



# DEVELOPMENT AND RESULTS OF ADDITIONAL GSWIM SIMULATIONS FOR THE USCR CHLORIDE TMDL COMPLIANCE PROJECT

Upper Santa Clara River  
Upper Santa Clara River Valley, California

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SIMULATIONS FOR THE USCR CHLORIDE  
TMDL COMPLIANCE REPORT**

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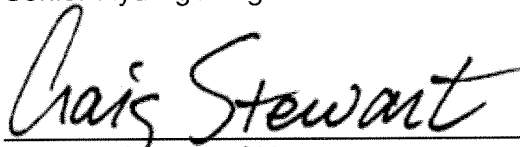
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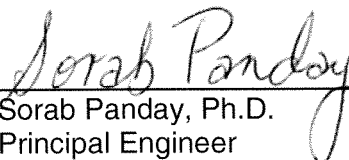
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# **DEVELOPMENT AND RESULTS OF ADDITIONAL GSWIM SIMULATIONS FOR THE USCR CHLORIDE TMDL COMPLIANCE PROJECT**

Upper Santa Clara River  
Santa Clara River Valley, California

## **1.0 INTRODUCTION**

AMEC Environment & Infrastructure, Inc. (AMEC), along with its subconsultant GSI Environmental Inc. (GSI), have prepared this report on behalf of the Sanitation Districts of Los Angeles County (Districts) to describe the evaluation of operational options at the Districts' Saugus and Valencia Water Reclamation Plants (WRPs) in the Upper Santa Clara River (USCR) Valley watershed, Los Angeles County, California. Operational options were evaluated using the USCR Groundwater/Surface Water Interaction Model (GSWIM; the model), a calibrated model developed as part of the larger Groundwater/Surface-water Interaction (GSWI) Study conducted jointly by the Districts and the Los Angeles Regional Water Quality Control Board (LARWQCB) in support of the USCR Chloride Total Maximum Daily Load (TMDL) project. Development and calibration of the GSWIM is documented in the report titled "Task 2B-1 Numerical Model Development and Scenario Results: East and Piru Subbasins," dated March 2008, and prepared by CH2M Hill and HydroGeoLogic (Task 2B-1 Report).

At the request of the LARWQCB, AMEC, GSI, and the Districts simulated additional scenarios using the model to evaluate the effects on surface water and groundwater of using reverse osmosis (RO) to reduce chloride discharges from the WRPs to a 3-month average of 100 milligrams per Liter (mg/L). Predictive model simulations were used to evaluate two agreed-on operational options to meet this water quality objective. The simulated operational options differ in: (1) the location(s) where RO permeate is added to reduce chloride concentrations (at only the Valencia WRP or at both Valencia and Saugus WRPs); and (2) calculation of compliance with the discharge requirements (i.e., a flow-weighted average of the discharge for both WRPs or a non flow-weighted average that requires compliance at both WRPs independently). The predictive model simulations were used to evaluate the impact of these operational options. Note that these predictive simulations are intended to analyze various climactic and chloride conditions, including drought, average, and wet conditions, that may be encountered in the USCR watershed; they are not, however, designed or intended to predict specific conditions at specific times.

This report describes the model simulations (Section 2), provides the model results (Section 3), and lists the references relied on in preparing the report (Section 4).

## 2.0 MODEL SIMULATIONS

As described in the Task 2B-1 Report, the GSWIM was developed to simulate potential impacts to chloride concentrations in groundwater and surface water under a variety of potential future water management and advanced treatment options. Several scenarios were developed by the Districts and LARWQCB to assess the impacts of various water management and treatment options on chloride concentrations within the USCR watershed. Figure 1 provides an overview of the USCR watershed, including the locations of key groundwater subbasins, the Saugus and Valencia WRPs, observation points at which surface water flow and chloride concentrations, or groundwater chloride concentrations are measured, and the GSWIM model boundary.

The alternative model simulations summarized in this report represent a continuation of the effort that has been designed to provide suitable quality water to beneficial users by reducing the chloride loading to the basin. The model used for these simulations has been modified slightly from the 2012 model base case, which had a State Water Project (SWP) imported water chloride concentration capped at 81 mg/L, as documented in the technical memorandum titled, “Upper Santa Clara River Groundwater/Surface-Water Interaction Model Results of RO Scenarios,” dated April 2012, and prepared by AMEC (Technical Memorandum).

The scenarios evaluated in this report involve assumed conditions that are modified from the base case reported in the Technical Memorandum (AMEC, 2012). The base model used for these scenarios (the base model) uses historical SWP imported water concentration data as reported in the Task 2B-1 report, with the exception of an artificially inflated chloride concentration for the model stress period beginning on model day (Day) 5,266. This stress period represents severe drought conditions. The input for SWP imported water in the base model accounts for an additional 4 milligrams per liter (mg/L) of chloride to reflect additional treatment by water purveyors. The peak SWP imported water chloride concentration, with a 4 mg/L chloride addition from water purveyors, is 135 mg/L. This base model has been selected for use in this project phase because it is believed to represent a conservative scenario that may occur under future drought conditions during the 24-year simulation period considered for this study. Figure 2 shows a graph of the imported water concentration used in the base model for the current simulations.

Two modeled treatment options are considered for the simulations. The scenarios that are evaluated here include:

- **Flow-Weighted (FW) Scenario** – This scenario adds reverse osmosis (RO) treatment to the model simulation. The volume of RO treatment required for any month within the model simulation is calculated to meet a FW, 3-month average concentration of 100 mg/L for the combined discharge of the Saugus WRP and the

Valencia WRP. In this scenario, RO permeate is discharged to the USCR only at the Valencia WRP along with water that has not been treated with RO. Water discharged at the Saugus WRP does not discharge RO permeate to the Santa Clara River.

