	247	(6) *	39	2	0	17	0	324
2015/16	9	0	53	47	1	80	244	33	88	29	1	0	585
2016/17	0	0	0	16	12	156	488	93	3	1	16	0	785
2017/18	0	48	0	0	0	0	104	21	128	0	4	0	305
2018/19	2	0	0	7	31	45	318	429	313	0	25	0	1,170
2019/20	0	0	0	0	155	211	31	8	254	363	3	0	1,025
2020/21	0	0	0	0	55	161	143	24	61	0	0	0	444
2021/22	6	0	0	7									

Notes:

1) Table 3-1 does not list the groundwater underflow volume credited for diluent water. It does include imported water deliveries.
2) Table 7-1 contains a breakdown of diluent water recharge including storm water, imported water, and groundwater underflow.
*) During January 2015, water that was captured in the prior month was drained out of San Sevaine 5 to another recharge site. Thus that transfer of water out produces a negative value for January for the San Sevaine Basins as January had relatively less storm water inflow.

Table 3-2
San Sevaine Basins: Historical Monthly Water Deliveries and RWC

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
2013/14	Jul '13	-84	0.	0.	139.	139.	29,185	0.	1,484	30,669	5%	HISTORICAL
	Aug '13	-83	0.	0.	139.	139.	29,324	0.	1,484	30,808	5%	
	Sep '13	-82	0.	0.	139.	139.	29,463	154.	1,638	31,101	5%	
	Oct '13	-81	11.	0.	139.	150.	29,613	69.	1,707	31,320	5%	
	Nov '13	-80	39.	0.	139.	178.	29,791	9.	1,716	31,507	5%	
	Dec '13	-79	6.	0.	139.	145.	29,936	0.	1,716	31,652	5%	
	Jan '14	-78	0.	0.	139.	139.	30,075	12.	1,728	31,803	5%	
	Feb '14	-77	69.	0.	139.	208.	30,283	16.	1,744	32,027	5%	
	Mar '14	-76	20.	0.	139.	159.	30,442	0.	1,744	32,186	5%	
	Apr '14	-75	17.	0.	139.	156.	30,598	2.	1,746	32,344	5%	
	May '14	-74	0.	0.	139.	139.	30,737	12.	1,758	32,495	5%	
	Jun '14	-73	0.	0.	139.	139.	30,875	0.	1,758	32,633	5%	
2014/15	Jul '14	-72	0.	0.	139	139	31,014	0	1,758	32,772	5%	
	Aug '14	-71	6	0.	139	145	31,159	0	1,758	32,917	5%	
	Sep '14	-70	1	0	139	140	31,299	1	1,759	33,058	5%	
	Oct '14	-69	0	0	139	139	31,438	0	1,759	33,197	5%	
	Nov '14	-68	18	0	139	157	31,595	0	1,759	33,354	5%	
	Dec '14	-67	247	0	139	386	31,981	0	1,759	33,740	5%	
	Jan '15	-66	(6)	0	139	133	32,114	0	1,759	33,873	5%	
	Feb '15	-65	39	0	139	178	32,292	0	1,759	34,051	5%	
	Mar '15	-64	2	0	139	141	32,433	0	1,759	34,192	5%	
	Apr '15	-63	0	0	139	139	32,572	0	1,759	34,331	5%	
	May '15	-62	17	0	139	156	32,334	0	1,759	34,093	5%	
	Jun '15	-61	0	0	139	139	31,282	0	1,759	33,041	5%	
2015/16	Jul '15	-60	9	0	139	148	30,995	0	1,759	32,754	5%	
	Aug '15	-59	0	0	139	139	30,921	0	1,759	32,680	5%	
	Sep '15	-58	53	0	139	192	30,555	0	1,759	32,314	5%	
	Oct '15	-57	47	0	139	186	30,166	0	1,759	31,925	6%	
	Nov '15	-56	1	0	139	140	29,164	0	1,759	30,923	6%	
	Dec '15	-55	80	0	139	219	28,396	0	1,759	30,155	6%	
	Jan '16	-54	244	0	139	383	27,811	0	1,759	29,570	6%	
	Feb '16	-53	33	0	139	172	26,859	0	1,759	28,618	6%	
	Mar '16	-52	88	0	139	227	26,122	0	1,759	27,881	6%	
	Apr '16	-51	29	0	139	168	25,103	0	1,759	26,862	7%	
	May '16	-50	1	0	139	140	23,857	0	1,759	25,616	7%	
	Jun '16	-49	0	0	139	139	23,047	0	1,759	24,806	7%	
2016/17	Jul '16	-48	0	0	139	139	23,171	0	1,759	24,930	7%	
	Aug '16	-47	0	0	139	139	22,280	0	1,759	24,039	7%	
	Sep '16	-46	0	0	139	139	21,413	0	1,759	23,172	8%	
	Oct '16	-45	16	0	139	155	20,557	0	1,759	22,316	8%	
	Nov '16	-44	12	14	139	165	20,157	0	1,759	21,916	8%	
	Dec '16	-43	156	0	139	295	19,433	0	1,759	21,192	8%	
	Jan '17	-42	488	0	139	627	19,123	0	1,759	20,882	8%	
	Feb '17	-41	93	0	278	371	19,152	0	1,759	20,911	8%	
	Mar '17	-40	3	0	278	281	19,428	0	1,759	21,187	8%	
	Apr '17	-39	1	0	278	279	19,704	0	1,759	21,463	8%	
	May '17	-38	16	0	278	294	19,967	0	1,759	21,726	8%	
	Jun '17	-37	0	526	278	804	20,741	0	1,759	22,500	8%	
2017/18	Jul '17	-36	0	567	278	845	21,585	0	1,759	23,344	8%	
	Aug '17	-35	48	117	278	443	22,028	0	1,759	23,787	7%	
	Sep '17	-34	0	151	278	429	22,454	0	1,759	24,213	7%	
	Oct '17	-33	0	503	278	781	23,229	0	1,759	24,988	7%	
	Nov '17	-32	0	54	278	332	23,524	0	1,759	25,283	7%	
	Dec '17	-31	0	1104	278	1382	24,831	0	1,759	26,590	7%	
	Jan '18	-30	104	893	278	1275	25,553	0	1,759	27,312	6%	
	Feb '18	-29	21	0	278	299	25,823	0	1,759	27,582	6%	
	Mar '18	-28	128	0	278	405	26,228	0	1,759	27,987	6%	
	Apr '18	-27	0	0	278	278	26,506	0	1,759	28,265	6%	
	May '18	-26	4	0	278	282	26,741	0	1,759	28,500	6%	
	Jun '18	-25	0	0	278	278	27,019	0	1,759	28,778	6%	

Table 3-2
San Sevaine Basins: Historical Monthly Water Deliveries and RWC

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
2018/19	Jul '18	-24	2	0	278	280	27,299	0	1,759	29,058	6%	
	Aug '18	-23	0	0	278	278	27,577	0	1,759	29,336	6%	
	Sep '18	-22	0	0	278	278	27,855	0	1,759	29,614	6%	
	Oct '18	-21	7	0	278	285	28,140	0	1,759	29,899	6%	
	Nov '18	-20	31	0	278	309	28,441	0	1,759	30,200	6%	
	Dec '18	-19	45	0	278	323	28,678	0	1,759	30,437	6%	
	Jan '19	-18	318	0	278	596	29,258	0	1,759	31,017	6%	
	Feb '19	-17	429	0	278	706	29,858	0	1,759	31,617	6%	
	Mar '19	-16	313	0	278	591	30,440	0	1,759	32,199	5%	
	Apr '19	-15	0	0	278	278	30,718	0	1,759	32,477	5%	
	May '19	-14	25	0	278	303	31,021	0	1,759	32,780	5%	
	Jun '19	-13	0	857	278	1134	32,156	0	1,759	33,915	5%	
2019/20	Jul '19	-12	0	766	278	1044	33,200	0	1,759	34,959	5%	
	Aug '19	-11	0	597	278	875	34,075	0	1,759	35,834	5%	
	Sep '19	-10	0	117	278	395	34,469	0	1,759	36,228	5%	
	Oct '19	-9	0	0	278	278	34,691	0	1,759	36,450	5%	
	Nov '19	-8	155	113	278	546	35,216	0	1,759	36,975	5%	
	Dec '19	-7	211	32	278	520	35,403	0	1,759	37,162	5%	
	Jan '20	-6	31	52	278	361	35,474	0	1,759	37,233	5%	
	Feb '20	-5	8	0	278	286	35,537	0	1,759	37,296	5%	
	Mar '20	-4	254	0	278	532	36,053	0	1,759	37,812	5%	
	Apr '20	-3	363	0	278	640	36,640	0	1,759	38,399	5%	
	May '20	-2	3	0	278	281	36,921	0	1,759	38,680	5%	
	Jun '20	-1	0	0	278	278	37,199	0	1,759	38,958	5%	
2020/21	Jul '20	0	0	0	278	278	37,477	0	1,709	39,186	4%	
	Aug '20	1	0	0	278	278	37,755	267	1,932	39,687	5%	START-UP
	Sep '20	2	0	0	278	278	38,033	201	2,091	40,123	5%	
	Oct '20	3	0	0	278	278	38,216	260	2,278	40,494	6%	
	Nov '20	4	55	0	278	333	38,329	290	2,555	40,883	6%	
	Dec '20	5	161	0	278	439	38,052	211	2,734	40,786	7%	
	Jan '21	6	143	0	278	421	38,320	133	2,795	41,116	7%	
	Feb '21	7	24	0	278	302	38,341	221	3,016	41,357	7%	
	Mar '21	8	61	0	278	339	38,408	202	3,218	41,626	8%	
	Apr '21	9	0	0	278	278	38,547	275	3,493	42,040	8%	
	May '21	10	0	0	278	278	38,141	247	3,704	41,845	9%	
	Jun '21	11	0	0	278	278	37,111	325	3,995	41,105	10%	
2021/22	Jul '21	12	6	0	278	283	36,244	316	4,197	40,442	10%	
	Aug '21	13	0	0	278	278	36,372	329	4,436	40,808	11%	
	Sep '21	14	0	0	278	278	36,306	141	4,577	40,883	11%	
	Oct '21	15	7	0	278	285	36,412	230	4,807	41,219	12%	

Notes:

DW = Diluent Water; Total DW is the sum of Storm Water & 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
The RWC maximum determined from the Start-Up Period is discussed in Section 6.4.

Table 3-3
San Sevaine Basins
Daily Deliveries During the Start-Up Period to Basin 1, 2 & 3

Date	Diluent Water (AF) [1]				Recycled Water		
	Import	Storm (Basins 1, 2 & 3)	Storm (Basin 5)	Total	Basin 1 (AF)	Basin 2 (AF)	Basin 3 (AF)
08/01/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08/02/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08/03/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08/04/20	0.0	0.0	0.0	0.0	0.0	3.7	0.0
08/05/20	0.0	0.0	0.0	0.0	0.0	6.7	0.0
08/06/20	0.0	0.0	0.0	0.0	0.0	2.9	0.0
08/07/20	0.0	0.0	0.0	0.0	0.0	9.9	0.0
08/08/20	0.0	0.0	0.0	0.0	0.0	9.8	0.0
08/09/20	0.0	0.0	0.0	0.0	0.0	7.8	0.0
08/10/20	0.0	0.0	0.0	0.0	0.0	3.2	0.0
08/11/20	0.0	0.0	0.0	0.0	0.0	0.2	0.0
08/12/20	0.0	0.0	0.0	0.0	0.0	10.3	0.0
08/13/20	0.0	0.0	0.0	0.0	0.0	20.0	0.0
08/14/20	0.0	0.0	0.0	0.0	0.0	10.3	0.0
08/15/20	0.0	0.0	0.0	0.0	0.0	10.3	0.0
08/16/20	0.0	0.0	0.0	0.0	0.0	10.3	0.0
08/17/20	0.0	0.0	0.0	0.0	0.0	8.2	0.0
08/18/20	0.0	0.0	0.0	0.0	0.0	12.3	0.0
08/19/20	0.0	0.0	0.0	0.0	0.0	14.0	0.0
08/20/20	0.0	0.0	0.0	0.0	0.0	4.5	0.0
08/21/20	0.0	0.0	0.0	0.0	0.0	12.4	0.0
08/22/20	0.0	0.0	0.0	0.0	0.0	12.3	0.0
08/23/20	0.0	0.0	0.0	0.0	0.0	12.4	0.0
08/24/20	0.0	0.0	0.0	0.0	0.0	12.4	0.0
08/25/20	0.0	0.0	0.0	0.0	0.0	12.3	0.0
08/26/20	0.0	0.0	0.0	0.0	0.0	12.3	0.0
08/27/20	0.0	0.0	0.0	0.0	0.0	12.4	0.0
08/28/20	0.0	0.0	0.0	0.0	0.0	12.3	0.0
08/29/20	0.0	0.0	0.0	0.0	0.0	12.9	0.0
08/30/20	0.0	0.0	0.0	0.0	0.0	12.4	0.0
08/31/20	0.0	0.0	0.0	0.0	0.0	9.8	0.0
09/01/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/02/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/03/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
09/04/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/05/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/06/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/07/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
09/08/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
09/09/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/10/20	0.0	0.0	0.0	0.0	0.0	7.3	0.0
09/11/20	0.0	0.0	0.0	0.0	0.0	6.4	0.0
09/12/20	0.0	0.0	0.0	0.0	0.0	6.3	0.0
09/13/20	0.0	0.0	0.0	0.0	0.0	6.8	0.0
09/14/20	0.0	0.0	0.0	0.0	0.0	8.8	0.0
09/15/20	0.0	0.0	0.0	0.0	0.0	7.4	0.0
09/16/20	0.0	0.0	0.0	0.0	0.0	4.5	0.0
09/17/20	0.0	0.0	0.0	0.0	0.0	9.1	0.0
09/18/20	0.0	0.0	0.0	0.0	0.0	9.1	0.0
09/19/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/20/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/21/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
09/22/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
09/23/20	0.0	0.0	0.0	0.0	0.0	7.3	0.0
09/24/20	0.0	0.0	0.0	0.0	0.0	6.4	0.0
09/25/20	0.0	0.0	0.0	0.0	0.0	6.4	0.0
09/26/20	0.0	0.0	0.0	0.0	0.0	6.3	0.0
09/27/20	0.0	0.0	0.0	0.0	0.0	6.4	0.0
09/28/20	0.0	0.0	0.0	0.0	0.0	2.5	0.0
09/29/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09/30/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/01/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/02/20	0.0	0.0	0.0	0.0	0.0	3.6	0.0
10/03/20	0.0	0.0	0.0	0.0	0.0	6.0	0.0
10/04/20	0.0	0.0	0.0	0.0	0.0	5.9	0.0
10/05/20	0.0	0.0	0.0	0.0	0.0	6.8	0.0
10/06/20	0.0	0.0	0.0	0.0	0.0	7.9	0.0
10/07/20	0.0	0.0	0.0	0.0	0.0	4.4	0.0
10/08/20	0.0	0.0	0.0	0.0	0.0	7.6	0.0
10/09/20	0.0	0.0	0.0	0.0	0.0	12.1	0.0
10/10/20	0.0	0.0	0.0	0.0	0.0	11.6	0.0
10/11/20	0.0	0.0	0.0	0.0	0.0	12.1	0.0
10/12/20	0.0	0.0	0.0	0.0	0.0	11.8	0.0
10/13/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
10/14/20	0.0	0.0	0.0	0.0	0.0	12.7	0.0
10/15/20	0.0	0.0	0.0	0.0	0.0	13.9	0.0

Table 3-3
San Sevaine Basins
Daily Deliveries During the Start-Up Period to Basin 1, 2 & 3