- Non Flow-Weighted (NFW) Scenario – This scenario incorporates RO permeate discharged at both the Valencia WRP and Saugus WRP. All RO treatment water is taken from the Valencia WRP, but a portion of the permeate discharge is routed to the Saugus WRP via a pipeline. This scenario is governed by a NFW, 3-month average discharge of 100 mg/L. Therefore, the 3-month average for the Saugus WRP is independent of the 3-month average for the Valencia WRP, and discharges to the Santa Clara River at both the Saugus WRP and the Valencia WRP must individually be under an average of 100 mg/L over 3 months.

Table 1 presents the flow, chloride concentration, and total mass of chloride entering the WRPs for the base model and scenarios. Table 2 lists flow, chloride concentration, and total mass of chlorides for the RO estimates and estimated discharge to the Santa Clara River for both WRPs in the FW simulation. Table 3 lists these same values for RO and discharge estimates for the NFW simulation. Figures 3a and 3b show the estimated input values for total mass of chloride and chloride concentration over time for the FW simulation and Figures 4a and 4b show these estimated input values over time for the NFW simulation. Note that some of the water entering the WRPs is treated using RO and that the loss of water due to the RO process is 7.5% of the total water removed for the RO stream. Thus, the RO flow recovery is 92.5%. Further, the RO chloride rejection is 96% of the chloride entering the RO treatment system.

The simulated options are compared in terms of their relative benefit to the surface water and groundwater basins in the watershed. Plots of chloride over time at various surface water and groundwater observation locations provide a means of comparing the impacts of the two options over time. The areal distribution of chloride concentrations in the aquifer system was also evaluated at two times representing different climactic conditions during the simulation period. Peak drought conditions are represented as model results from Day 5,844, which occurs after a long period of little rainfall and decreased flow in the Santa Clara River. After-drought conditions are represented as model results from Day 6,575, when more rainfall has occurred and flow has increased in the Santa Clara River.

The effects of different RO options on groundwater chloride concentrations were also evaluated at different elevations within the subsurface. GSWIM layer 3 overlies GSWIM layer 4. Layer 3 represents alluvium where present along the USCR or in major tributary subbasins. In portions of the USCR watershed within Los Angeles County, layer 3 also represents the upper part of the saturated Saugus Formation where alluvium is not present. In Ventura County, layer 4 represents the upper part of the San Pedro Formation. In Los Angeles



County, layer 4 represents a deeper portion of the Saugus Formation where alluvium is present or where layer 3 is absent. Where alluvium is absent and layer 3 represents the upper part of the Saugus Formation, layer 4 represents a deeper portion of the Saugus Formation. Additional details of the geology as it relates to layers within the GSWIM can be found in the Task 2B-1 report (CH2M HILL-HGL, 2008). In this report, “alluvium” refers to alluvium along the USCR or in major tributary subbasins represented by GSWIM layer 3, “Saugus Formation” refers to the portions of the Saugus formation represented by GSWIM layer 4, and “San Pedro Formation” refers to the portions of the San Pedro Formation represented by GSWIM layer 4.

### **3.0 MODEL RESULTS**

The GSWIM simulations were conducted for the two scenarios using the base model as discussed above, for a period of 24 years as was done in previous cases documented by the Task 2B-1 Report and Technical Memorandum.

The following sections describe the results of the simulations for surface water and groundwater components of the model. Specifically, chloride concentrations from the FW and NFW simulations are compared to evaluate the relative impacts of the two RO scenarios in implementing a 100 mg/L 3-month average discharge concentration limit.

#### **3.1 SURFACE WATER**

Surface water chloride concentrations are monitored in both the FW and the NFW simulations using surface water observation points set at key locations within the model. The locations of interest for this analysis include the Santa Clara River downstream of the Saugus WRP (SCR RB), the Santa Clara River downstream of the Valencia WRP (SCR RD), and the Santa Clara River at Blue Cut. These observation locations are noted on Figure 1.

##### **3.1.1 Impacts downstream of the Saugus WRP in Reach 6**

Figures 5a and 5b show the simulated chloride concentrations for the Santa Clara River downstream of the Saugus WRP and downstream of the Valencia WRP, respectively.

Figure 5a shows that chloride concentrations downstream of the Saugus WRP continue to increase as the climate enters a drought period in the model. The FW simulation shows a peak chloride concentration of about 150 mg/L downstream of the Saugus WRP, with a peak 3-month average chloride concentration of about 145 mg/L. In the NFW simulation, the chloride concentration of the Santa Clara River remains consistently below 100 mg/L downstream of the Saugus WRP, with a peak chloride concentration of 112 mg/L and a 3-month average that never exceeds 100 mg/L during the model simulation. This is due to the discharge of RO permeate at the Saugus WRP.

### 3.1.2 Impacts downstream of the Valencia WRP in Reach 5

The chloride concentrations in the Santa Clara River downstream of the Valencia WRP are almost identical in the FW and NFW simulations. Figure 5b shows both simulations have a chloride concentration consistently below 100 mg/L, with some small variations in chloride concentrations during the drought period. Therefore, the 3-month average chloride concentrations are also almost identical and below 100 mg/L for both simulations.

### 3.1.3 Impacts downstream of the Valencia WRP in Reach 4B

Farther downstream of the Valencia WRP, the Santa Clara River chloride concentrations vary only slightly between the two simulations. Figure 5c shows the chloride concentration in the Santa Clara River at Blue Cut. Again, both the FW and NFW simulations show a chloride concentration consistently under 100 mg/L, with some small variations. Similar to the upstream results downstream from the Valencia WRP, the 3-month average chloride concentrations are nearly identical and are below 100 mg/L for both simulations. Table 4 lists the subset of days for which the simulated chloride concentration at Blue Cut is above 100 mg/L for the FW and NFW simulations. This table shows the FW simulation has a chloride concentration less than 100 mg/L at Blue Cut for 99.6% of the 8,766 simulated model days, while the NFW simulation has a chloride concentration less than 100 mg/L at Blue Cut for 98.9% of the 8,766 simulated model days, which indicate a slightly higher frequency of better water quality at Blue Cut for the FW simulation.