Date	Diluent Water (AF) [1]				Recycled Water		
	Import	Storm (Basins 1, 2 & 3)	Storm (Basin 5)	Total	Basin 1 (AF)	Basin 2 (AF)	Basin 3 (AF)
10/16/20	0.0	0.0	0.0	0.0	0.0	13.9	0.0
10/17/20	0.0	0.0	0.0	0.0	0.0	13.9	0.0
10/18/20	0.0	0.0	0.0	0.0	0.0	13.9	0.0
10/19/20	0.0	0.0	0.0	0.0	0.0	12.6	0.0
10/20/20	0.0	0.0	0.0	0.0	0.0	13.1	0.0
10/21/20	0.0	0.0	0.0	0.0	0.0	13.9	0.0
10/22/20	0.0	0.0	0.0	0.0	0.0	10.1	0.0
10/23/20	0.0	0.0	0.0	0.0	0.0	3.6	0.0
10/24/20	0.0	0.0	0.0	0.0	0.0	4.7	0.0
10/25/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/26/20	0.0	0.0	0.0	0.0	0.0	3.6	0.0
10/27/20	0.0	0.0	0.0	0.0	0.0	2.1	0.0
10/28/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/29/20	0.0	0.0	0.0	0.0	0.0	10.7	0.0
10/30/20	0.0	0.0	0.0	0.0	0.0	15.3	0.0
10/31/20	0.0	0.0	0.0	0.0	0.0	15.5	0.0
11/01/20	0.0	0.0	0.0	0.0	0.0	13.9	0.0
11/02/20	0.0	0.0	0.0	0.0	0.0	11.9	0.0
11/03/20	0.0	0.0	0.0	0.0	0.0	11.9	0.0
11/04/20	0.0	0.0	0.0	0.0	0.0	11.7	0.0
11/05/20	0.0	0.0	0.0	0.0	0.0	12.7	0.0
11/06/20	0.0	0.0	0.0	0.0	0.0	12.7	0.0
11/07/20	0.0	20.3	1.0	20.3	0.0	9.9	0.0
11/08/20	0.0	31.9	1.6	31.9	0.0	10.5	0.0
11/09/20	0.0	0.0	0.0	0.0	0.0	11.0	0.0
11/10/20	0.0	0.0	0.0	0.0	0.0	10.6	0.0
11/11/20	0.0	0.0	0.0	0.0	0.0	10.4	0.0
11/12/20	0.0	0.0	0.0	0.0	0.0	10.4	0.0
11/13/20	0.0	0.0	0.0	0.0	0.0	10.4	0.0
11/14/20	0.0	0.0	0.0	0.0	0.0	10.5	0.0
11/15/20	0.0	0.0	0.0	0.0	0.0	10.4	0.0
11/16/20	0.0	0.0	0.0	0.0	0.0	9.4	0.0
11/17/20	0.0	0.0	0.0	0.0	0.0	9.9	0.0
11/18/20	0.0	0.0	0.0	0.0	0.0	7.9	0.0
11/19/20	0.0	0.0	0.0	0.0	0.0	8.0	0.0
11/20/20	0.0	0.0	0.0	0.0	0.0	7.9	0.0
11/21/20	0.0	0.0	0.0	0.0	0.0	8.2	0.0
11/22/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
11/23/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
11/24/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
11/25/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
11/26/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
11/27/20	0.0	0.0	0.0	0.0	0.0	7.1	0.0
11/28/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
11/29/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
11/30/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/01/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/02/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/03/20	0.0	0.0	0.0	0.0	0.0	4.8	0.0
12/04/20	0.0	0.0	0.0	0.0	0.0	7.3	0.0
12/05/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/06/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/07/20	0.0	2.2	0.0	2.2	0.0	8.3	0.0
12/08/20	0.0	7.1	0.0	7.1	0.0	7.0	0.0
12/09/20	0.0	2.0	0.0	2.0	0.0	8.3	0.0
12/10/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/11/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/12/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/13/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/14/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/15/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/16/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/17/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/18/20	0.0	0.0	0.0	0.0	0.0	8.3	0.0
12/19/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/20/20	0.0	0.0	0.0	0.0	0.0	8.2	0.0
12/21/20	0.0	0.0	0.0	0.0	0.0	8.4	0.0
12/22/20	0.0	0.0	0.0	0.0	0.0	7.9	0.0
12/23/20	0.0	0.0	0.0	0.0	0.0	8.0	0.0
12/24/20	0.0	0.0	0.0	0.0	0.0	7.9	0.0
12/25/20	0.0	0.0	0.0	0.0	0.0	8.0	0.0
12/26/20	0.0	0.0	0.0	0.0	0.0	11.0	0.0
12/27/20	0.0	0.0	0.0	0.0	0.0	2.6	0.0
12/28/20	0.0	65.7	79.1	65.7	0.0	0.0	0.0
12/29/20	0.0	0.0	3.5	0.0	0.0	0.0	0.0
12/30/20	0.0	0.0	1.8	0.0	0.0	0.0	0.0
12/31/20	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 3-3
San Sevaine Basins
Daily Deliveries During the Start-Up Period to Basin 1, 2 & 3

Date	Diluent Water (AF) [1]				Recycled Water		
	Import	Storm (Basins 1, 2 & 3)	Storm (Basin 5)	Total	Basin 1 (AF)	Basin 2 (AF)	Basin 3 (AF)
01/01/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/02/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/03/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/04/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/05/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/06/21	0.0	0.0	0.0	0.0	0.0	6.1	0.0
01/07/21	0.0	0.0	0.0	0.0	0.0	10.6	0.0
01/08/21	0.0	0.0	0.0	0.0	0.0	10.0	0.0
01/09/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
01/10/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
01/11/21	0.0	0.0	0.0	0.0	0.0	8.8	0.0
01/12/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
01/13/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
01/14/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
01/15/21	0.0	0.0	0.0	0.0	0.0	5.7	0.0
01/16/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
01/17/21	0.0	0.0	0.0	0.0	0.0	7.5	0.0
01/18/21	0.0	0.0	0.0	0.0	0.0	4.7	0.0
01/19/21	0.0	0.0	0.0	0.0	0.0	7.4	0.0
01/20/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
01/21/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
01/22/21	0.0	0.6	0.8	0.6	0.0	3.2	0.0
01/23/21	0.0	4.4	4.7	4.4	0.0	0.0	0.0
01/24/21	0.0	0.9	1.5	0.9	0.0	0.0	0.0
01/25/21	0.0	33.6	15.7	33.6	0.0	0.0	0.0
01/26/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/27/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/28/21	0.0	9.4	8.9	9.4	0.0	0.0	0.0
01/29/21	0.0	35.8	26.3	35.8	0.0	0.0	0.0
01/30/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/31/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
02/01/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
02/02/21	0.0	0.0	3.2	0.0	0.0	0.0	0.0
02/03/21	0.0	0.0	5.7	0.0	0.0	3.3	0.0
02/04/21	0.0	0.0	2.1	0.0	0.0	7.9	0.0
02/05/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
02/06/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
02/07/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
02/08/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
02/09/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
02/10/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
02/11/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
02/12/21	0.0	4.4	2.4	4.4	0.0	7.9	0.0
02/13/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
02/14/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
02/15/21	0.0	0.0	0.0	0.0	0.0	9.0	0.0
02/16/21	0.0	0.0	0.0	0.0	0.0	7.8	0.0
02/17/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
02/18/21	0.0	0.0	0.0	0.0	0.0	10.0	0.0
02/19/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
02/20/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
02/21/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
02/22/21	0.0	2.8	0.0	2.8	0.0	9.9	0.0
02/23/21	0.0	3.8	0.0	3.8	0.0	10.0	0.0
02/24/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
02/25/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
02/26/21	0.0	0.0	0.0	0.0	0.0	10.0	0.0
02/27/21	0.0	0.0	0.0	0.0	0.0	9.8	0.0
02/28/21	0.0	0.0	0.0	0.0	0.0	7.6	0.0
03/01/21	0.0	0.0	0.0	0.0	0.0	8.3	0.0
03/02/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
03/03/21	0.0	1.3	10.5	1.3	0.0	2.0	0.0
03/04/21	0.0	0.0	0.0	0.0	0.0	4.3	0.0
03/05/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
03/06/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
03/07/21	0.0	0.0	0.0	0.0	0.0	10.0	0.0
03/08/21	0.0	0.0	0.0	0.0	0.0	7.3	0.0
03/09/21	0.0	0.0	0.0	0.0	0.0	1.2	0.0
03/10/21	0.0	25.4	5.6	25.4	0.0	0.0	0.0
03/11/21	0.0	3.5	3.7	3.5	0.0	3.0	0.0
03/12/21	0.0	0.0	2.4	0.0	0.0	7.9	0.0
03/13/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
03/14/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
03/15/21	0.0	2.7	5.1	2.7	0.0	7.7	0.0

Table 3-3
San Sevaine Basins
Daily Deliveries During the Start-Up Period to Basin 1, 2 & 3

Date	Diluent Water (AF) [1]				Recycled Water		
	Import	Storm (Basins 1, 2 & 3)	Storm (Basin 5)	Total	Basin 1 (AF)	Basin 2 (AF)	Basin 3 (AF)
03/16/21	0.0	0.0	0.0	0.0	0.0	6.2	0.0
03/17/21	0.0	0.0	0.0	0.0	0.0	4.9	0.0
03/18/21	0.0	0.0	0.0	0.0	0.0	2.7	0.0
03/19/21	0.0	0.0	0.0	0.0	0.0	4.1	0.0
03/20/21	0.0	0.0	0.0	0.0	0.0	3.8	0.0
03/21/21	0.0	0.0	0.0	0.0	0.0	4.1	0.0
03/22/21	0.0	0.0	0.0	0.0	0.0	7.4	0.0
03/23/21	0.0	0.0	0.0	0.0	0.0	10.1	0.0
03/24/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
03/25/21	0.0	0.3	0.0	0.3	0.0	9.5	0.0
03/26/21	0.0	0.8	0.0	0.8	0.0	8.0	0.0
03/27/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
03/28/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
03/29/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
03/30/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
03/31/21	0.0	0.0	0.0	0.0	0.0	5.1	0.0
04/01/21	0.0	0.0	0.0	0.0	0.0	2.6	0.0
04/02/21	0.0	0.0	0.0	0.0	0.0	7.8	0.0
04/03/21	0.0	0.0	0.0	0.0	0.0	7.0	0.0
04/04/21	0.0	0.0	0.0	0.0	0.0	6.6	0.0
04/05/21	0.0	0.0	0.0	0.0	2.7	3.8	0.0
04/06/21	0.0	0.0	0.0	0.0	9.4	0.0	0.0
04/07/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/08/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/09/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/10/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/11/21	0.0	0.0	0.0	0.0	10.0	0.0	0.0
04/12/21	0.0	0.0	0.0	0.0	10.0	0.0	0.0
04/13/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/14/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/15/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/16/21	0.0	0.0	0.0	0.0	10.0	0.0	0.0
04/17/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/18/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
04/19/21	0.0	0.0	0.0	0.0	10.7	0.0	0.0
04/20/21	0.0	0.0	0.0	0.0	11.3	0.0	0.0
04/21/21	0.0	0.0	0.0	0.0	8.6	0.0	0.0
04/22/21	0.0	0.0	0.0	0.0	12.3	0.0	0.0
04/23/21	0.0	0.0	0.0	0.0	7.2	0.0	0.0
04/24/21	0.0	0.0	0.0	0.0	11.9	0.0	0.0
04/25/21	0.0	0.0	0.0	0.0	12.0	0.0	0.0
04/26/21	0.0	0.0	0.0	0.0	8.2	3.6	0.0
04/27/21	0.0	0.0	0.0	0.0	0.0	11.9	0.0
04/28/21	0.0	0.0	0.0	0.0	0.0	12.0	0.0
04/29/21	0.0	0.0	0.0	0.0	0.0	10.3	0.0
04/30/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
05/01/21	0.0	0.0	0.0	0.0	0.0	8.0	0.0
05/02/21	0.0	0.0	0.0	0.0	0.0	7.9	0.0
05/03/21	0.0	0.0	0.0	0.0	3.4	4.4	0.0
05/04/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
05/05/21	0.0	0.0	0.0	0.0	10.0	0.0	0.0
05/06/21	0.0	0.0	0.0	0.0	9.9	0.0	0.0
05/07/21	0.0	0.0	0.0	0.0	10.3	0.0	0.0
05/08/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
05/09/21	0.0	0.0	0.0	0.0	10.3	0.0	0.0
05/10/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
05/11/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
05/12/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
05/13/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
05/14/21	0.0	0.0	0.0	0.0	9.0	0.0	0.0
05/15/21	0.0	0.0	0.0	0.0	6.6	0.0	0.0
05/16/21	0.0	0.0	0.0	0.0	11.0	0.0	0.0
05/17/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
05/18/21	0.0	0.0	0.0	0.0	10.4	0.0	0.0
05/19/21	0.0	0.0	0.0	0.0	5.6	0.0	0.0
05/20/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
05/21/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
05/22/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
05/23/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
05/24/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
05/25/21	0.0	0.0	0.0	0.0	3.9	0.0	0.0
05/26/21	0.0	0.0	0.0	0.0	11.3	0.0	0.0
05/27/21	0.0	0.0	0.0	0.0	11.8	0.0	0.0
05/28/21	0.0	0.0	0.0	0.0	11.8	0.0	0.0
05/29/21	0.0	0.0	0.0	0.0	12.1	0.0	0.0
05/30/21	0.0	0.0	0.0	0.0	11.4	0.0	0.0
05/31/21	0.0	0.0	0.0	0.0	13.2	0.0	0.0

Table 3-3
San Sevaine Basins
Daily Deliveries During the Start-Up Period to Basin 1, 2 & 3

Date	Diluent Water (AF) [1]				Recycled Water		
	Import	Storm (Basins 1, 2 & 3)	Storm (Basin 5)	Total	Basin 1 (AF)	Basin 2 (AF)	Basin 3 (AF)
06/01/21	0.0	0.0	0.0	0.0	15.2	0.0	0.0
06/02/21	0.0	0.0	0.0	0.0	20.8	0.0	0.0
06/03/21	0.0	0.0	0.0	0.0	12.9	6.9	0.0
06/04/21	0.0	0.0	0.0	0.0	0.0	11.9	0.0
06/05/21	0.0	0.0	0.0	0.0	0.0	11.9	0.0
06/06/21	0.0	0.0	0.0	0.0	0.0	11.9	0.0
06/07/21	0.0	0.0	0.0	0.0	3.8	7.0	0.0
06/08/21	0.0	0.0	0.0	0.0	12.4	0.0	0.0
06/09/21	0.0	0.0	0.0	0.0	12.9	0.0	0.0
06/10/21	0.0	0.0	0.0	0.0	12.9	0.0	0.0
06/11/21	0.0	0.0	0.0	0.0	12.9	0.0	0.0
06/12/21	0.0	0.0	0.0	0.0	13.0	0.0	0.0
06/13/21	0.0	0.0	0.0	0.0	12.9	0.0	0.0
06/14/21	0.0	0.0	0.0	0.0	13.4	0.0	0.0
06/15/21	0.0	0.0	0.0	0.0	12.7	0.0	0.0
06/16/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
06/17/21	0.0	0.0	0.0	0.0	10.6	0.0	0.0
06/18/21	0.0	0.0	0.0	0.0	10.8	0.0	0.0
06/19/21	0.0	0.0	0.0	0.0	11.0	0.0	0.0
06/20/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
06/21/21	0.0	0.0	0.0	0.0	11.4	0.0	0.0
06/22/21	0.0	0.0	0.0	0.0	11.9	0.0	0.0
06/23/21	0.0	0.0	0.0	0.0	11.9	0.0	0.0
06/24/21	0.0	0.0	0.0	0.0	5.3	4.4	0.0
06/25/21	0.0	0.0	0.0	0.0	0.0	5.7	0.0
06/26/21	0.0	0.0	0.0	0.0	0.0	5.7	0.0
06/27/21	0.0	0.0	0.0	0.0	0.0	5.7	0.0
06/28/21	0.0	0.0	0.0	0.0	0.0	5.8	0.0
06/29/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
06/30/21	0.0	0.0	0.0	0.0	0.0	5.7	0.0
07/01/21	0.0	0.0	0.0	0.0	0.0	5.7	0.0
07/02/21	0.0	0.0	0.0	0.0	0.0	5.7	0.0
07/03/21	0.0	0.0	0.0	0.0	0.0	5.5	0.0
07/04/21	0.0	0.0	0.0	0.0	0.0	5.8	0.0
07/05/21	0.0	0.0	0.0	0.0	0.0	5.8	0.0
07/06/21	0.0	0.0	0.0	0.0	0.0	5.8	0.0
07/07/21	0.0	0.0	0.0	0.0	0.0	5.6	0.0
07/08/21	0.0	0.0	0.0	0.0	0.0	5.8	0.0
07/09/21	0.0	0.0	0.0	0.0	0.0	5.6	0.0
07/10/21	0.0	0.0	0.0	0.0	0.0	0.5	0.0
07/11/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
07/12/21	0.0	0.0	0.0	0.0	3.2	3.5	0.0
07/13/21	0.0	0.0	0.0	0.0	15.7	0.0	0.0
07/14/21	0.0	0.0	0.0	0.0	9.3	0.0	0.0
07/15/21	0.0	0.0	0.0	0.0	15.9	0.0	0.0
07/16/21	0.0	0.0	0.0	0.0	15.9	0.0	0.0
07/17/21	0.0	0.0	0.0	0.0	15.4	0.0	0.0
07/18/21	0.0	0.0	0.0	0.0	15.9	0.0	0.0
07/19/21	0.0	0.0	0.0	0.0	15.6	0.0	0.0
07/20/21	0.0	0.0	0.0	0.0	13.5	0.0	0.0
07/21/21	0.0	0.0	0.0	0.0	15.1	0.0	0.0
07/22/21	0.0	0.0	0.0	0.0	15.9	0.0	0.0
07/23/21	0.0	0.0	0.0	0.0	14.9	0.0	0.0
07/24/21	0.0	0.0	0.0	0.0	15.9	0.0	0.0
07/25/21	0.0	0.0	0.0	0.0	15.1	0.0	0.0
07/26/21	0.0	5.4	0.0	5.4	15.9	0.0	0.0
07/27/21	0.0	0.0	0.0	0.0	15.9	0.0	0.0
07/28/21	0.0	0.0	0.0	0.0	15.9	0.0	0.0
07/29/21	0.0	0.0	0.0	0.0	15.8	0.0	0.0
07/30/21	0.0	0.0	0.0	0.0	10.9	0.0	0.0
07/31/21	0.0	0.0	0.0	0.0	2.4	0.0	0.0
08/01/21	0.0	0.0	0.0	0.0	5.8	0.0	0.0
08/02/21	0.0	0.0	0.0	0.0	6.7	0.0	0.0
08/03/21	0.0	0.0	0.0	0.0	14.4	0.0	0.0
08/04/21	0.0	0.0	0.0	0.0	8.7	0.0	0.0
08/05/21	0.0	0.0	0.0	0.0	9.7	0.0	0.0
08/06/21	0.0	0.0	0.0	0.0	16.2	0.0	0.0
08/07/21	0.0	0.0	0.0	0.0	16.0	0.0	0.0
08/08/21	0.0	0.0	0.0	0.0	15.2	0.0	0.0
08/09/21	0.0	0.0	0.0	0.0	16.0	0.0	0.0
08/10/21	0.0	0.0	0.0	0.0	16.1	0.0	0.0
08/11/21	0.0	0.0	0.0	0.0	14.1	0.0	0.0
08/12/21	0.0	0.0	0.0	0.0	13.3	0.0	0.0
08/13/21	0.0	0.0	0.0	0.0	15.8	0.0	0.0
08/14/21	0.0	0.0	0.0	0.0	3.9	12.0	0.0
08/15/21	0.0	0.0	0.0	0.0	0.0	16.0	0.0

Table 3-3
San Sevaine Basins
Daily Deliveries During the Start-Up Period to Basin 1, 2 & 3

Date	Diluent Water (AF) [1]				Recycled Water		
	Import	Storm (Basins 1, 2 & 3)	Storm (Basin 5)	Total	Basin 1 (AF)	Basin 2 (AF)	Basin 3 (AF)
08/16/21	0.0	0.0	0.0	0.0	0.0	15.9	0.0
08/17/21	0.0	0.0	0.0	0.0	0.0	15.8	0.0
08/18/21	0.0	0.0	0.0	0.0	0.0	10.8	0.0
08/19/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
08/20/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
08/21/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
08/22/21	0.0	0.0	0.0	0.0	0.0	8.2	0.0
08/23/21	0.0	0.0	0.0	0.0	0.0	9.2	0.0
08/24/21	0.0	0.0	0.0	0.0	0.0	4.8	0.0
08/25/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
08/26/21	0.0	0.0	0.0	0.0	0.0	9.6	0.0
08/27/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
08/28/21	0.0	0.0	0.0	0.0	0.0	10.0	0.0
08/29/21	0.0	0.0	0.0	0.0	0.0	9.9	0.0
08/30/21	0.0	0.0	0.0	0.0	0.0	3.8	0.0
08/31/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09/01/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09/02/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09/03/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09/04/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09/05/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09/06/21	0.0	0.0	0.0	0.0	0.0	2.5	0.0
09/07/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
09/08/21	0.0	0.0	0.0	0.0	0.0	5.5	0.0
09/09/21	0.0	0.0	0.0	0.0	0.0	5.0	0.0
09/10/21	0.0	0.0	0.0	0.0	0.0	4.4	0.0
09/11/21	0.0	0.0	0.0	0.0	0.0	6.7	0.0
09/12/21	0.0	0.0	0.0	0.0	0.0	7.4	0.0
09/13/21	0.0	0.0	0.0	0.0	0.0	6.0	0.0
09/14/21	0.0	0.0	0.0	0.0	0.0	5.3	0.0
09/15/21	0.0	0.0	0.0	0.0	0.0	4.9	0.0
09/16/21	0.0	0.0	0.0	0.0	0.0	5.8	0.0
09/17/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
09/18/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
09/19/21	0.0	0.0	0.0	0.0	0.0	6.0	0.0
09/20/21	0.0	0.0	0.0	0.0	0.0	6.0	0.0
09/21/21	0.0	0.0	0.0	0.0	0.0	5.5	0.0
09/22/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
09/23/21	0.0	0.0	0.0	0.0	0.0	6.0	0.0
09/24/21	0.0	0.0	0.0	0.0	0.0	5.8	0.0
09/25/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
09/26/21	0.0	0.0	0.0	0.0	0.0	5.9	0.0
09/27/21	0.0	0.0	0.0	0.0	0.0	4.3	0.0
09/28/21	0.0	0.0	0.0	0.0	5.3	0.0	0.0
09/29/21	0.0	0.0	0.0	0.0	9.7	0.0	0.0
09/30/21	0.0	0.0	0.0	0.0	9.7	0.0	0.0

Note:
1. Table 3-2 does not list the groundwater underflow volume credited for diluent water.

Table 3-4

San Sevaine Basins: Infiltration Rate Measurements for Basins 1, 2 & 3

Basin	Water Depth (feet)	Operational* Infiltration Rate (ft/day)
San Sevaine 1	1.0	0.4
San Sevaine 1	2.0	0.8
San Sevaine 1	3.0	1.1
San Sevaine 1	4.0	1.5
San Sevaine 1	5.0	1.9
San Sevaine 1	6.0	2.3
San Sevaine 2	1.0	0.2
San Sevaine 2	2.0	0.4
San Sevaine 2	3.0	0.5
San Sevaine 2	4.0	0.7
San Sevaine 3	1.0	3.7
San Sevaine 3	2.0	3.2
San Sevaine 3	3.0	2.8
San Sevaine 3	4.0	2.7
San Sevaine 3	5.0	2.7

Note:

*) The operational infiltration rate is a value calculated from multiple measurements. A best fit curve through a basin's data was developed to obtain the unit rates shown in this table. The process excluding data collected immediately after first filling of basin.

Table 4-1
San Sevaine Basins: Surface Water and Lysimeter Results
Electrical Conductivity
(µmhos/cm)

Date	Surface Water	Lysimeter Depth (ft bgs)					
	0	5	10	15	20	25	30
04/09/20	131			251	288		245
04/16/20	174		346	192	229		186
04/23/20							
08/12/20	756			677	696	533	746
08/20/20	725		771	764	794	688	773
08/26/20	768			766	783	704	761
09/02/20	755			778	788	711	751
09/10/20	773					733	752
09/16/20	774					738	758
09/23/20	770				733	767	766
10/01/20	812						744
10/14/20	741			876	849	746	823
10/21/20	732		837	758	766	726	795
10/29/20	806						
11/05/20	754			800	822	753	802
11/12/20	753			776	777	718	792
11/18/20	748	810		781	765	720	751
11/25/20	766					748	769
12/02/20	773					748	763
12/10/20	782					762	774
12/17/20	730					770	771
12/23/20	747						779
12/31/20	403					742	765
01/06/21	449						
01/13/21	784			701		633	685
01/20/21	779				800	659	718
01/27/21	737			770			769
02/02/21	160						
02/10/21	757		857		830	726	695
02/18/21	762			755	816	695	726
02/24/21	776			780		725	757
03/03/21	802			815		740	774
03/11/21	765						790
03/17/21	801			847			790
03/24/21	810						800
04/01/21	788						
04/08/21	801						
04/15/21	806						
04/22/21	914						
04/29/21	820						
05/06/21	794						
05/13/21	821						
05/19/21	930						
05/26/21	1150						
06/10/21	800						865
06/17/21	851						
06/24/21	911						
07/01/21	781						
07/08/21	772						907
07/15/21	795						
07/22/21	935						
08/12/21	821						
08/19/21	763						
08/26/21	782						887
09/02/21	783					956	832
09/16/21	698						
09/21/21	706						

Notes: Empty cell indicates insufficient sample from lysimeter result in parameter not being analyzed.

Table 4-2
San Sevaine Basins: Surface Water and Lysimeter Results
Total Organic Carbon
(mg/L)

Date	Surface Water	Lysimeter Depth (ft bgs)					
	0	5	10	15	20	25	30
04/09/20	3.6			1.4	8.2		1.5
04/16/20	3.9		18.7	5.3	8.2		4.0
04/23/20							
08/12/20	5.5			18.2	13.1	24.3	19.6
08/20/20	9.9		12.4	30.6	22.1	34.4	17.1
08/26/20	5.3			21.0	17.5	21.1	12.3
09/02/20	4.9			9.0	13.1	5.2	2.4
09/10/20	4.8			33.3	29.6	33.9	15.5
09/16/20	4.9			24.9	33.4	14.8	2.7
09/23/20	5.0					16.5	2.2
10/01/20	8.6					36.3	2.8
10/14/20	5.1			26.3	14.4	9.0	2.2
10/21/20	7.1			17.2	14.7	15.0	12.7
10/29/20	6.0						
11/05/20	6.0			78.8	65.8	11.3	5.5
11/12/20	5.7			21.6	12.8	8.9	5.2
11/18/20	5.8			39.3	19.5	11.0	6.2
11/25/20	6.1					18.1	4.4
12/02/20	5.4			21.5	14.4	9.4	4.3
12/10/20	6.1					5.0	3.6
12/17/20	5.9					15.2	4.9
12/23/20	6.3					8.8	3.8
12/31/20	4.8					20.7	4.4
01/06/21	6.2						
01/13/21	6.4		24.2	17.9	22.4	12.2	4.1
01/20/21	6.1			17.5	17.2	3.2	4.2
01/27/21	6.4	10.1	17.1	7.1		6.2	4.0
02/02/21	4.3						
02/03/21		5.9	19.6	9.7			
02/10/21	5.3		7.7		7.3	4.8	3.3
02/18/21	5.6			6.6	5.2	4.4	3.7
02/24/21	5.8			6.3	11.3	4.1	3.3
03/03/21	5.8			7.5	9.6	6.4	2.9
03/11/21	5.5				7.8	12.8	2.7
03/17/21	6.2			4.9	7.8		4.1
03/24/21	8.9				5.9		5.5
04/01/21	11.6						
04/08/21	10.3						
04/15/21	11.0						
04/22/21	20.0						
04/29/21	8.4						
05/06/21	10.2						
05/13/21	15.6						
05/19/21	18.0						
05/26/21	27.9						
06/10/21	11.6						2.2
06/17/21	16.1					16.2	9.6
06/24/21	15.8						
07/01/21	7.3						
07/08/21	10.2						6.2
07/15/21	10.1						
07/22/21	17.9						
08/12/21	15.8						
08/19/21	11.2						
08/26/21	7.6					16.2	10.6
09/02/21	8.3					16.4	14.2
09/16/21	8.0						
09/21/21	11.0						

Notes:
1) Empty cell indicates insufficient sample from lysimeter result in parameter not being analyzed.
2) Shaded date range corresponds to the 20-week sample range for surface water that would arrive at SSV-2 offset by the 4.9-month travel time.
3) Shading of lysimeter depths corresponds to approximate travel time of surface water to each depth.

Depth Profile (Figure 5-1) 20-Week Average (shaded data)

Depth	0	5	10	15	20	25	30
	7.4	8.0	17.1	9.7	10.5	8.4	3.8

Table 4-3
San Sevaine Basins: Surface Water and Lysimeter Results
Nitrogen Speciation
(mg/L)

Date	Surface Water 0 NH_3-N	NO_3-N	NO_2-N	TKN	TN
04/09/20	<0.2	0.3	<0.05	0.6	0.9
04/16/20	<0.2	<0.1	<0.05	0.6	0.7
04/23/20					
08/12/20	<0.2	3.0	<0.05	1.0	4.1
08/20/20	<0.2	1.2	<0.05	3.0	4.2
08/26/20	<0.2	2.9	<0.05	0.9	3.8
09/02/20	<0.2	2.4	<0.05	1.6	4.1
09/10/20	<0.2	3.5	0.18	0.9	4.6
09/16/20	<0.2	3.7	<0.05	0.8	4.6
09/23/20	<0.2	3.0	<0.05	1.0	4.0
10/01/20	0.7	1.8	0.06	3.1	5.0
10/14/20	<0.2	2.7	<0.05	0.7	3.4
10/21/20	<0.2	1.5	0.05	<0.5	1.8
10/29/20	<0.2	4.2	0.05	1.3	5.5
11/05/20	<0.2	3.8	<0.05	1.7	5.5
11/12/20	<0.2	3.3	<0.05	0.9	4.2
11/18/20	<0.2	1.9	<0.05	1.0	3.0
11/25/20	<0.2	2.6	<0.05	1.4	4.0
12/02/20	<0.2	3.2	<0.05	0.9	4.1
12/10/20	<0.2	4.0	<0.05	0.8	4.8
12/17/20	<0.2	4.1	<0.05	0.6	4.7
12/23/20	<0.2	3.9	<0.05	1.2	5.1
12/31/20	<0.2	1.7	<0.05	1.4	3.2
01/06/21	<0.2	1.5	<0.05	1.4	3.0
01/13/21	<0.2	3.5	<0.05	0.6	4.1
01/20/21	<0.2	3.5	<0.05	1.5	5.0
01/27/21	<0.2	3.0	<0.05	3.9	6.9
02/02/21	<0.2	0.7	<0.05	1.0	1.7
02/03/21					
02/04/21					
02/10/21	<0.2	4.1	<0.05	<0.5	4.5
02/18/21	<0.2	3.3	<0.05	0.9	4.2
02/24/21	<0.2	3.2	<0.05	1.0	4.2
03/03/21	<0.2	3.7	<0.05	1.2	4.9
03/11/21	<0.2	2.8	<0.05	1.4	4.2
03/17/21	<0.2	4.0	<0.05	1.3	5.3
03/24/21	<0.2	2.4	<0.05	3.0	5.4
04/01/21	<0.2	0.8	<0.05	4.3	5.1
04/08/21	<0.2	0.1	<0.05	2.2	2.3
04/15/21	<0.2	<0.1	<0.05	2.7	2.8
04/22/21	<0.2	<0.1	<0.05	7.6	7.7
04/29/21	<0.2	3.1	<0.05	2.9	6.0
05/06/21	<0.2	<0.1	<0.05	2.7	2.8
05/13/21	<0.2	<0.1	<0.05	4.3	4.4
05/19/21	1.9	<0.1	<0.05	7.1	7.2
05/26/21	<0.2	<0.1	<0.05	21.8	21.9
06/10/21	<0.2	0.5	<0.05	1.9	2.4
06/17/21	<0.2	0.9	<0.05	4.4	5.3
06/24/21	<0.2	0.9	<0.05	4.5	5.4
07/01/21	<0.2	1.7	0.06	1.5	3.3
07/08/21	<0.2	2.1	<0.05	2.9	5.1
07/15/21	<0.2	0.7	<0.05	9.1	9.8
07/22/21	<0.2	0.8	<0.05	9.8	10.6
08/12/21	<0.2	<0.1	<0.05	4.2	4.3
08/19/21	<0.2	0.1	<0.05	3.6	3.7
08/26/21	<0.2	2.1	0.05	2.2	4.3
09/02/21	<0.2	<0.1	<0.05	2.3	2.4
09/16/21	<0.2	0.5	<0.05	2.6	3.1
09/21/21	<0.2	1.1	<0.05	2.7	3.8

Date	Lysimeter Depth (ft bgs) 5 NH_3-N	NO_3-N	NO_2-N	TKN	TN	10 NH_3-N	NO_3-N	NO_2-N	TKN	TN
04/09/20										
04/16/20						<0.2	1.0	<0.05	0.7	1.7
04/23/20										
08/12/20										
08/20/20						<0.2	3.4	<0.05	<0.5	3.8
08/26/20							2.4	<0.05		
09/02/20										
09/10/20										
09/16/20										
09/23/20										
10/01/20										
10/14/20										
10/21/20							1.7	<0.05		
10/29/20										
11/05/20										
11/12/20										
11/18/20		1.2	<0.05							
11/25/20										
12/02/20										
12/10/20										
12/17/20										
12/23/20										
12/31/20										
01/06/21		0.4	<0.05				0.5	<0.05		
01/13/21										
01/20/21		1.0	<0.05							
01/27/21							1.8	<0.05		
02/02/21										
02/03/21	<0.2			0.8		<0.2			0.8	
02/04/21										
02/10/21						<0.2	2.2	<0.05	<0.5	2.7
02/18/21										
02/24/21										
03/03/21										
03/11/21										
03/17/21										
03/24/21										
04/01/21										
04/08/21										
04/15/21										
04/22/21										
04/29/21										
05/06/21										
05/13/21										
05/19/21										
05/26/21										
06/10/21										
06/17/21										
06/24/21										
07/01/21										
07/08/21										
07/15/21										
07/22/21										
08/12/21										
08/19/21										
08/26/21										
09/02/21										
09/16/21										
09/21/21										