## 3.2 GROUNDWATER

Figures 6a through 6d show color flood maps of the chloride concentrations simulated in GSWIM layers 3 and 4 for peak drought (Day 5,844) and after-drought (Day 6,575) conditions for the FW simulation. As described in Section 2.0, layer 3 represents alluvium and an upper portion of the Saugus Formation and layer 4 represents a deeper portion the Saugus Formation in Los Angeles County and the San Pedro Formation in Ventura County. Figures 7a through 7d show similar color flood maps of chloride concentrations for the NFW simulation. It is noted that, for both simulations, chloride concentrations are higher during drought conditions than during after-drought conditions. Also, results show lower chloride concentrations in groundwater in the Saugus Formation and San Pedro Formation than in the overlying alluvium, indicating that chloride is input to the system from overlying sources such as irrigation that includes SWP water with a chloride concentration higher than that of ambient groundwater. The chloride concentration in SWP water is higher during drought conditions than during non-drought times.

Figures 6a through 6d and 7a through 7d also show elevated chloride concentrations in some portions of the USCR watershed upstream or cross-gradient from the WRPs. The elevated chloride concentrations in these areas are due to several factors, including the contribution of

chloride from SWP water used for irrigation and surface application, and subsequent evapotranspiration that concentrates the chloride in the surface and unsaturated soils before being leached or flushed by rainfall events into the groundwater. This behavior has also been noted in the chloride observation dataset used for model calibration. Because these areas of elevated chloride concentrations are located upstream or cross-gradient from the WRP locations, it is not likely that the chloride concentrations in these areas are affected by operations at the WRPs.

Figures 8a through 8d show the difference in concentrations between the two scenarios, calculated as the FW simulation concentration minus the NFW simulation concentration for GSWIM layers 3 and 4 (with geology as described in Section 2.0) for drought (Day 5,844) and after-drought (Day 6,575) conditions. The figures show positive differences, thus highlighting areas where the FW simulation has a higher concentration than the NFW simulation. Figures 8a through 8d show that the greatest differences in chloride concentration between the scenarios occur between the Saugus and Valencia WRPs along the Santa Clara River. It is noted that some cells upstream or cross stream from the Saugus and Valencia WRPs show an increased difference in chloride concentration. These differences are numerical artifacts of the model, which result from plotting the chloride concentrations for cells that have been calculated as dry model cells (i.e., where the calculated water level elevation is below the bottom elevation of the model cell).

Figures 9a through 9h show the same differences calculated for specific subbasins and formations within the USCR watershed. Specifically, Figures 9a through 9f focus on chloride concentration differences between the FW and NFW simulations in alluvium subbasins, as represented by portions of the GSWIM. Figures 9g and 9h focus on chloride concentration differences between the FW and NFW simulations in the Saugus Formation, as represented by portions of the GSWIM. The difference maps of Figures 8 and 9 are discussed further below, in the context of groundwater quality impacts in various parts of the basin.

### **3.2.1 Impacts on groundwater subbasins between the Saugus WRP and the Valencia WRP**

Groundwater chloride concentrations are monitored in the FW and NFW simulations using observation points typically located at monitoring wells within the USCR watershed. Six wells located near the river between the Saugus and Valencia WRPs (Figure 1) show the greatest differences in chloride concentrations between the FW and NFW simulations. Figures 10a through 10f show the chloride concentrations in these wells and are discussed below. Figures 10g and 10h show chloride concentrations in wells located downstream of the Valencia WRP, and are discussed in Section 3.2.2.

As shown on Figures 10a through 10f, chloride concentrations in the alluvium tend to increase during the drought period in the simulation and decrease somewhat during the after-drought period resulting from flushing out of the chlorides from the system. For the monitoring wells shown on Figures 10a through 10f, the concentration in alluvium also tends to be slightly greater in the FW simulation than in the NFW simulation, with a difference in chloride concentration that widens during the peak drought period and tends to shrink in the after-drought period.

Figures 8, 9 and 10 show the greatest differences in chloride concentrations tend to be localized spatially between the Saugus and Valencia WRPs, within the alluvium, and temporally during the peak drought period. Because the differences in chloride concentration between the FW and NFW simulations are spatially localized, only a few well locations have been used to further analyze these chloride concentration differences (Figures 10a through 10h). The greatest differences were found in the alluvium at wells VWC-S6 (Figure 10a) and NLF-S3 (Figure 10b). Figure 10a shows the chloride concentrations simulated at VWC-S6, which represents the alluvium and has a maximum chloride concentration difference of 8.9 mg/L between the FW and NFW simulations. The average chloride difference at VWC-S6 is about 1.3 mg/L during the entire model simulation. Figure 10b shows that similar differences can be found in the alluvium for monitoring well NLF-S3, where the maximum chloride difference is 5.8 mg/L and the average chloride difference is 0.9 mg/L. Table 5 provides a summary of the maximum chloride concentration differences and average chloride concentration differences between the FW and NFW simulations for these wells.

Monitoring well VWC-N shows a less pronounced difference between the FW and NFW simulations. Figure 10c shows the concentrations simulated for VWC-N; the maximum difference is 3.0 mg/L, and the average difference in alluvium is 0.4 mg/L. VWC-I also exhibits some smaller differences for alluvium as shown on Figure 10d; the maximum chloride concentration difference is 2.6 mg/L and the average chloride concentration difference is 0.5 mg/L. Figures 10e and 10f provide groundwater chloride concentrations for the FW and NFW simulations for VWC-160 and NLF-G45, respectively.