Date	Lysimeter Depth (ft bgs) 15 NH_3-N	NO_3-N	NO_2-N	TKN	TN	20 NH_3-N	NO_3-N	NO_2-N	TKN	TN
04/09/20	<0.2	1.2	<0.05	<0.5	1.3	<0.2	0.9	<0.05	<0.5	1.1
04/16/20	<0.2	0.5	<0.05	<0.5	0.8	<0.2	0.7	<0.05	<0.5	1.0
04/23/20										
08/12/20	<0.2	4.4	<0.05	<0.5	4.6	<0.2	3.6	<0.05	<0.5	3.8
08/20/20	<0.2	3.3	<0.05	<0.5	3.4	<0.2	3.1	<0.05	<0.5	3.4
08/26/20	<0.2	0.9	<0.05	<0.5	1.2	<0.2	1.1	<0.05	<0.5	1.3
09/02/20	<0.2	0.3	<0.05	0.7	1.0	<0.2	0.5	<0.05	0.8	1.3
09/10/20	<0.2	0.4	0.08	1.1	1.6	<0.2	0.1	<0.05	<0.5	0.6
09/16/20										
09/23/20							<0.1	<0.05		
10/01/20		0.3	0.14				<0.1	<0.05		
10/14/20	<0.2	4.0	<0.05	0.5	4.6	<0.2	2.3	<0.05	<0.5	2.6
10/21/20	<0.2	2.9	<0.05	<0.5	3.3	<0.2	2.1	<0.05	<0.5	2.4
10/29/20										
11/05/20	<0.2	3.0	<0.05	<0.5	3.3	<0.2	2.5	<0.05	<0.5	3.0
11/12/20	<0.2	2.5	<0.05	<0.5	2.8	<0.2	2.1	<0.05	<0.5	2.4
11/18/20	<0.2	<0.1	<0.05	<0.5	<0.6	<0.2	2.3	<0.05	<0.5	2.6
11/25/20										
12/02/20										
12/10/20										
12/17/20										
12/23/20										
12/31/20		2.2	<0.05							
01/06/21		3.2	<0.05							
01/13/21	<0.2	2.8	<0.05	<0.5	3.2	<0.2	3.0	<0.05	<0.5	3.3
01/20/21	<0.2	2.8	<0.05	<0.5	3.0	<0.2	3.3	<0.05	<0.5	3.4
01/27/21	<0.2	2.7	<0.05	<0.5	2.8					
02/02/21										
02/03/21	<0.2	2.9	<0.05	<0.5	3.3					
02/04/21										
02/10/21						<0.2	2.9	<0.05	<0.5	3.4
02/18/21	<0.2	3.6	<0.05	<0.5	3.9	<0.2	3.8	<0.05	0.5	4.3
02/24/21	<0.2	3.8	<0.05	<0.5	3.9					
03/03/21	<0.2	3.7	<0.05	<0.5	4.0	<0.2			<0.5	
03/11/21						<0.2	3.8	<0.05	<0.5	4.2
03/17/21	<0.2	3.7	<0.05	<0.5	3.8	<0.2	3.9	<0.05	<0.5	4.1
03/24/21						<0.2	3.5	<0.05	<0.5	4.0
04/01/21										
04/08/21										
04/15/21										
04/22/21										
04/29/21										
05/06/21										
05/13/21										
05/19/21										
05/26/21										
06/10/21										
06/17/21										
06/24/21										
07/01/21										
07/08/21										
07/15/21										
07/22/21										
08/12/21										
08/19/21										
08/26/21										
09/02/21										
09/16/21										
09/21/21										

Date	Lysimeter Depth (ft bgs) 25 NH_3-N	NO_3-N	NO_2-N	TKN	TN	30 NH_3-N	NO_3-N	NO_2-N	TKN	TN
04/09/20						<0.2	0.5	<0.05	<0.5	0.6
04/16/20						<0.2	0.4	<0.05	<0.5	0.7
04/23/20						<0.2	0.4	<0.05		
08/12/20	<0.2	4.0	<0.05	<0.5	4.1	<0.2	7.9	<0.05	<0.5	8.0
08/20/20	<0.2	2.8	<0.05	<0.5	3.1	<0.2	3.3	0.2	<0.5	3.8
08/26/20	<0.2	0.6	<0.05	<0.5	0.9	<0.2	2.2	<0.05	<0.5	2.5
09/02/20	<0.2	0.8	<0.05	0.9	1.7	<0.2	0.9	<0.05	0.8	1.7
09/10/20	<0.2	0.3	0.15	<0.5	0.7	<0.2	0.4	<0.05	<0.5	0.6
09/16/20	<0.2	0.7	<0.05	0.8	1.5	<0.2	0.5	<0.05	<0.5	1.0
09/23/20	<0.2	1.0	0.05	0.7	1.8	<0.2	1.1	<0.05	<0.5	1.6
10/01/20		0.5	0.05			<0.2	0.8	<0.05	<0.5	1.1
10/14/20	<0.2	1.0	<0.05	<0.5	1.3	<0.2	3.8	<0.05	<0.5	4.1
10/21/20	<0.2	2.6	<0.05	<0.5	3.1	<0.2	1.9	0.08	<0.5	2.3
10/29/20										
11/05/20	<0.2	2.9	<0.05	<0.5	3.0	<0.2	2.9	<0.05	<0.5	3.2
11/12/20	<0.2	2.5	<0.05	<0.5	2.8	<0.2	2.0	<0.05	<0.5	2.2
11/18/20	<0.2	2.8	<0.05	<0.5	2.9	<0.2	2.7	<0.05	<0.5	2.9
11/25/20	<0.2	1.6	<0.05	<0.5	1.9	<0.2	1.9	<0.05	<0.5	1.9
12/02/20	<0.2	1.4	<0.05	0.6	2.0	<0.2	1.4	<0.05	<0.5	1.9
12/10/20	<0.2	1.5	0.08	0.6	2.2	<0.2	1.6	<0.05	0.5	2.1
12/17/20	<0.2	2.4	<0.05	<0.5	2.8	<0.2	2.6	<0.05	<0.5	2.9
12/23/20	<0.2	3.1	<0.05	<0.5	3.5	<0.2	3.3	<0.05	<0.5	3.4
12/31/20	<0.2	2.9	<0.05	<0.5	3.4	<0.2	3.0	<0.05	<0.5	3.2
01/06/21							2.7	<0.05		
01/13/21	<0.2	1.9	<0.05	<0.5	2.2	<0.2	2.0	<0.05	<0.5	2.3
01/20/21	<0.2	1.5	<0.05	0.5	2.0	<0.2	2.0	<0.05	<0.5	2.3
01/27/21		1.9	<0.05			<0.2	1.8	<0.05	<0.5	2.0
02/02/21										
02/03/21										
02/04/21						<0.2	1.8	<0.05	0.7	2.5
02/10/21	0.2	1.8	<0.05	0.7	2.5	<0.2	1.8	<0.05	<0.5	2.0
02/18/21	<0.2	2.0	<0.05	<0.5	2.5	<0.2	2.4	<0.05	<0.5	2.8
02/24/21	<0.2	2.3	<0.05	<0.5	2.5	<0.2	2.1	<0.05	<0.5	2.2
03/03/21	<0.2	1.8	<0.05	0.6	2.5	<0.2	1.9	<0.05	<0.5	2.3
03/11/21	<0.2	1.5	<0.05	1.0	2.5	<0.2	1.9	<0.05	0.6	2.5
03/17/21						<0.2	1.9	<0.05	<0.5	2.3
03/24/21						<0.2	1.7	<0.05	0.6	2.3
04/01/21										
04/08/21										
04/15/21										
04/22/21										
04/29/21										
05/06/21										
05/13/21										
05/19/21										
05/26/21										
06/10/21						<0.2	2.5	<0.05	<0.5	2.8
06/17/21										
06/24/21										
07/01/21										
07/08/21						<0.2	1.1	<0.05	<0.5	1.5
07/15/21										
07/22/21										
08/12/21										
08/19/21										
08/26/21	<0.2	3.2	<0.05	1.2	4.4	<0.2	1.5	<0.05	0.8	2.3
09/02/21	<0.2	<0.1	<0.05	<0.5	<0.6	<0.2	1.8	<0.05	<0.5	2.3
09/16/21										
09/21/21										

Notes: Empty cell indicates insufficient sample from lysimeter result in parameter not being analyzed.

Table 4-4
San Sevaine Basins: Surface Water and Lysimeter Results
Total Nitrogen
(mg/L)

Date	Surface Water	Lysimeter Depth (ft bgs)					
	0	5	10	15	20	25	30
04/09/20	0.9			1.3	1.1		0.6
04/16/20	0.7		1.7	0.8	0.7		0.7
04/23/20							
08/12/20	4.1			4.6	3.8	4.1	8.0
08/20/20	4.2		3.8	3.4	3.1	2.8	3.8
08/26/20	3.8			1.2	1.3	0.9	2.5
09/02/20	4.1			1.0	1.3	1.7	1.7
09/10/20	4.6			1.6	0.6	0.7	0.6
09/16/20	4.6					1.5	1.0
09/23/20	4.0					1.8	1.6
10/01/20	5.0						1.1
10/14/20	3.4			4.6	2.6	1.3	4.1
10/21/20	1.8			3.3	2.4	3.1	2.3
10/29/20	5.5						
11/05/20	5.5			3.3	3.0	3.0	3.2
11/12/20	4.2			2.8	2.4	2.8	2.2
11/18/20	3.0			0.4	2.6	2.9	2.9
11/25/20	4.0					1.9	1.9
12/02/20	4.1					2.0	1.9
12/10/20	4.8					2.2	2.1
12/17/20	4.7					2.8	2.9
12/23/20	5.1					3.5	3.4
12/31/20	3.2					3.4	3.2
01/06/21	3.0						
01/13/21	4.1			3.2	3.3	2.2	2.3
01/20/21	5.0			3.0	3.4	2.0	2.3
01/27/21	6.9			2.8			2.0
02/02/21	1.7						
02/03/21				3.3			
02/04/21							2.5
02/10/21	4.5		2.7		3.4	2.5	2.0
02/18/21	4.2			3.9	4.3	2.5	2.8
02/24/21	4.2			3.9		2.5	2.2
03/03/21	4.9			4.0		2.5	2.3
03/11/21	4.2				4.2	2.5	2.5
03/17/21	5.3			3.8	4.1		2.3
03/24/21	5.4				4.0		2.3
04/01/21	5.1						
04/08/21	2.3						
04/15/21	2.8						
04/22/21	7.7						
04/29/21	6.0						
05/06/21	2.8						
05/13/21	4.4						
05/19/21	7.2						
05/26/21	21.9						
06/10/21	2.4						2.8
06/17/21	5.3						
06/24/21	5.4						
07/01/21	3.3						
07/08/21	5.1						1.5
07/15/21	9.8						
07/22/21	10.6						
08/12/21	4.3						
08/19/21	3.7						
08/26/21	4.3					4.4	2.3
09/02/21	2.4					<0.6	2.3
09/16/21	3.1						
09/21/21	3.8						

Notes:
1) Empty cell indicates insufficient sample from lysimeter result in parameter not being analyzed.
2) Shaded date range corresponds to the 20-week sample range for surface water that would arrive at SSV-2 offset by the 4.9-month travel time.
3) Shading of lysimeter depths corresponds to approximate travel time of surface water to each depth.

Depth Profile (Figure 5-1)	20-Week Average (shaded data)						
Depth	0	5	10	15	20	25	30
Avg TN	4.5		2.7	3.5	3.8	2.6	2.5

Table 4-5
San Sevaine Basins: Monitoring Well SSV-2 Water Quality Results

Date	EC µmhos/cm	TOC mg/L	NH_3-N mg/L	NO_2-N mg/L	NO_3-N mg/L	TKN mg/L	TN mg/L
9/10/18	400	0.3	<0.1	<0.05	1.9	<0.5	2.2
3/25/19	322	0.4	<0.1	<0.05	1.0	<0.5	1.3
6/5/19	306	0.4	<0.1	<0.05	0.6	<0.5	0.9
8/15/19	301	0.5	<0.1	<0.05	0.4	<0.5	0.7
10/22/19	362	<0.3	<0.1	<0.05	1.2	<0.5	1.5
1/20/20	362	0.5	<0.1	<0.05	1.2	<0.5	1.5
4/27/20	271	<0.3	0.3	<0.05	1.3	<0.5	1.4
6/24/20	359	0.6	<0.2	<0.05	1.1	<0.5	1.2
7/28/20	329	<0.3	<0.2	<0.05	0.5	<0.5	0.7
8/25/20	331	<0.3	<0.2	<0.05	0.5	<0.5	0.8
9/28/20	318	<0.3	<0.2	<0.05	0.6	<0.5	0.7
10/29/20	302	<0.3	<0.2	<0.05	0.7	<0.5	0.8
11/30/20	328	0.3	<0.2	<0.05	1.2	<0.5	1.5
12/31/20	419	0.3	<0.2	<0.05	1.8	<0.5	1.9
1/27/21	488	0.9	<0.2	<0.05	1.8	<0.5	2.1
2/24/21	551	0.4	<0.2	<0.05	1.9	<0.5	2.2
3/24/21	579	0.5	<0.2	<0.05	1.8	<0.5	2.2
4/22/21	606	<0.3	<0.2	<0.05	1.8	<0.5	2.1
5/19/21	644	0.6	<0.2	<0.05	1.9	<0.5	2.2
6/24/21	617	0.5	<0.2	<0.05	2.4	<0.5	2.8
07/28/21	609	0.3	<0.2	<0.05	2.8	<0.5	3.1
08/25/21	688	1.0	<0.2	<0.05	2.9	<0.5	3.1
09/21/21	694	0.5	<0.2	<0.05	3.2	<0.5	3.5

Table 4-6
San Sevaine Basins: Monitoring Well Unitex 91090 Water Quality Results

Date	EC µmhos/cm	TOC mg/L	NH_3-N mg/L	NO_2-N mg/L	NO_3-N mg/L	TKN mg/L	TN mg/L
7/16/18	395	0.1	<0.1	<0.05	2.2	<0.5	2.8
2/20/19	388	0.1	<0.1	<0.05	2.4	<0.5	2.7
5/6/19	398	0.2	<0.1	<0.05	2.1	<0.5	2.4
7/30/19	395	0.2	<0.1	<0.05	1.8	<0.5	2.1
11/12/19	392	<0.3	<0.1	<0.05	2.1	<0.5	2.4
2/20/20	403	0.2	<0.1	<0.05	2.3	<0.5	2.6
4/9/20	835	<0.3	0.1	<0.05	2.9	<0.5	3.0
7/21/20	388	0.2	<0.2	<0.05	2.1	<0.5	2.2
8/25/20	387	<0.3	<0.2	<0.05	2.0	<0.5	2.3
9/28/20	388	<0.3	<0.2	<0.05	1.9	<0.5	2.1
10/21/20	371	<0.3	<0.2	<0.05	1.7	<0.5	1.8
11/30/20	376	<0.3	<0.2	<0.05	1.8	<0.5	1.9
12/31/20	370	0.1	<0.2	<0.05	1.7	<0.5	2.0
1/18/21	366	0.1	<0.2	<0.05	1.7	<0.5	2.0
2/24/21	370	0.2	<0.2	<0.05	2.0	<0.5	2.3
3/24/21	374	0.1	<0.2	<0.05	1.6	<0.5	2.0
4/27/21	371	0.1	<0.2	<0.05	2.0	<0.5	2.2
5/19/21	370	<0.3	<0.2	<0.05	1.9	<0.5	2.0
6/28/21	370	0.2	<0.2	<0.05	2.1	<0.5	2.4
7/28/21	377	0.2	<0.2	<0.05	1.9	<0.5	2.2
08/25/21	375	0.2	<0.2	<0.05	2.1	<0.5	2.4
09/21/21	381	0.2	<0.2	<0.05	2.0	<0.5	2.3

Table 5-1
San Sevaine Basins: SAT Removal Efficiencies for TOC and TN

Recycled Water Tracking Events			
Event	**Date**	**Notes**	
Start of Recycled Water Recharge in Basin	08/04/20	Empty basin	
First Arrival of Recycled Water Recharge at SSV-2	12/31/20	149 days (4.9 months) after start of recycled water recharge	
First Arrival of Recycled Water Recharge at Unitex 91090	NA	Recycled water has not arrived	
End of Start-Up Period	09/21/21		
20-Week Running Averaging Dates			
Averaging Period of Surface Water data	12/06/20 - 04/25/21	SSV-2 averaging period less a 149-day travel time	
Averaging Period of SSV-2 data	05/04/21 - 09/21/21	From 20 weeks prior to the end of Start-Up Period	
SAT Removal Efficiency for TOC *	**Surface Water Avg. TOC (mg/L)**	**Monitoring Well Avg. TOC (mg/L)**	**SAT Eff. (%)**
Surface water 20-week average TOC concentration offset by the 4.9-month travel time to groundwater at SSV-2	**7.41**		**92%**
SSV-2 groundwater 20-week average TOC concentration for the last 4.9 months of the Start Up Period		**0.57**	
SAT Removal Efficiency for TN *	**Surface Water Avg. TN (mg/L)**	**Monitoring Well Avg. TN (mg/L)**	**SAT Eff. (%)**
Surface water 20-week average TN concentration offset by the 4.9-month travel time to groundwater at SSV-2	**4.46**		**34%**
SSV-2 groundwater 20-week average TN concentration for the last 4.9 months of the Start Up Period		**2.93**	

Note: * Average TOC and TN data are from Tables 4-2 and 4-4, respectively.