The majority of the largest differences between the FW and NFW simulations occur within the alluvium in the Bouquet and San Francisquito Canyons Subbasin. Figures 9a and 9b show the chloride concentration differences between the FW and NFW simulations within the alluvium in this subbasin. Table 6 summarizes the areas of each color contour on Figures 9a and 9b by percent for drought and after-drought conditions. For the peak drought (Day 5,844), 85.37% of the Bouquet and San Francisquito Canyons Subbasin shown in Figures 9a and 9b has a difference in chloride concentration less than 1 mg/L, and the greatest difference contour of > 9.0 accounts for 0.09% of the subbasin by area. During the after-drought period

(Day 6,575), 76.45% of the subbasin has a difference in chloride concentration of less than 1 mg/L, greatest difference contour for chloride concentrations between 3.0 and 5.0 mg/L accounts for 1.74% of the subbasin by area.

Chloride concentration differences for the Saugus Formation are shown on Figures 9g and 9h. The difference in chloride concentration is much smaller in the Saugus Formation, as much of the flow in the model is occurring in the higher conductivity material of the alluvium. Figures 10a through 10f show smaller differences over time for the Saugus Formation, within layer 4, than for the alluvium within layer 3. For example, VWC-S6 has a maximum chloride concentration difference of 8.9 mg/L in alluvium and of 5.2 mg/L in the Saugus Formation.

Assessing the difference of chloride concentrations by percent area in Table 6 shows that 99.76% of the Saugus Formation has a chloride concentration difference of less than 1 mg/L during the peak drought period; the maximum difference range of 3.0 to 5.0 mg/L accounts for 0.06% of the formation area. During the non-drought period, 99.38% of the Saugus Formation has a concentration difference less than 1 mg/L, and 0.10% of the formation area has a concentration difference ranging between 3.0 and 5.0 mg/L. Figures 9g and 9h show only small pockets of increased concentration differences in the Saugus Formation.

### **3.2.2 Impacts on groundwater subbasins down flow from the Valencia WRP.**

Portions of the Castaic Valley and Piru East Subbasins are located within the USCR watershed downstream of the Valencia WRP. Figures 9c and 9d show the differences in chloride concentration for the NFW and FW scenarios for the Castaic Valley Subbasin, while Figures 9e and 9f show these differences for the Piru East Subbasin. Both of these subbasins consist of alluvium.

These areas of the USCR watershed exhibit very small differences in chloride concentration between scenarios. Monitoring well NLF-B7 (Figure 10g) is located within the Castaic Valley Subbasin; it has a maximum chloride concentration difference of 0.5 mg/L in alluvium and an average difference of 0.1 mg/L during the model simulation. In the Piru East Subbasin, V-0013 (Figure 10h) has a maximum chloride concentration difference of 0.5 mg/L in alluvium, and an average concentration difference of -0.4 mg/L. The negative chloride concentration difference indicates that the average concentration of chloride at V-0013 is actually lower in the FW simulation than in the NFW simulation. This indicates that the FW simulation results in slightly better water quality over a 24-year simulation time than the NFW simulation in the alluvium in this area of Ventura County.

By area, 98.55% and 99.75% of the Castaic Valley and Piru East Subbasins, respectively, have a chloride concentration difference less than 1 mg/L during the peak drought period. During the after-drought period, 99.81% and 99.95% of these respective basins have a

concentration difference less than 1 mg/L. Table 6 shows details regarding the chloride concentration differences by percent area.

Figure 10h shows that the chloride concentration in the alluvium and the San Pedro Formation at V-0013 increases at the peak drought time and through the beginning of the after-drought period, and decreases toward the end of the simulation. According to both the FW and NFW simulations, the chloride concentration at V-0013 rises above 100 mg/L after the peak drought time (Day 5,844) and remains above 100 mg/L for about 2 years. There is little difference in the chloride concentration between the FW and NFW simulations at V-0013, suggesting that the FW approach would restore groundwater quality at V-0013 roughly as quickly and effectively as the NFW approach. Table 5 shows the maximum and average difference of chloride concentrations between the FW and NFW simulations for NLF-B7 and V-0013.

Groundwater seepage velocities within the alluvium were calculated for a distance along the Santa Clara River from the Saugus WRP downstream to Blue Cut, using a general head gradient based on peak drought conditions for the FW simulation. This calculation estimates that groundwater moves laterally downstream through portions of the alluvium from the Saugus WRP to Blue Cut over a period of about 7 years. Appendix A shows details of this calculation.

While the seepage velocity calculation estimates a travel time of about 7 years through the alluvium between the Saugus WRP and Blue Cut, many factors may affect chloride concentrations in the Piru East Subbasin after the drought. These factors include but are not limited to: mixing of local irrigation leachate with ambient groundwater flow; flow rates and chloride concentrations in surface water that subsequently enters groundwater in the Piru East Subbasin; lateral groundwater flow and associated concentrations and mixing with the deeper aquifers; natural local hydrology, climate and precipitation events; SWP usage for indoor and outdoor use with associated chloride concentrations; and SWP chloride concentration reduction after the drought period. Downstream of the WRPs, the differences between results for the NFW and FW scenarios are negligible in the snapshots during drought and after-drought periods (Figures 6 through 9) as well as in the plots of concentration vs. time for selected monitoring wells (Figure 10). Therefore, the difference between these two scenarios is also negligible in terms of the rate at which groundwater quality is restored downstream of the WRPs.