Table 7-1
San Sevaine Basins RWC Management Plan

(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
2013/14	Jul '13	-84	0	0	139	139	29,185	0	1,484	30,669	5%	ACTUAL
	Aug '13	-83	0	0	139	139	29,324	0	1,484	30,808	5%	
	Sep '13	-82	0	0	139	139	29,463	154	1,638	31,101	5%	
	Oct '13	-81	11	0	139	150	29,613	69	1,707	31,320	5%	
	Nov '13	-80	39	0	139	178	29,791	9	1,716	31,507	5%	
	Dec '13	-79	6	0	139	145	29,936	0	1,716	31,652	5%	
	Jan '14	-78	0	0	139	139	30,075	12	1,728	31,803	5%	
	Feb '14	-77	69	0	139	208	30,283	16	1,744	32,027	5%	
	Mar '14	-76	20	0	139	159	30,442	0	1,744	32,186	5%	
	Apr '14	-75	17	0	139	156	30,598	2	1,746	32,344	5%	
	May '14	-74	0	0	139	139	30,737	12	1,758	32,495	5%	
	Jun '14	-73	0	0	139	139	30,875	0	1,758	32,633	5%	
2014/15	Jul '14	-72	0	0	139	139	31,014	0	1,758	32,772	5%	
	Aug '14	-71	6	0	139	145	31,159	0	1,758	32,917	5%	
	Sep '14	-70	1	0	139	140	31,299	1	1,759	33,058	5%	
	Oct '14	-69	0	0	139	139	31,438	0	1,759	33,197	5%	
	Nov '14	-68	18	0	139	157	31,595	0	1,759	33,354	5%	
	Dec '14	-67	247	0	139	386	31,981	0	1,759	33,740	5%	
	Jan '15	-66	(6)	0	139	133	32,114	0	1,759	33,873	5%	
	Feb '15	-65	39	0	139	178	32,292	0	1,759	34,051	5%	
	Mar '15	-64	2	0	139	141	32,433	0	1,759	34,192	5%	
	Apr '15	-63	0	0	139	139	32,572	0	1,759	34,331	5%	
	May '15	-62	17	0	139	156	32,334	0	1,759	34,093	5%	
	Jun '15	-61	0	0	139	139	31,282	0	1,759	33,041	5%	
2015/16	Jul '15	-60	9	0	139	148	30,995	0	1,759	32,754	5%	
	Aug '15	-59	0	0	139	139	30,921	0	1,759	32,680	5%	
	Sep '15	-58	53	0	139	192	30,555	0	1,759	32,314	5%	
	Oct '15	-57	47	0	139	186	30,166	0	1,759	31,925	6%	
	Nov '15	-56	1	0	139	140	29,164	0	1,759	30,923	6%	
	Dec '15	-55	80	0	139	219	28,396	0	1,759	30,155	6%	
	Jan '16	-54	244	0	139	383	27,811	0	1,759	29,570	6%	
	Feb '16	-53	33	0	139	172	26,859	0	1,759	28,618	6%	
	Mar '16	-52	88	0	139	227	26,122	0	1,759	27,881	6%	
	Apr '16	-51	29	0	139	168	25,103	0	1,759	26,862	7%	
	May '16	-50	1	0	139	140	23,857	0	1,759	25,616	7%	
	Jun '16	-49	0	0	139	139	23,047	0	1,759	24,806	7%	
2016/17	Jul '16	-48	0	0	139	139	23,171	0	1,759	24,930	7%	
	Aug '16	-47	0	0	139	139	22,280	0	1,759	24,039	7%	
	Sep '16	-46	0	0	139	139	21,413	0	1,759	23,172	8%	
	Oct '16	-45	16	0	139	155	20,557	0	1,759	22,316	8%	
	Nov '16	-44	12	14	139	165	20,157	0	1,759	21,916	8%	
	Dec '16	-43	156	0	139	295	19,433	0	1,759	21,192	8%	
	Jan '17	-42	488	0	139	627	19,123	0	1,759	20,882	8%	
	Feb '17	-41	93	0	278	371	19,152	0	1,759	20,911	8%	
	Mar '17	-40	3	0	278	281	19,428	0	1,759	21,187	8%	
	Apr '17	-39	1	0	278	279	19,704	0	1,759	21,463	8%	
	May '17	-38	16	0	278	294	19,967	0	1,759	21,726	8%	
	Jun '17	-37	0	526	278	804	20,741	0	1,759	22,500	8%	
2017/18	Jul '17	-36	0	567	278	845	21,585	0	1,759	23,344	8%	
	Aug '17	-35	48	117	278	443	22,028	0	1,759	23,787	7%	
	Sep '17	-34	0	151	278	429	22,454	0	1,759	24,213	7%	
	Oct '17	-33	0	503	278	781	23,229	0	1,759	24,988	7%	
	Nov '17	-32	0	54	278	332	23,524	0	1,759	25,283	7%	
	Dec '17	-31	0	1104	278	1382	24,831	0	1,759	26,590	7%	
	Jan '18	-30	104	893	278	1275	25,553	0	1,759	27,312	6%	
	Feb '18	-29	21	0	278	299	25,823	0	1,759	27,582	6%	
	Mar '18	-28	128	0	278	405	26,228	0	1,759	27,987	6%	
	Apr '18	-27	0	0	278	278	26,506	0	1,759	28,265	6%	
	May '18	-26	4	0	278	282	26,741	0	1,759	28,500	6%	
	Jun '18	-25	0	0	278	278	27,019	0	1,759	28,778	6%	
2018/19	Jul '18	-24	2	0	278	280	27,299	0	1,759	29,058	6%	
	Aug '18	-23	0	0	278	278	27,577	0	1,759	29,336	6%	
	Sep '18	-22	0	0	278	278	27,855	0	1,759	29,614	6%	
	Oct '18	-21	7	0	278	285	28,140	0	1,759	29,899	6%	
	Nov '18	-20	31	0	278	309	28,441	0	1,759	30,200	6%	
	Dec '18	-19	45	0	278	323	28,678	0	1,759	30,437	6%	
	Jan '19	-18	318	0	278	596	29,258	0	1,759	31,017	6%	
	Feb '19	-17	429	0	278	706	29,858	0	1,759	31,617	6%	
	Mar '19	-16	313	0	278	591	30,440	0	1,759	32,199	5%	
	Apr '19	-15	0	0	278	278	30,718	0	1,759	32,477	5%	
	May '19	-14	25	0	278	303	31,021	0	1,759	32,780	5%	
	Jun '19	-13	0	857	278	1134	32,156	0	1,759	33,915	5%	

(CONTINUED)

Table 7-1

San Sevaine Basins RWC Management Plan

(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
2019/20	Jul '19	-12	0	766	278	1044	33,200	0	1,759	34,959	5%	ACTUAL
	Aug '19	-11	0	597	278	875	34,075	0	1,759	35,834	5%	
	Sep '19	-10	0	117	278	395	34,469	0	1,759	36,228	5%	
	Oct '19	-9	0	0	278	278	34,691	0	1,759	36,450	5%	
	Nov '19	-8	155	113	278	546	35,216	0	1,759	36,975	5%	
	Dec '19	-7	211	32	278	520	35,403	0	1,759	37,162	5%	
	Jan '20	-6	31	52	278	361	35,474	0	1,759	37,233	5%	
	Feb '20	-5	8	0	278	286	35,537	0	1,759	37,296	5%	
	Mar '20	-4	254	0	278	532	36,053	0	1,759	37,812	5%	
	Apr '20	-3	363	0	278	640	36,640	0	1,759	38,399	5%	
	May '20	-2	3	0	278	281	36,921	0	1,759	38,680	5%	
	Jun '20	-1	0	0	278	278	37,199	0	1,759	38,958	5%	
2020/21	Jul '20	0	0	0	278	278	37,477	0	1,709	39,186	4%	
	Aug '20	1	0	0	278	278	37,755	267	1,932	39,687	5%	START-UP
	Sep '20	2	0	0	278	278	38,033	201	2,091	40,123	5%	
	Oct '20	3	0	0	278	278	38,216	260	2,278	40,494	6%	
	Nov '20	4	55	0	278	333	38,329	290	2,555	40,883	6%	
	Dec '20	5	161	0	278	439	38,052	211	2,734	40,786	7%	
	Jan '21	6	143	0	278	421	38,320	133	2,795	41,116	7%	
	Feb '21	7	24	0	278	302	38,341	221	3,016	41,357	7%	
	Mar '21	8	61	0	278	339	38,408	202	3,218	41,626	8%	
	Apr '21	9	0	0	278	278	38,547	275	3,493	42,040	8%	
	May '21	10	0	0	278	278	38,141	247	3,704	41,845	9%	
	Jun '21	11	0	0	278	278	37,111	325	3,995	41,105	10%	
2021/22	Jul '21	12	6	0	278	283	36,244	316	4,197	40,442	10%	
	Aug '21	13	0	0	278	278	36,372	329	4,436	40,808	11%	
	Sep '21	14	0	0	278	278	36,306	141	4,577	40,883	11%	
	Oct '21	15	7	0	278	285	36,412	230	4,807	41,219	12%	PLANNED
	Nov '21	16	0		278	278	36,519	220	5,027	41,546	12%	
	Dec '21	17	0		278	278	36,638	120	5,147	41,785	12%	
	Jan '22	18	0		278	278	36,722	100	5,088	41,810	12%	
	Feb '22	19	0		278	278	36,807	160	5,174	41,981	12%	
	Mar '22	20	109		278	387	36,895	140	5,298	42,193	13%	
	Apr '22	21	108		278	386	37,066	140	5,434	42,500	13%	
	May '22	22	18		278	296	37,223	230	5,661	42,884	13%	
	Jun '22	23	2		278	280	37,364	250	5,857	43,221	14%	
2022/23	Jul '22	24	1		278	279	37,504	250	5,985	43,489	14%	
	Aug '22	25	1		278	281	37,645	250	6,151	43,796	14%	
	Sep '22	26	3		278	282	37,788	250	6,362	44,150	14%	
	Oct '22	27	4		278	297	37,945	230	6,529	44,474	15%	
	Nov '22	28	19		278	310	38,102	220	6,683	44,785	15%	
	Dec '22	29	32		278	413	38,297	120	6,802	45,099	15%	
	Jan '23	30	135		278	424	38,560	100	6,843	45,404	15%	
	Feb '23	31	146		278	371	38,783	160	6,984	45,768	15%	
	Mar '23	32	93		278	387	39,018	140	7,071	46,089	15%	
	Apr '23	33	109		278	386	39,260	140	7,170	46,430	15%	
	May '23	34	108		278	296	39,413	230	7,374	46,787	16%	
	Jun '23	35	18		278	280	39,554	250	7,622	47,176	16%	
2023/24	Jul '23	36	2		278	279	39,694	250	7,872	47,566	17%	
	Aug '23	37	1		278	281	39,836	250	8,122	47,958	17%	
	Sep '23	38	3		278	282	39,979	250	8,218	48,197	17%	
	Oct '23	39	4		278	297	40,126	230	8,379	48,505	17%	
	Nov '23	40	19		278	310	40,258	220	8,590	48,848	18%	
	Dec '23	41	32		278	413	40,526	120	8,710	49,236	18%	
	Jan '24	42	135		278	424	40,811	100	8,798	49,609	18%	
	Feb '24	43	146		278	371	40,974	160	8,942	49,916	18%	
	Mar '24	44	93		278	387	41,202	140	9,082	50,284	18%	
	Apr '24	45	109		278	386	41,432	140	9,220	50,652	18%	
	May '24	46	108		278	296	41,589	230	9,438	51,027	18%	
	Jun '24	47	18		278	280	41,730	250	9,688	51,418	19%	
2024/25	Jul '24	48	2		278	279	41,870	250	9,938	51,808	19%	
	Aug '24	49	1		278	281	42,006	250	10,188	52,194	20%	
	Sep '24	50	3		278	282	42,148	250	10,437	52,585	20%	
	Oct '24	51	4		278	297	42,305	230	10,667	52,973	20%	
	Nov '24	52	19		278	310	42,458	220	10,887	53,346	20%	
	Dec '24	53	32		278	413	42,485	120	11,007	53,492	21%	
	Jan '25	54	135		278	424	42,776	100	11,107	53,883	21%	
	Feb '25	55	146		278	371	42,969	160	11,267	54,236	21%	
	Mar '25	56	93		278	387	43,215	140	11,407	54,622	21%	
	Apr '25	57	109		278	386	43,462	140	11,547	55,009	21%	
	May '25	58	108		278	296	43,602	230	11,777	55,379	21%	
	Jun '25	59	18		278	280	43,743	250	12,027	55,770	22%	

(CONTINUED)

Table 7-1

San Sevaine Basins RWC Management Plan

(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
2025/26	Jul '25	60	2		278	279	43,874	250	12,277	56,151	22%	PLANNED
	Aug '25	61	1		278	281	44,016	250	12,527	56,543	22%	
	Sep '25	62	3		278	282	44,106	250	12,777	56,883	22%	
	Oct '25	63	4		278	297	44,217	230	13,007	57,224	23%	
	Nov '25	64	19		278	310	44,387	220	13,227	57,614	23%	
	Dec '25	65	32		278	413	44,581	120	13,347	57,928	23%	
	Jan '26	66	135		278	424	44,622	100	13,447	58,069	23%	
	Feb '26	67	146		278	371	44,821	160	13,607	58,428	23%	
	Mar '26	68	93		278	387	44,981	140	13,747	58,728	23%	
	Apr '26	69	109		278	386	45,199	140	13,887	59,086	24%	
	May '26	70	108		278	296	45,355	230	14,117	59,472	24%	
	Jun '26	71	18		278	280	45,495	250	14,367	59,863	24%	
2026/27	Jul '26	72	2		278	279	45,635	250	14,617	60,253	24%	
	Aug '26	73	1		278	281	45,777	250	14,867	60,644	25%	
	Sep '26	74	3		278	282	45,920	250	15,117	61,037	25%	
	Oct '26	75	4		278	297	46,062	230	15,347	61,409	25%	
	Nov '26	76	19		278	310	46,207	220	15,567	61,774	25%	
	Dec '26	77	32		278	413	46,325	120	15,687	62,012	25%	
	Jan '27	78	135		278	424	46,122	100	15,787	61,909	26%	
	Feb '27	79	146		278	371	46,122	160	15,947	62,069	26%	
	Mar '27	80	93		278	387	46,228	140	16,087	62,315	26%	
	Apr '27	81	109		278	386	46,335	140	16,227	62,562	26%	
	May '27	82	108		278	296	46,337	230	16,457	62,794	26%	
	Jun '27	83	18		278	280	45,813	250	16,707	62,520	27%	
2027/28	Jul '27	84	2		278	279	45,247	250	16,957	62,204	27%	
	Aug '27	85	1		278	281	45,086	250	17,207	62,293	28%	
	Sep '27	86	3		278	282	44,939	250	17,457	62,396	28%	
	Oct '27	87	4		278	297	44,455	230	17,687	62,142	28%	
	Nov '27	88	19		278	310	44,433	220	17,907	62,340	29%	
	Dec '27	89	32		278	413	43,464	120	18,027	61,491	29%	
	Jan '28	90	135		278	424	42,613	100	18,127	60,740	30%	
	Feb '28	91	146		278	371	42,685	160	18,287	60,972	30%	
	Mar '28	92	93		278	387	42,666	140	18,427	61,094	30%	
	Apr '28	93	109		278	386	42,774	140	18,567	61,342	30%	
	May '28	94	108		278	296	42,788	230	18,797	61,585	31%	
	Jun '28	95	18		278	280	42,790	250	19,047	61,837	31%	
2028/29	Jul '28	96	2		278	279	42,789	250	19,297	62,087	31%	
	Aug '28	97	1		278	281	42,792	250	19,547	62,340	31%	
	Sep '28	98	3		278	282	42,796	250	19,797	62,594	32%	
	Oct '28	99	4		278	297	42,808	230	20,027	62,835	32%	
	Nov '28	100	19		278	310	42,809	220	20,247	63,056	32%	
	Dec '28	101	32		278	413	42,899	120	20,367	63,266	32%	
	Jan '29	102	135		278	424	42,727	100	20,467	63,194	32%	
	Feb '29	103	146		278	371	42,391	160	20,627	63,018	33%	
	Mar '29	104	93		278	387	42,187	140	20,767	62,955	33%	
	Apr '29	105	109		278	386	42,295	140	20,907	63,202	33%	
	May '29	106	108		278	296	42,288	230	21,137	63,425	33%	
	Jun '29	107	18		278	280	41,433	250	21,387	62,821	34%	
2029/30	Jul '29	108	2		278	279	40,669	250	21,637	62,306	35%	
	Aug '29	109	1		278	281	40,074	250	21,887	61,962	35%	
	Sep '29	110	3		278	282	39,962	250	22,137	62,099	36%	
	Oct '29	111	4		278	297	39,981	230	22,367	62,348	36%	
	Nov '29	112	19		278	310	39,744	220	22,587	62,331	36%	
	Dec '29	113	32		278	413	39,637	120	22,707	62,344	36%	
	Jan '30	114	135		278	424	39,699	100	22,807	62,507	36%	
	Feb '30	115	146		278	371	39,784	160	22,967	62,751	37%	
	Mar '30	116	93		278	387	39,639	140	23,107	62,746	37%	
	Apr '30	117	109		278	386	39,385	140	23,247	62,632	37%	
	May '30	118	108		278	296	39,400	230	23,477	62,877	37%	
	Jun '30	119	18		278	280	39,402	250	23,727	63,129	38%	
2030/31	Jul '30	120	2		278	279	39,403	250	23,977	63,380	38%	
	Aug '30	121	1		278	281	39,406	250	23,961	63,366	38%	
	Sep '30	122	3		278	282	39,410	250	24,010	63,419	38%	
	Oct '30	123	4		278	297	39,429	230	23,979	63,408	38%	
	Nov '30	124	19		278	310	39,406	220	23,910	63,316	38%	
	Dec '30	125	32		278	413	39,380	120	23,818	63,198	38%	
	Jan '31	126	135		278	424	39,383	100	23,785	63,168	38%	
	Feb '31	127	146		278	371	39,452	160	23,724	63,176	38%	
	Mar '31	128	93		278	387	39,500	140	23,662	63,162	37%	
	Apr '31	129	109		278	386	39,608	140	23,527	63,135	37%	
	May '31	130	108		278	296	39,626	230	23,510	63,136	37%	
	Jun '31	131	18		278	280	39,628	250	23,436	63,063	37%	

Notes:

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

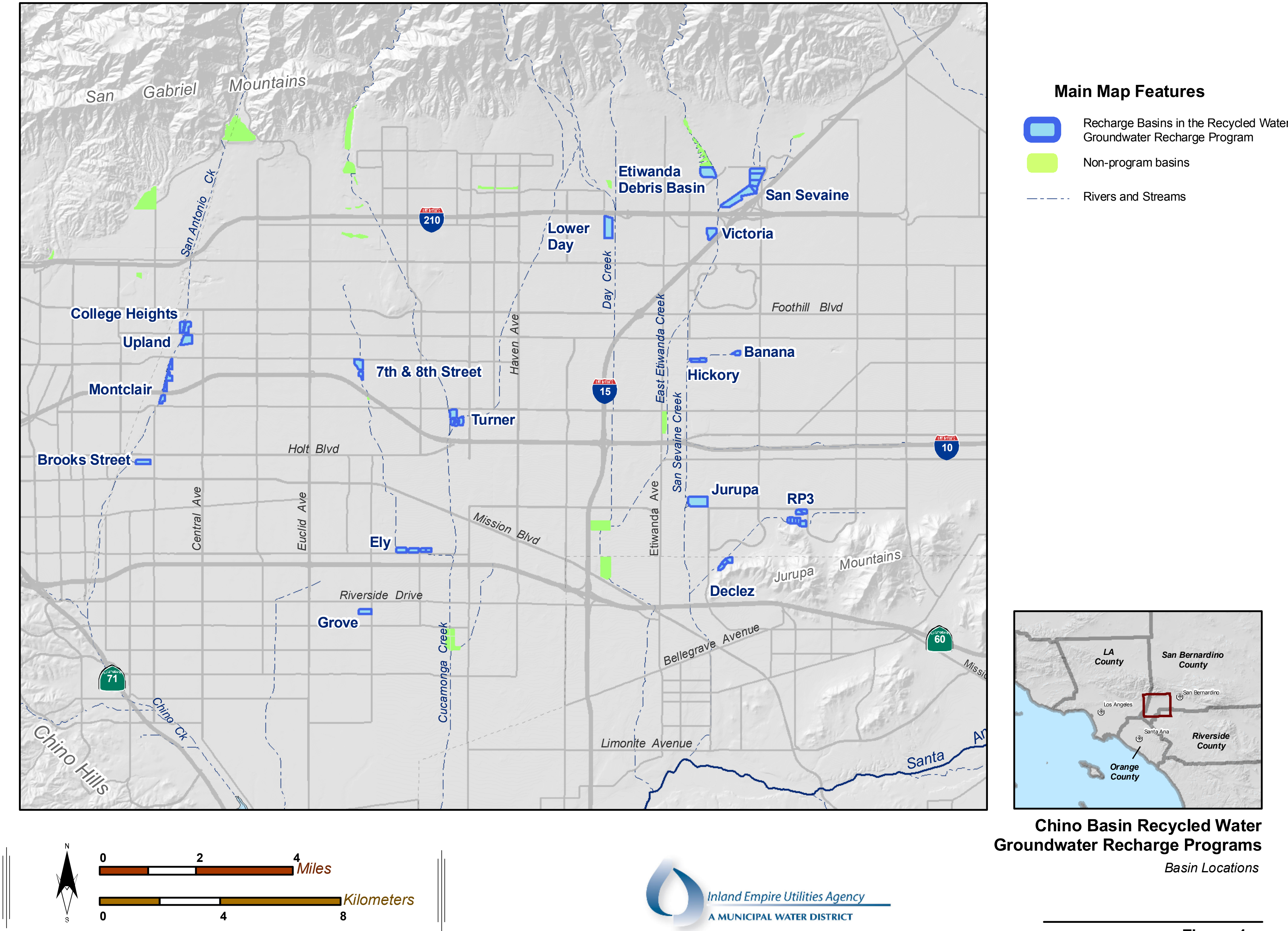
RW = Recycled Water

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

FIGURES



Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Chino Basin Recycled Water Groundwater Recharge Programs