### **3.3 SUMMARY AND CONCLUSIONS**

The FW and NFW operational options were simulated to compare their effects on surface water and groundwater of the USCR watershed. A summary of results and conclusions is provided below:

- In general, there is little to no difference in the chloride concentrations simulated by the FW and NFW simulations downgradient of the Valencia WRP. The FW simulation results in slightly higher chloride concentrations in groundwater and surface water in a localized area between the Saugus WRP and the Valencia WRP when compared to the NFW simulation.
- The largest differences in surface water chloride concentrations downstream of the Saugus WRP occur around the peak drought time (Day 5,844) in the model simulation. Surface water chloride concentrations at Blue Cut are below 100 mg/L for 99.6% of the simulated model days using the FW option and 98.9% of the simulated days using the NFW option, which indicates a slightly higher frequency of better water quality in the FW simulation.
- The areas where the FW and NFW simulations predict differences in chloride concentrations in groundwater greater than 5.0 mg/L are limited in extent and lie between the Saugus and Valencia WRPs. By area, 98.55% and 99.75% of the Castaic Valley and Piru East Subbasins, respectively, have a chloride concentration difference less than 1 mg/L during the peak drought period. During the after-drought period, 99.81% and 99.95% of these respective basins have a concentration difference less than 1 mg/L.
- The simulated groundwater chloride concentrations increase in wells located along the Santa Clara River in alluvium between the Saugus and Valencia WRPs during the drought period leading up to the peak drought time. The maximum difference in chloride concentrations between the FW and NFW simulations at VWC-S6 (downstream of the Saugus WRP) is 8.9 mg/L during peak drought conditions. These chloride concentration differences diminish to almost zero in the eight subsequent years of simulation. The average difference in chloride concentrations between the FW and NFW simulations at VWC-S6 is 1.3 mg/L over the 24-year simulation period, therefore increased differences between the FW and NFW simulations were limited to a few periods in a localized area between the Saugus and Valencia WRPs.
- Chloride concentrations for the FW and NFW simulations are very similar over time in surface water and groundwater downstream of the Valencia WRP. Chloride concentrations that increase in groundwater during the drought period are flushed out during the after-drought period in both the FW and NFW simulations. Based on concentration differences shown for peak drought and after-drought conditions, as well as the differences between the FW and NFW simulations in plots of chloride concentration versus time for specific well sites, the effect of a FW 3-month average chloride limit versus a NFW 3-month average chloride limit is negligible downstream of the WRPs.

#### 4.0 REFERENCES

CH2M HILL and HydroGeoLogic (CH2M HILL-HGL), 2008, Task 2B -1 Numerical Model Development and Scenario Results East and Piru Subbasins. Upper Santa Clara River Chloride TMDL Collaborative Process. Draft Report. Prepared for the Groundwater/Surface-water Interaction (GSWI) Technical Working Group. February.

AMEC Environment & Infrastructure, Inc. (AMEC), 2012, Upper Santa Clara River Groundwater/Surface-Water Interaction Model Results of RO Scenarios. Technical Memorandum. April.



## TABLES

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**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
1	5.7	94.2	14.8	94.2	4454	11668	138060	361719
32	5.8	88.0	15.1	88.0	4261	11094	123565	321734
60	5.6	88.8	15.5	88.8	4146	11456	120224	332225
91	5.4	96.0	15.5	96.1	4348	12460	134782	386251
121	5.5	91.3	15.5	91.3	4164	11839	124927	355175
152	5.4	89.0	15.8	89.1	4040	11756	125242	364426
182	5.2	93.7	15.8	93.8	4032	12399	120963	371967
213	5.3	94.3	15.9	94.3	4140	12520	128330	388106
244	5.6	92.4	15.8	92.4	4301	12183	133324	377684
274	5.6	91.7	15.7	91.7	4303	12013	129087	360385
305	5.8	94.2	15.7	94.2	4528	12366	140355	383354
335	5.9	88.0	15.4	88.0	4307	11309	129216	339276
366	5.7	94.4	15.9	94.4	4461	12492	138278	387263
397	5.8	87.4	16.0	87.4	4222	11677	130883	361988
426	5.6	87.7	16.1	87.8	4096	11782	126976	365237
457	5.4	95.5	16.2	95.5	4321	12927	129641	387800
487	5.5	90.4	16.2	90.5	4126	12215	127894	378651
518	5.4	88.6	16.1	88.6	4018	11912	120543	357347
548	5.1	94.0	16.4	94.1	4027	12855	124841	398491
579	5.2	95.5	16.7	95.6	4168	13287	129205	411884
610	5.6	93.3	16.3	93.3	4322	12686	129665	380573
640	5.6	90.9	16.1	90.9	4247	12214	131664	378641
671	5.8	94.7	16.3	94.7	4547	12846	136398	385384
701	5.9	90.1	15.7	90.1	4410	11820	136725	366430
732	5.7	94.0	15.9	93.9	4441	12474	137678	386708
763	5.8	86.8	16.2	86.8	4201	11742	117631	328766
791	5.6	88.3	16.6	88.3	4122	12231	127775	379175
822	5.4	96.7	16.7	96.7	4376	13489	131289	404663
852	5.5	92.7	16.7	92.7	4227	12932	131036	400894

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
883	5.4	90.8	17.0	90.9	4106	12913	123193	387398
913	5.1	97.4	17.1	97.4	4156	13878	128827	430210
944	5.2	98.6	17.1	98.6	4291	14093	133036	436892
975	5.5	95.1	17.0	95.1	4394	13489	131807	404680
1005	5.6	92.8	16.9	92.8	4324	13046	134038	404415
1036	5.7	95.1	16.9	95.1	4552	13388	136572	401627
1066	5.9	90.1	16.5	90.1	4407	12419	136615	384999
1097	5.7	98.0	16.4	98.0	4633	13431	143633	416351
1128	5.8	92.0	16.7	92.0	4454	12840	124717	359524
1156	5.6	90.8	17.1	90.8	4240	12974	131435	402206
1187	5.4	95.7	17.2	95.7	4332	13767	129969	412998
1217	5.5	90.8	17.2	90.7	4142	13063	128408	404956
1248	5.4	88.5	17.6	88.4	4014	12959	120428	388770
1278	5.2	94.3	17.6	94.2	4055	13845	125693	429196
1309	5.3	94.9	17.7	94.9	4173	13991	129373	433710
1340	5.6	93.4	17.5	93.4	4353	13670	130581	410098
1370	5.6	90.8	17.4	90.7	4257	13168	131981	408212
1401	5.8	94.4	17.4	94.3	4534	13706	136021	411175
1431	5.9	91.0	17.0	91.0	4454	12932	138065	400896
1462	5.7	95.3	16.8	95.3	4505	13379	139657	414745
1493	5.8	88.2	17.1	88.2	4271	12595	123849	365268
1521	5.6	89.2	17.5	89.2	4165	13031	120790	377913
1552	5.4	95.8	17.6	95.8	4337	14059	134446	435838
1582	5.5	90.7	17.6	90.7	4138	13303	124145	399075
1613	5.4	88.8	17.9	88.8	4030	13249	124931	410713
1643	5.2	92.7	17.9	92.6	3987	13843	119607	415300
1674	5.3	91.9	18.0	91.9	4038	13781	125192	427200
1705	5.6	91.8	17.9	91.7	4275	13689	132516	424344
1735	5.6	89.9	17.8	89.9	4216	13326	126487	399776

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
1766	5.8	91.9	17.8	91.9	4417	13671	136935	423786
1796	5.9	88.5	17.5	88.5	4332	12893	129972	386775
1827	5.7	94.1	17.8	94.1	4447	13950	137849	432442
1858	5.8	87.3	17.9	87.3	4220	13039	130827	404210
1887	5.6	86.3	17.9	86.3	4027	12917	124851	400422
1918	5.4	92.8	18.0	92.8	4203	13961	126082	418833
1948	5.5	88.1	17.9	88.0	4017	13183	124532	408674
1979	5.4	85.7	17.8	85.6	3887	12741	116605	382223
2009	5.2	90.1	18.1	90.1	3875	13572	120131	420747
2040	5.3	90.2	18.4	90.1	3963	13857	122838	429576
2071	5.6	89.2	18.1	89.2	4157	13454	124722	403634
2101	5.6	86.8	17.9	86.8	4072	12996	126241	402887
2132	5.8	90.0	18.2	90.0	4326	13655	129773	409652
2162	5.9	86.6	17.6	86.6	4239	12723	131405	394416
2193	5.7	92.0	17.6	92.0	4349	13539	134829	419701
2224	5.8	85.7	17.9	85.7	4148	12789	116156	358089
2252	5.6	85.4	18.3	85.4	3985	13017	123528	403526
2283	5.4	92.9	18.3	92.9	4204	14171	126110	425132
2313	5.5	87.8	18.2	87.8	4005	13367	124160	414375
2344	5.4	86.2	18.5	86.2	3913	13332	117389	399965
2374	5.2	90.6	18.5	90.6	3896	13974	120777	433195
2405	5.3	92.7	18.6	92.7	4076	14387	126361	445982
2436	5.6	91.6	18.6	91.6	4266	14183	127979	425492
2466	5.6	89.9	18.5	89.9	4216	13893	130683	430691
2497	5.8	97.0	18.6	97.0	4660	15085	139797	452560
2527	5.9	97.0	18.3	97.0	4749	14813	147231	459191
2558	5.7	102.2	18.0	102.1	4830	15374	149715	476600
2589	5.8	97.0	18.3	97.0	4698	14787	131534	414040
2617	5.6	98.1	18.7	98.1	4581	15267	142007	473288

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
2648	5.4	106.0	18.6	106.0	4800	16474	144001	494232
2678	5.5	101.8	18.6	101.7	4644	15765	143976	488711
2709	5.4	100.1	18.8	100.0	4542	15724	136258	471725
2739	5.2	105.8	18.8	105.7	4552	16560	141119	513346
2770	5.3	106.3	18.9	106.2	4671	16740	144810	518951
2801	5.6	103.6	18.9	103.5	4825	16322	144737	489654
2831	5.6	95.4	18.9	95.4	4475	15047	138726	466444
2862	5.8	97.5	19.1	97.5	4687	15510	140620	465310
2892	5.9	94.5	18.7	94.5	4626	14763	143413	457653
2923	5.7	99.0	18.4	98.9	4678	15228	145023	472080
2954	5.8	90.9	18.7	90.8	4399	14142	127558	410113
2982	5.6	89.3	19.0	89.3	4171	14192	120960	411560
3013	5.4	94.1	19.0	94.1	4259	14900	132036	461892
3043	5.5	88.4	18.9	88.4	4034	13949	121033	418484
3074	5.4	84.9	19.2	84.9	3852	13576	119412	420867
3104	5.2	90.2	19.1	90.2	3879	14347	116380	430398
3135	5.3	89.5	19.2	89.5	3935	14349	121995	444827
3166	5.6	87.5	19.2	87.5	4076	14052	126369	435599
3196	5.6	84.0	19.3	84.1	3942	13526	118261	405774
3227	5.8	85.9	19.5	85.9	4125	13950	127886	432455
3257	5.9	82.3	19.1	82.3	4031	13155	120916	394641
3288	5.7	88.2	19.3	88.2	4169	14168	129224	439207
3319	5.8	82.2	19.2	82.2	3974	13186	123188	408768
3348	5.6	83.6	19.2	83.6	3902	13358	120947	414105
3379	5.4	91.0	19.0	91.0	4119	14398	123575	431946
3409	5.5	85.1	18.8	85.1	3883	13325	120363	413077
3440	5.4	82.3	18.5	82.4	3735	12709	112041	381274
3470	5.2	86.3	18.5	86.3	3710	13338	115024	413493
3501	5.3	86.5	19.0	86.5	3800	13742	117815	426016