Basin Locations

Figure 1

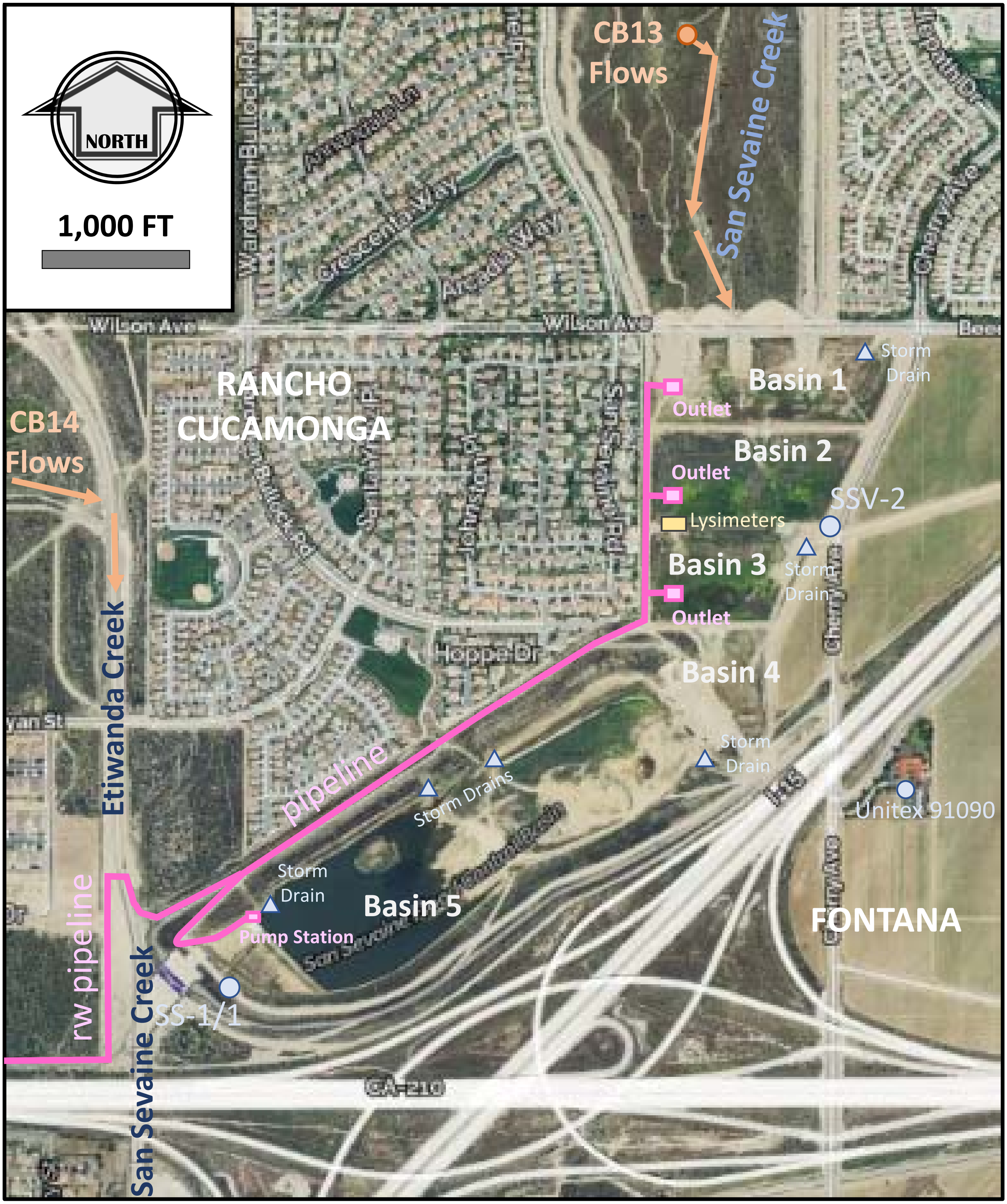


Figure 2-1
Location of Facilities at
San Sevaine Basin

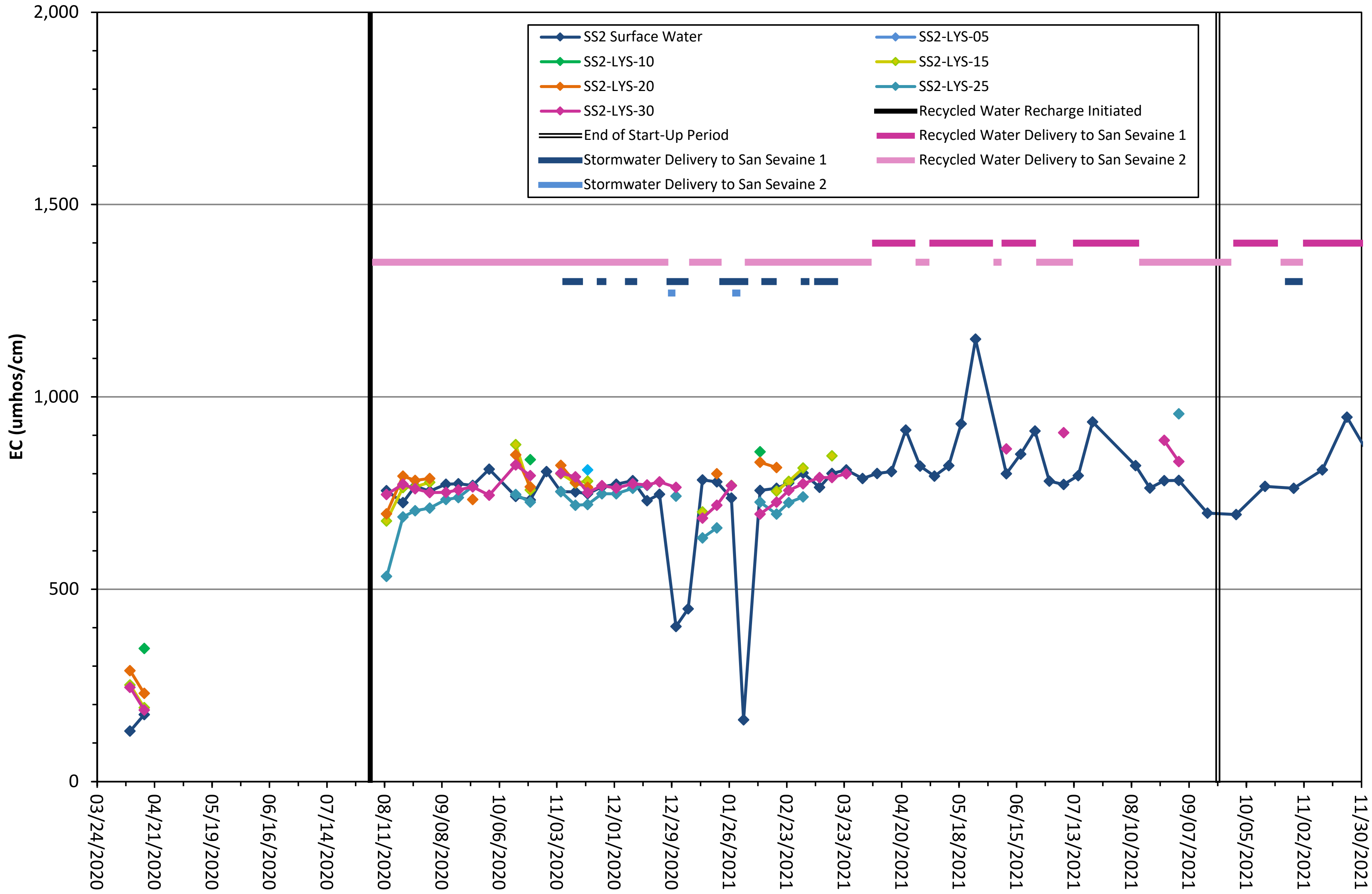


FIGURE 4-1a
SAN SEVAINE BASINS LYSIMETERS
ELECTRICAL CONDUCTIVITY TIME SERIES

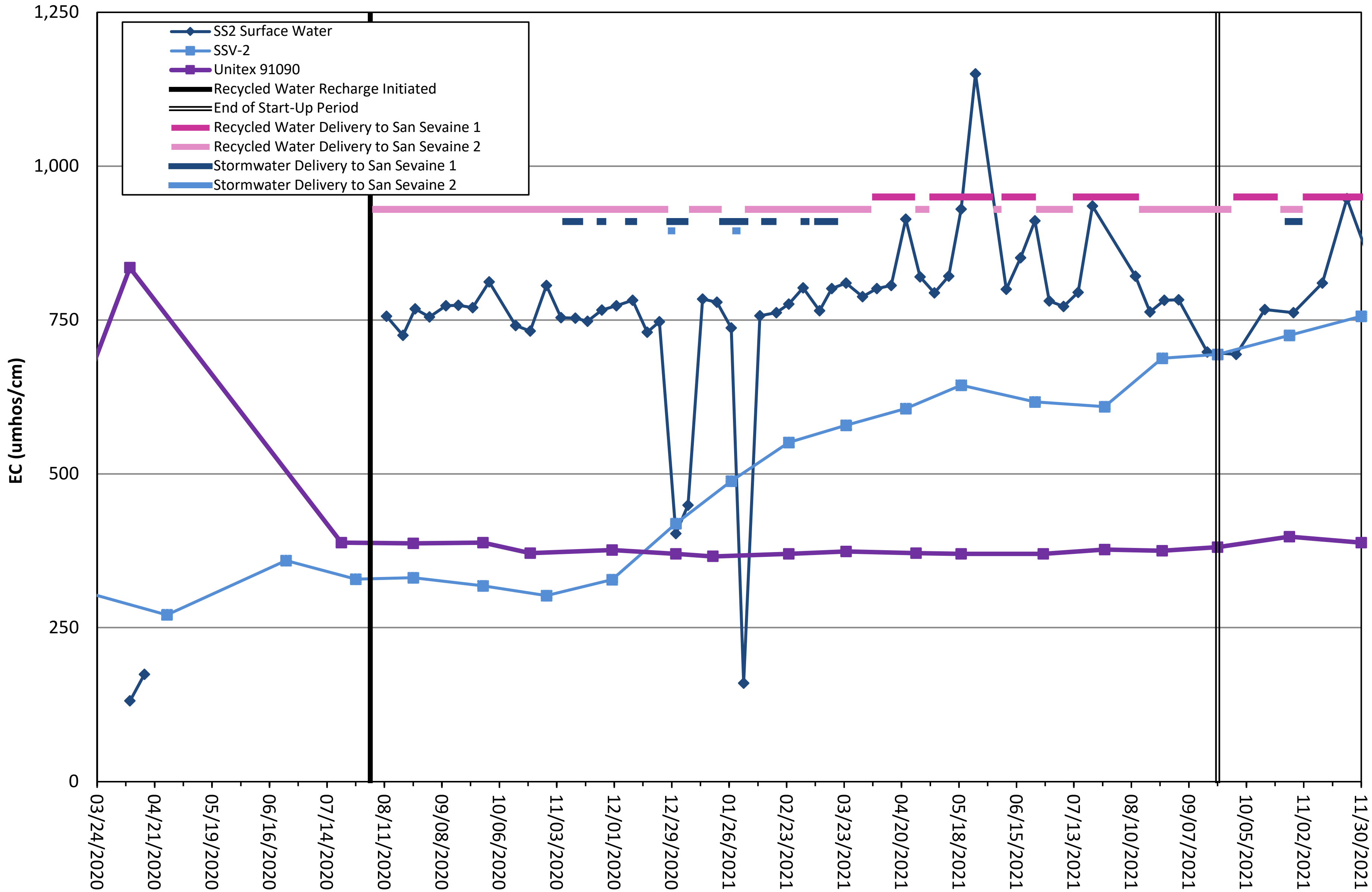


FIGURE 4-1b
SAN SEVAINE BASINS MONITORING WELLS
ELECTRICAL CONDUCTIVITY TIME SERIES

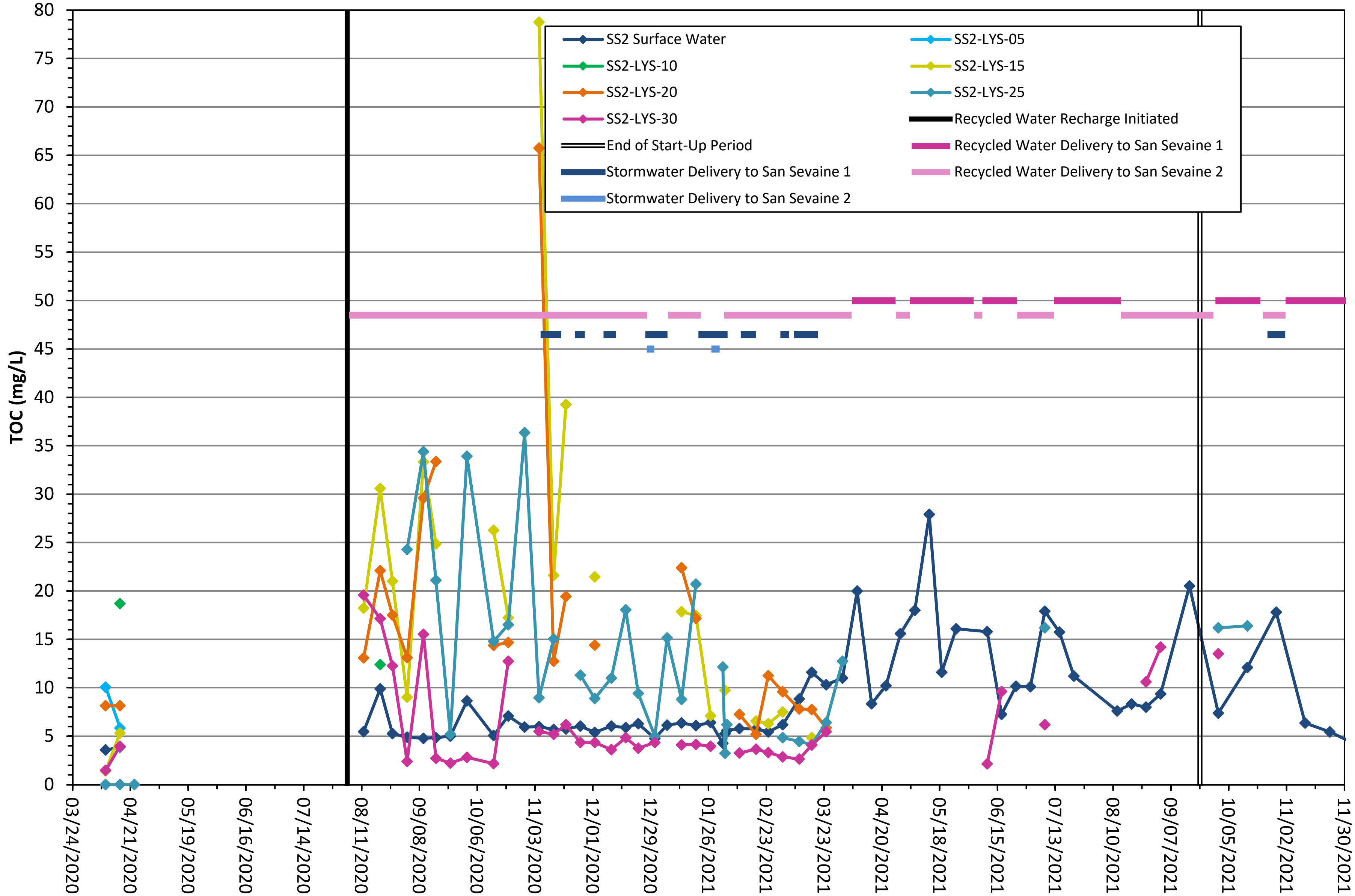


FIGURE 4-2a
SAN SEVAINE BASINS LYSIMETERS
TOTAL ORGANIC CARBON TIME SERIES

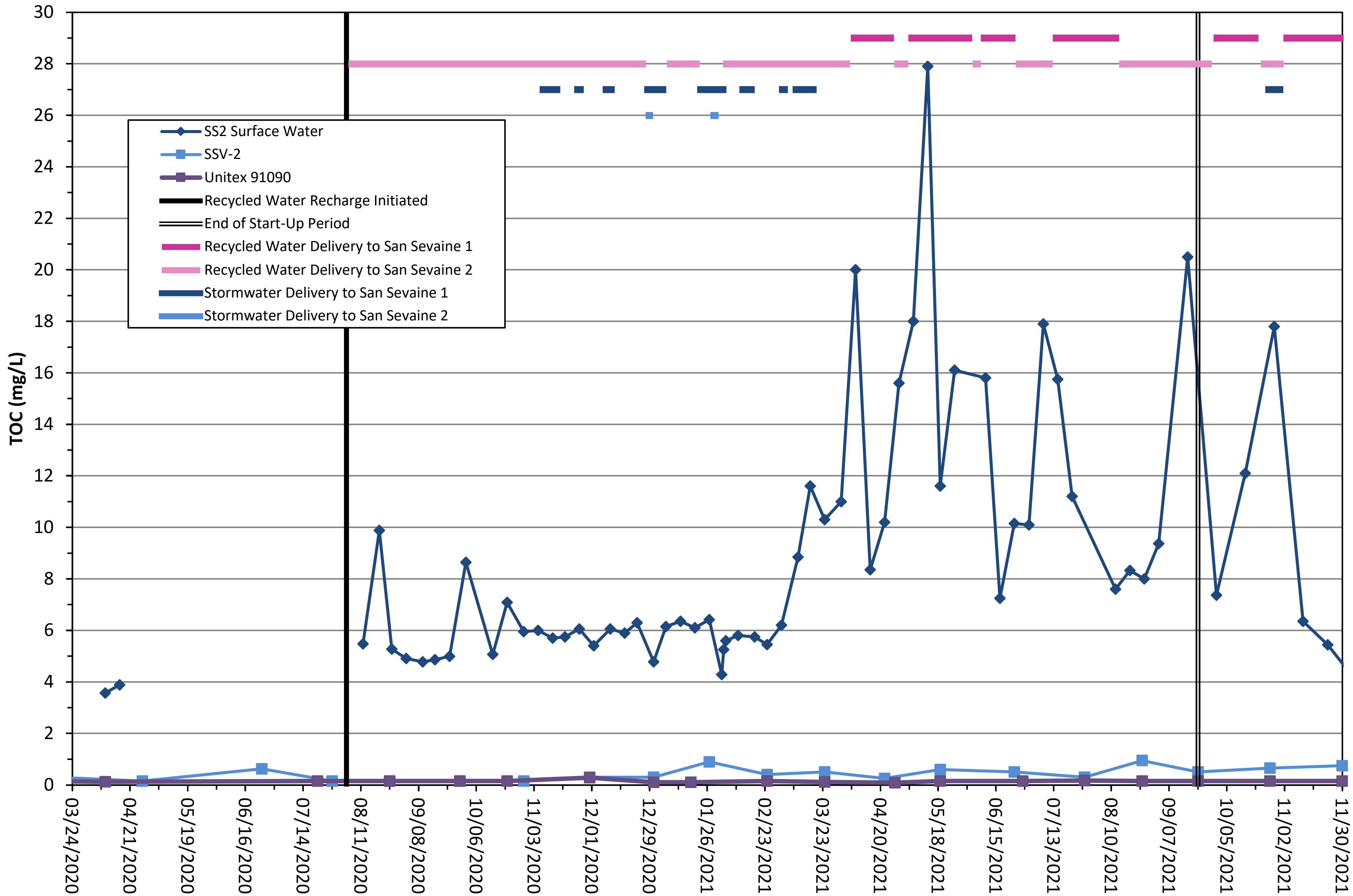


FIGURE 4-2b
SAN SEVAINE BASINS MONITORING WELLS
TOTAL ORGANIC CARBON TIME SERIES

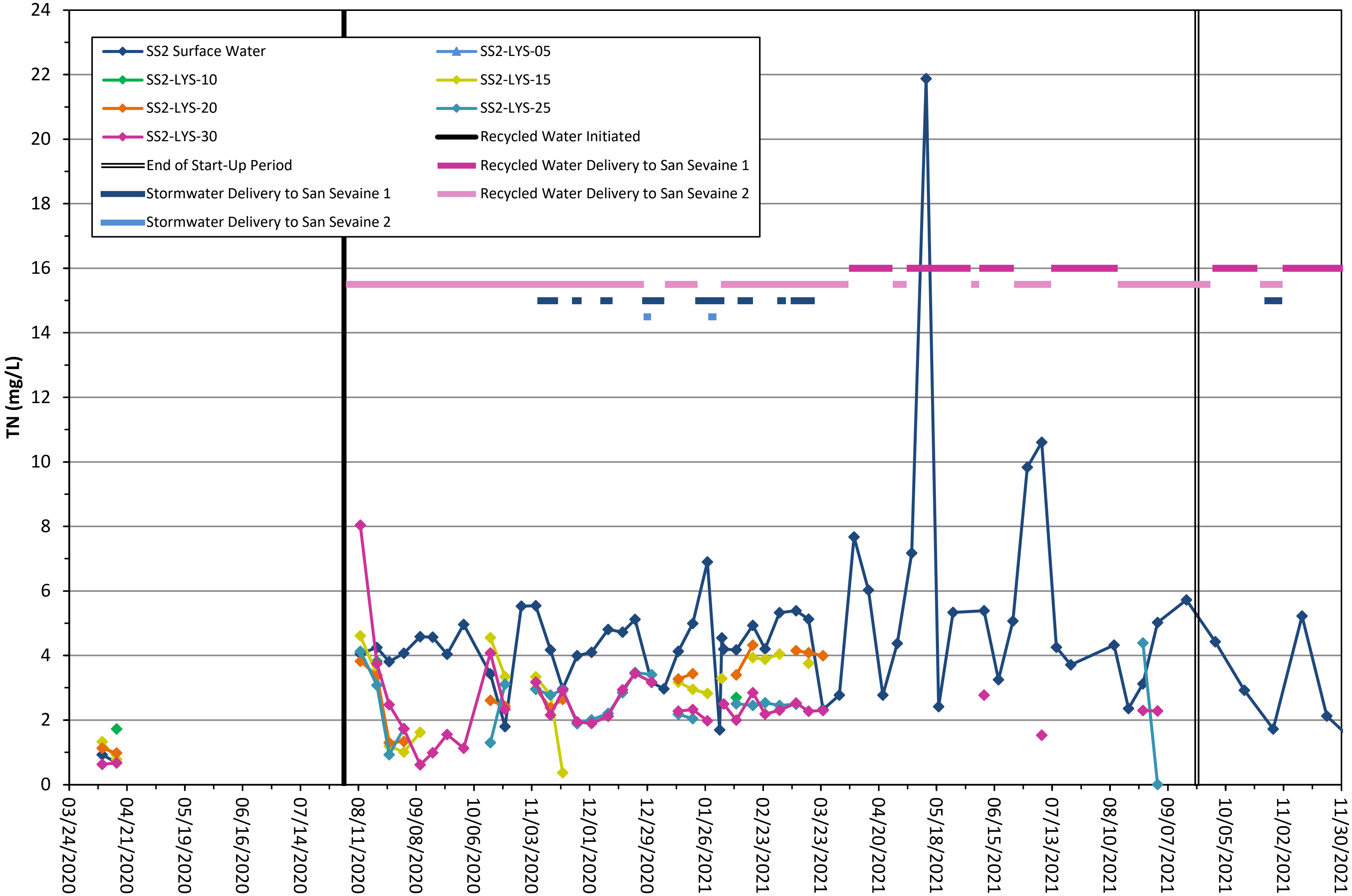


FIGURE 4-3a
SAN SEVAINE BASINS LYSIMETERS
TOTAL NITROGEN TIME SERIES

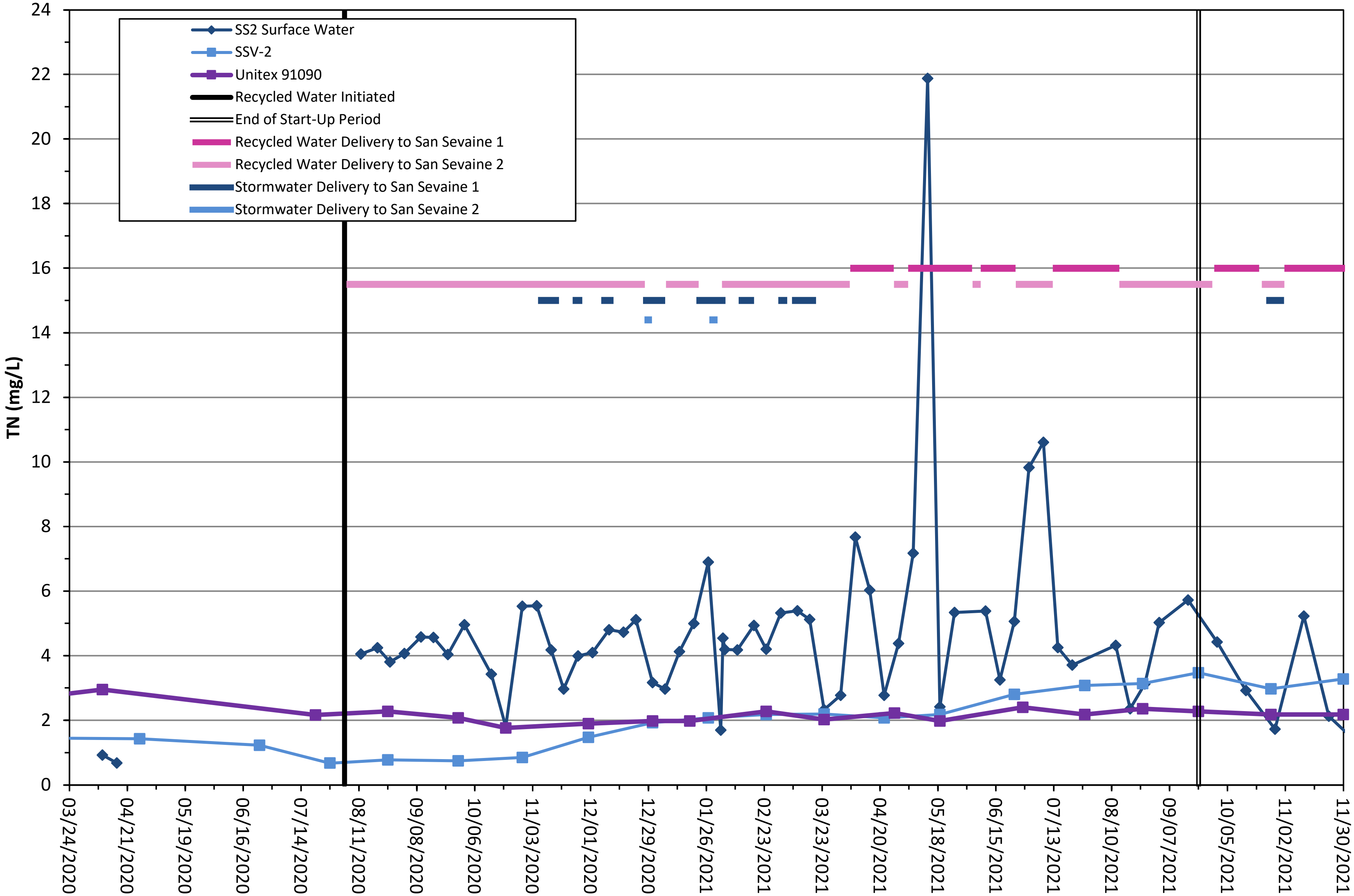


FIGURE 4-3b
SAN SEVAINE BASINS MONITORING WELLS
TOTAL NITROGEN TIME SERIES

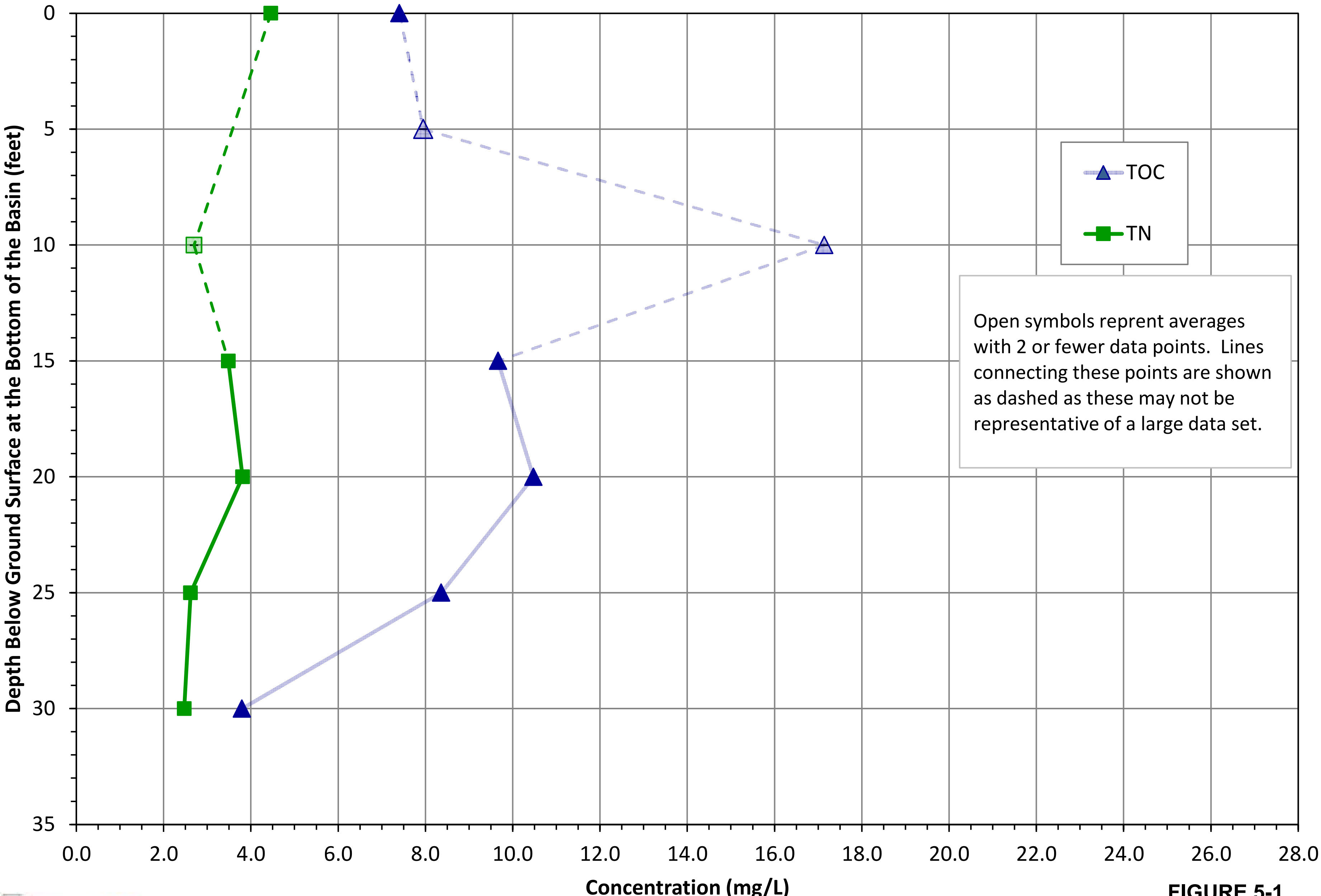


FIGURE 5-1
SAN SEVAINE BASINS
DEPTH PROFILE OF AVERAGE
TOTAL ORGANIC CARBON AND TOTAL NITROGEN

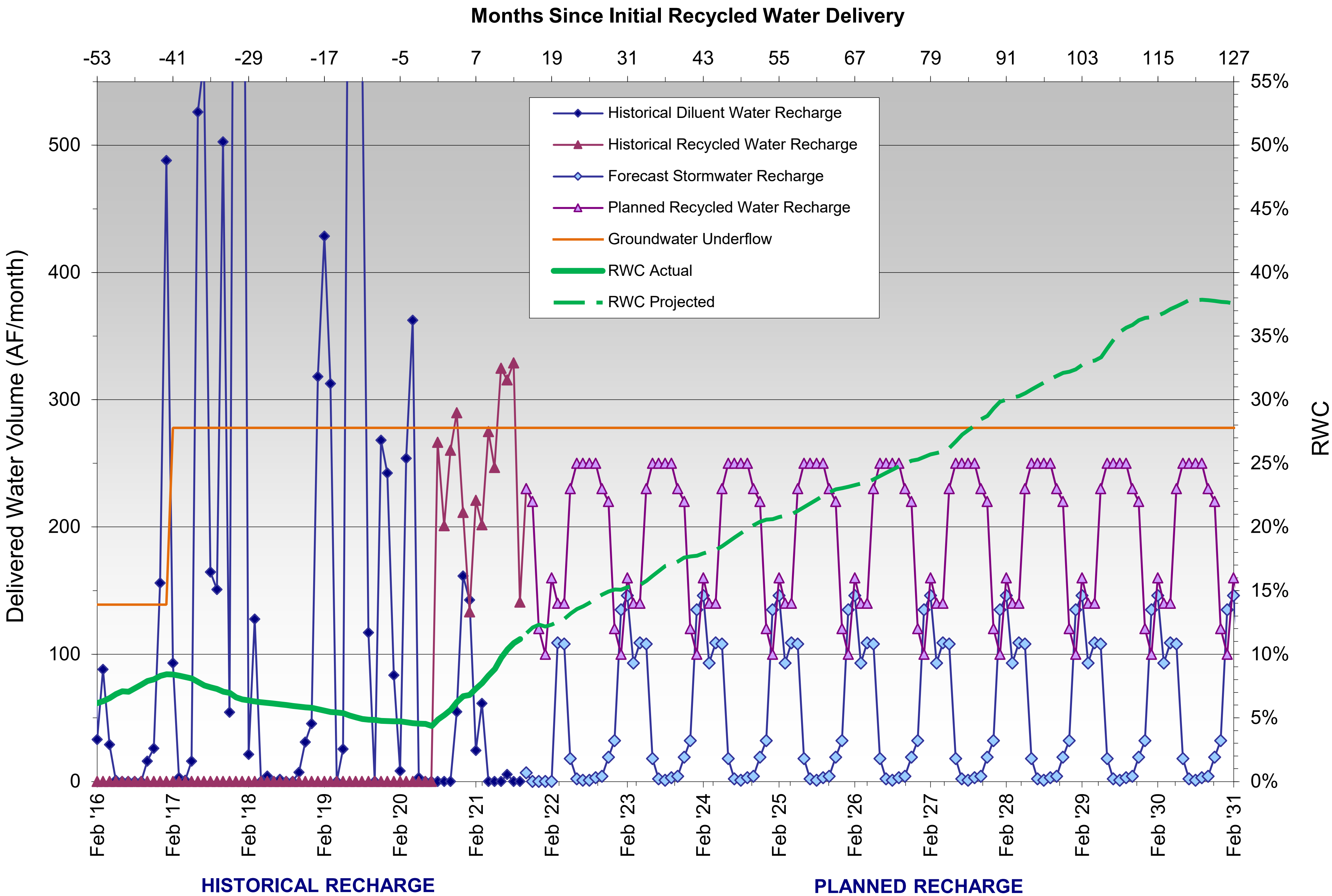
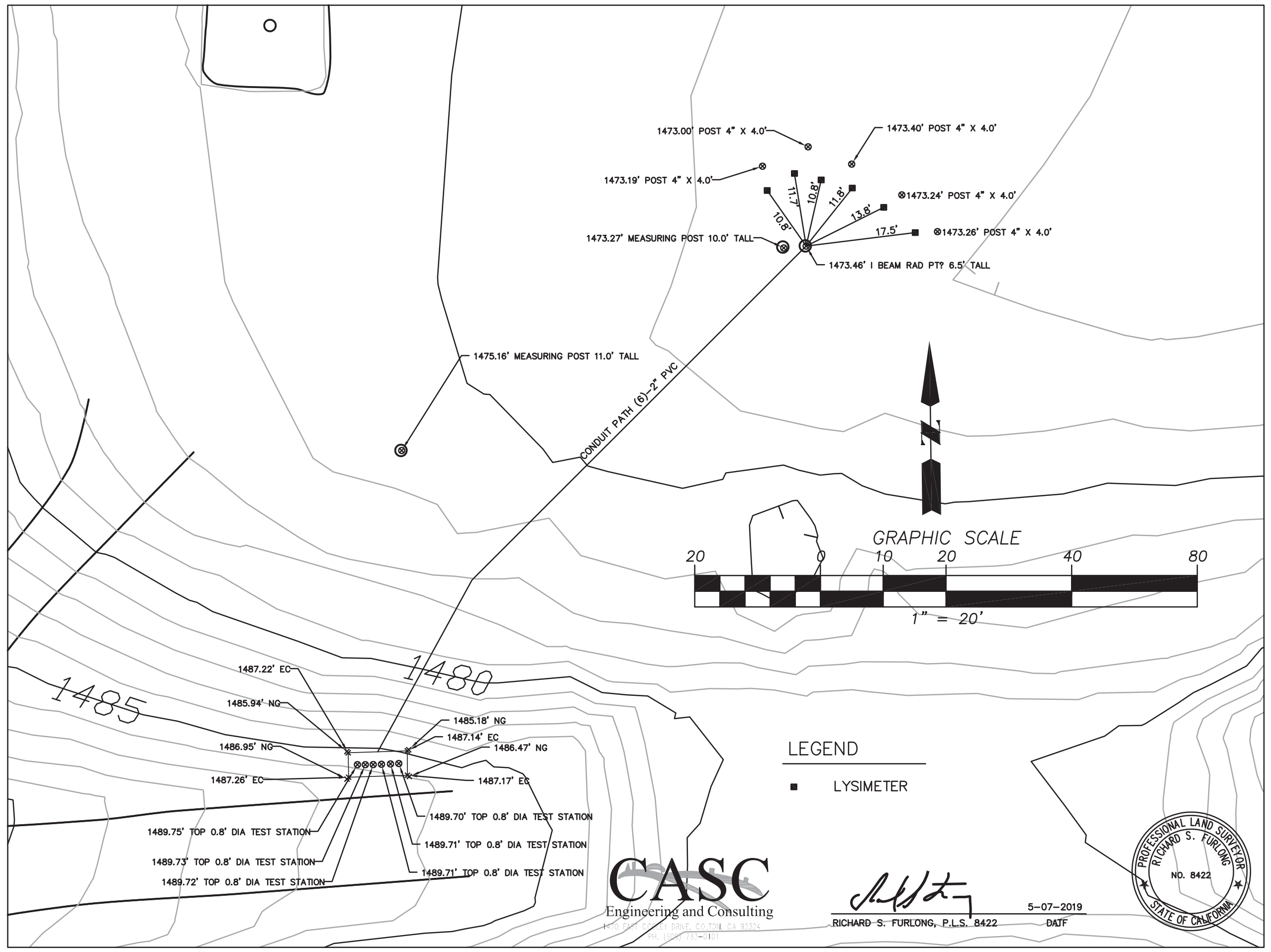
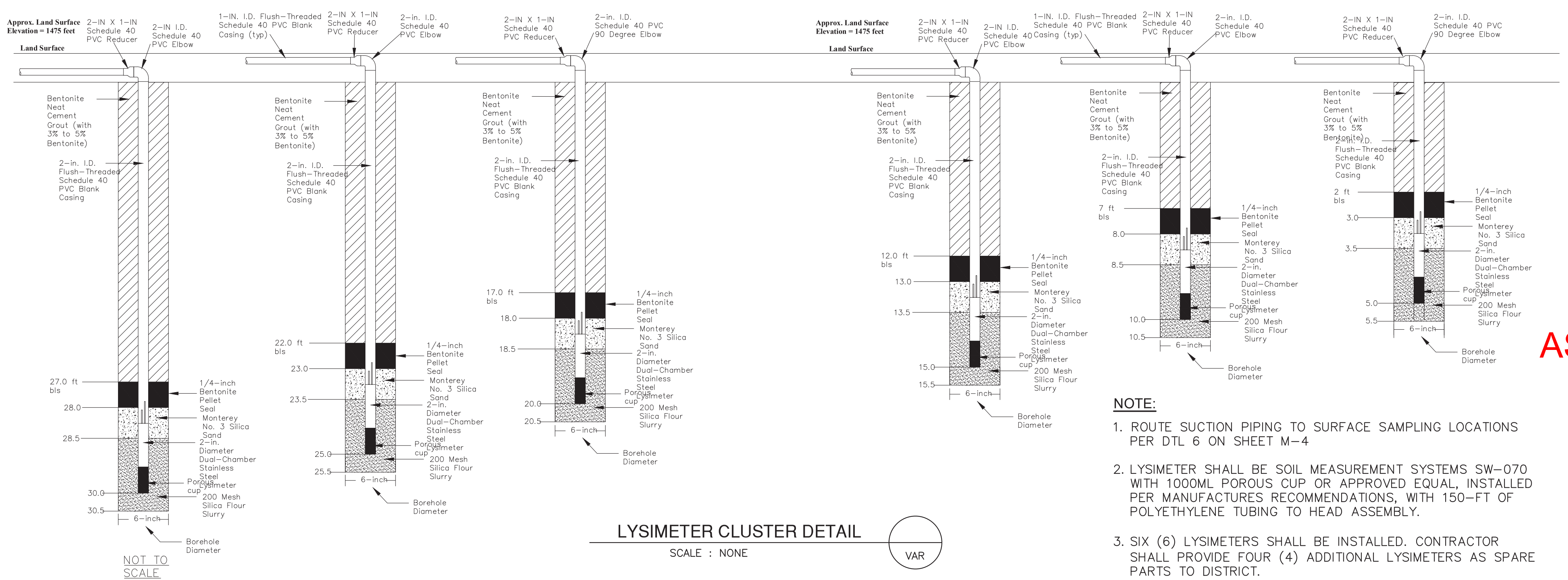


FIGURE 7-1
SAN SEVAINE BASINS
RECYCLED WATER MANAGEMENT PLAN

APPENDIX A

AS BUILT OF SAN SEVAINE 2 LYSIMETER CONSTRUCTION





LYSIMETER CLUSTER DETAIL

SCALE : NONE

VAR

AS-BUILT DRAWINGS
05/16/19

NOTE:

1. ROUTE SUCTION PIPING TO SURFACE SAMPLING LOCATIONS PER DTL 6 ON SHEET M-4