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
3532	5.6	83.6	18.9	83.7	3896	13197	116881	395898
3562	5.6	81.1	19.1	81.2	3806	12912	117981	400259
3593	5.8	83.0	19.6	83.1	3989	13554	119681	406628
3623	5.9	78.3	19.1	78.3	3832	12463	118800	386350
3654	5.7	82.7	18.9	82.7	3910	13016	121211	403499
3685	5.8	76.4	18.8	76.5	3700	12023	103599	336649
3713	5.6	77.6	19.1	77.7	3623	12394	112328	384213
3744	5.4	84.8	18.7	84.9	3840	13260	115189	397799
3774	5.5	81.6	18.5	81.7	3723	12607	115399	390825
3805	5.4	79.7	18.6	79.8	3618	12397	108533	371907
3835	5.2	85.0	18.2	85.0	3655	12936	113291	401012
3866	5.3	87.0	18.5	87.0	3822	13445	118492	416784
3897	5.6	85.9	18.9	86.0	4003	13528	120097	405848
3927	5.6	84.8	19.3	84.8	3977	13638	123275	422774
3958	5.8	90.5	19.8	90.5	4350	14922	130498	447659
3988	5.9	91.1	19.6	91.1	4458	14884	138204	461405
4019	5.7	98.5	19.1	98.5	4655	15672	144311	485820
4050	5.8	93.7	19.0	93.7	4537	14823	127036	415050
4078	5.6	95.1	19.2	95.1	4441	15234	137685	472248
4109	5.4	105.7	18.6	105.6	4786	16425	143576	492754
4139	5.5	100.4	18.3	100.3	4580	15356	141969	476038
4170	5.4	99.6	18.4	99.5	4518	15271	135548	458132
4200	5.2	105.1	17.9	105.0	4521	15659	140153	485430
4231	5.3	106.2	18.2	106.1	4669	16139	144726	500315
4262	5.6	107.0	18.7	106.8	4983	16683	149487	500505
4292	5.6	102.5	19.3	102.5	4810	16503	149099	511604
4323	5.8	104.2	19.9	104.1	5007	17310	150199	519289
4353	5.9	100.2	19.8	100.2	4906	16573	152077	513765
4384	5.7	104.2	19.3	104.1	4924	16759	152658	519514

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
4415	5.8	97.1	19.1	97.1	4701	15439	136323	447736
4443	5.6	97.0	19.3	97.0	4528	15575	131317	451686
4474	5.4	103.3	18.5	103.3	4676	15956	144957	494642
4504	5.5	98.3	18.2	98.3	4484	14892	134525	446754
4535	5.4	95.5	18.1	95.5	4336	14463	134406	448340
4565	5.2	100.6	17.5	100.5	4323	14664	129688	439911
4596	5.2	100.6	17.9	100.6	4408	15034	136661	466059
4627	5.6	99.3	18.5	99.3	4616	15357	143106	476077
4657	5.6	97.1	19.3	97.1	4554	15643	136617	469290
4688	5.8	101.1	20.1	101.0	4856	16919	150528	524474
4718	5.9	100.7	20.1	100.7	4928	16842	147851	505254
4749	5.7	106.0	20.2	106.0	5011	17826	155353	552611
4780	5.8	101.9	19.7	101.9	4926	16764	152695	519676
4809	5.6	104.0	19.4	103.9	4853	16803	150449	520908
4840	5.4	113.1	18.5	112.9	5118	17461	153554	523834
4870	5.5	109.2	18.0	109.1	4983	16420	154477	509018
4901	5.4	107.0	17.5	106.8	4855	15564	145646	466909
4931	5.1	111.7	16.9	111.5	4792	15759	148546	488522
4962	5.2	112.2	17.8	111.9	4905	16602	152046	514652
4993	5.6	110.2	18.2	110.0	5111	16699	153343	500978
5023	5.6	107.6	19.1	107.5	5037	17114	156141	530540
5054	5.8	110.3	20.2	110.2	5300	18546	159005	556370
5084	5.9	107.6	20.0	107.5	5266	17908	163233	555153
5115	5.7	128.7	19.6	128.6	6084	21065	188602	653014
5146	5.8	134.1	19.2	134.0	6493	21412	181812	599525
5174	5.6	132.4	19.2	132.2	6182	21217	191643	657740
5205	5.4	142.4	18.1	142.1	6446	21484	193380	644527
5235	5.5	140.2	17.6	140.0	6398	20552	198325	637109
5266	5.4	140.7	17.4	140.3	6376	20394	191285	611809

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
5296	5.1	150.3	16.4	149.6	6431	20524	199356	636230
5327	5.2	145.5	17.0	144.9	6350	20576	196863	637870
5358	5.6	139.5	18.0	139.0	6460	20870	193799	626105
5388	5.6	128.9	19.2	128.7	6022	20588	186676	638227
5419	5.7	125.3	20.3	125.2	6009	21162	180267	634869
5449	5.9	123.2	20.4	123.1	6031	20988	186949	650636
5480	5.7	124.1	19.8	124.0	5865	20463	181817	634356
5511	5.8	119.3	19.2	119.2	5776	19071	161718	533979
5539	5.6	124.1	19.2	124.0	5794	19848	179612	615284
5570	5.4	135.1	17.9	134.9	6116	20114	183483	603434
5600	5.5	133.4	17.3	133.1	6074	19176	188295	594452
5631	5.4	132.6	17.0	132.2	5989	18757	179659	562710
5661	5.1	137.6	15.8	137.1	5870	18127	181967	561937
5692	5.2	141.7	16.5	141.0	6160	19446	190973	602837
5723	5.5	129.5	17.7	129.2	5984	19040	179532	571207
5753	5.6	126.7	19.1	126.5	5908	20126	183140	623917
5784	5.7	133.4	20.3	133.2	6384	22600	191524	677991
5814	5.9	134.0	20.6	133.9	6543	22999	202821	712979
5845	5.7	129.4	19.9	129.3	6117	21507	189639	666730
5876	5.8	121.5	19.2	121.3	5882	19441	170572	563776
5904	5.6	122.7	19.2	122.5	5726	19577	166066	567731
5935	5.4	132.9	17.6	132.6	6016	19515	186485	604979
5965	5.5	129.1	16.9	128.9	5892	18224	176748	546712
5996	5.4	127.0	16.6	126.7	5759	17543	178540	543835
6026	5.1	132.4	15.3	131.9	5667	16811	170012	504342
6057	5.2	135.1	16.0	134.7	5900	18010	182915	558295
6088	5.6	135.6	17.3	135.1	6279	19563	194659	606452
6118	5.6	132.1	19.0	131.8	6170	20869	185114	626068
6149	5.7	131.8	20.4	131.6	6320	22409	195910	694691