2. LYSIMETER SHALL BE SOIL MEASUREMENT SYSTEMS SW-070 WITH 1000ML POROUS CUP OR APPROVED EQUAL, INSTALLED PER MANUFACTURES RECOMMENDATIONS, WITH 150-FT OF POLYETHYLENE TUBING TO HEAD ASSEMBLY.
3. SIX (6) LYSIMETERS SHALL BE INSTALLED. CONTRACTOR SHALL PROVIDE FOUR (4) ADDITIONAL LYSIMETERS AS SPARE PARTS TO DISTRICT.

BASIN #2 LYSIMETER CLUSTER AS-BUILT EXHIBIT 5-07-19

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

REGISTERED PROFESSIONAL ENGINEER RUSSELL J. BERGHOLZ No. 59395 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA

Designed	JTS	01/2017
Drawn	NH	01/2017
Checked	RJB	01/2017
		Date

REV. NO.	DATE	BY	APRVD	DESCRIPTION
1				SHEET REFLECTS CHANGES FROM ADDENDUMS 1-7

REVIEWED BY:
PREVIOUSLY SIGNED ON 3/13/17
JOEL IGNACIO, P.E. Date

SCALE
AS SHOWN
Bar Scale shown below is one inch on original drawing. If NOT one inch on this sheet, adjust scales accordingly.
0" 1"

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT
LOCATION
6075 Kimball Avenue
Chino, California 91708
Telephone (909) 993-1600
MAILING ADDRESS
Post Office Box 9020
Chino Hills, California 91710

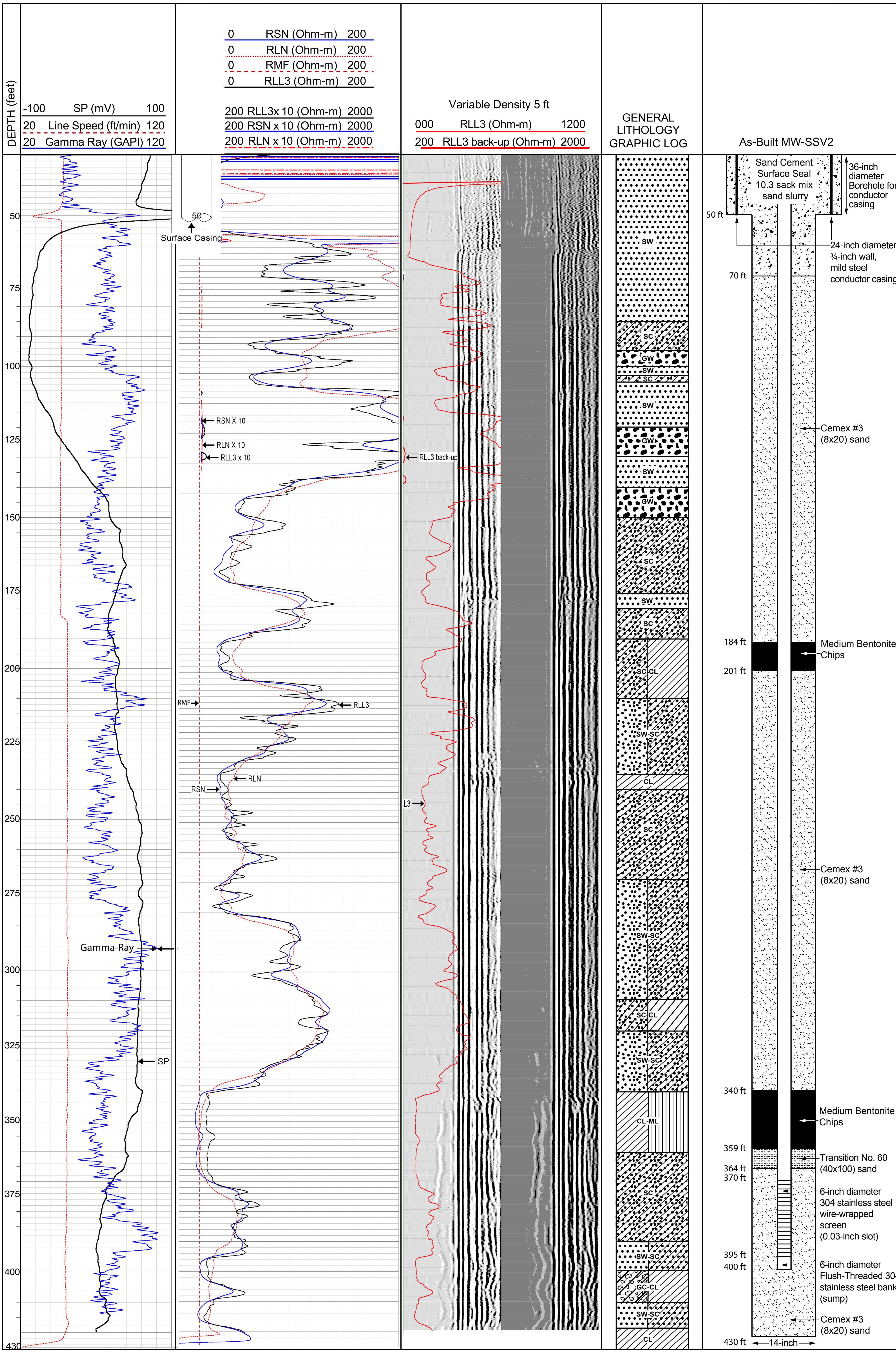
SAN SEVAINE BASIN IMPROVEMENTS
PROJECT NO. EN13001

LYSIMETER CLUSTER AS-BUILT

SHEET M-5A
SHEET NO.
PROJECT NO. EN13001
DRAWING NO. D8047-018A

APPENDIX B

AS BUILT OF MONITORING WELL SSV-2 CONSTRUCTION



SOURCE: PACIFIC SURVEYS, 2018

FIGURE 4

SSV2 Geophysical, Lithology and As-Built Graphic Log

DUDEK