**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
6179	5.9	126.7	20.8	126.6	6202	21935	186054	658050
6210	5.7	124.6	20.8	124.5	5890	21602	182593	669655
6241	5.8	114.8	19.9	114.6	5546	19004	171927	589127
6270	5.6	113.4	19.2	113.3	5296	18147	164168	562552
6301	5.4	123.4	17.5	123.2	5585	18000	167557	540011
6331	5.5	119.7	16.7	119.5	5462	16627	169331	515443
6362	5.4	117.3	15.7	117.0	5322	15339	159651	460160
6392	5.2	122.5	14.5	122.3	5270	14812	163368	459170
6423	5.3	125.7	15.7	125.5	5526	16465	171308	510409
6454	5.6	123.0	16.8	122.8	5730	17260	171901	517809
6484	5.6	119.8	18.6	119.7	5620	18591	174209	576320
6515	5.8	121.4	20.4	121.3	5834	20663	175005	619879
6545	5.9	118.0	20.6	117.9	5776	20248	179064	627681
6576	5.7	133.3	20.1	133.1	6300	22302	195312	691353
6607	5.8	120.4	19.0	120.1	5827	19049	163147	533381
6635	5.6	114.7	18.8	114.4	5352	17957	165922	556675
6666	5.4	123.1	16.8	122.8	5571	17167	167127	515000
6696	5.5	117.1	15.9	116.9	5344	15457	165671	479167
6727	5.4	112.8	15.3	112.6	5121	14353	153620	430593
6757	5.2	117.6	13.5	117.3	5057	13220	156768	409820
6788	5.3	120.8	14.5	120.5	5309	14573	164580	451771
6819	5.6	114.7	16.3	114.5	5343	15556	160293	466689
6849	5.6	112.5	18.5	112.4	5278	17328	163622	537176
6880	5.8	113.1	20.3	113.1	5436	19195	163094	575852
6910	5.9	108.5	20.9	108.5	5310	18948	164622	587384
6941	5.7	111.0	20.2	110.9	5245	18671	162609	578797
6972	5.8	103.7	19.0	103.6	5019	16398	140528	459145
7000	5.6	103.9	18.7	103.8	4852	16209	150398	502467
7031	5.4	112.1	16.4	112.0	5076	15377	152288	461318
7061	5.5	106.2	15.5	106.1	4846	13686	150211	424258
7092	5.4	102.2	14.8	102.2	4637	12605	139119	378147

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
7122	5.2	106.9	12.8	106.9	4599	11452	142582	355026
7153	5.3	110.9	13.9	110.9	4877	12870	151177	398983
7184	5.6	108.7	15.9	108.6	5063	14395	151905	431837
7214	5.6	106.3	18.3	106.2	4986	16227	154551	503032
7245	5.8	109.5	20.4	109.5	5261	18588	157841	557651
7275	5.9	106.6	21.0	106.6	5218	18714	161753	580140
7306	5.7	113.1	20.2	113.1	5348	19065	165785	591030
7337	5.8	105.7	18.8	105.7	5118	16597	148415	481326
7365	5.6	106.1	18.5	106.1	4954	16364	143662	474548
7396	5.4	114.0	16.0	113.9	5161	15184	159988	470699
7426	5.5	109.7	14.9	109.7	5006	13600	150173	408002
7457	5.4	107.3	14.1	107.3	4870	12604	150957	390733
7487	5.2	111.9	11.9	111.9	4813	11098	144404	332947
7518	5.3	109.6	13.1	109.7	4816	11982	149308	371442
7549	5.6	105.3	15.3	105.4	4905	13457	152057	417157
7579	5.6	103.0	18.0	103.1	4830	15487	144904	464623
7610	5.8	105.2	20.3	105.2	5055	17807	156698	552007
7640	5.9	101.7	21.1	101.8	4980	17911	149410	537324
7671	5.7	106.4	21.0	106.5	5031	18637	155953	577754
7702	5.8	98.7	19.4	98.8	4771	16011	147895	496343
7731	5.6	106.1	18.3	106.1	4955	16230	153612	503117
7762	5.4	109.9	15.6	109.9	4973	14294	149194	428818
7792	5.5	106.6	14.3	106.7	4864	12713	150787	394097
7823	5.4	96.0	12.8	96.5	4355	10301	130656	309017
7853	5.2	102.9	10.7	103.4	4425	9205	137178	285360
7884	5.3	106.6	12.4	106.9	4676	11072	144947	343244
7915	5.6	100.8	14.5	101.1	4690	12203	140699	366088
7945	5.6	98.8	17.4	99.0	4633	14368	143633	445422
7976	5.8	101.0	20.1	101.1	4852	16960	145555	508790
8006	5.9	97.6	20.7	97.7	4780	16916	148182	524382
8037	5.7	101.4	20.1	101.5	4791	17056	148535	528744

**TABLE 1**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS  
ENTERING THE WRPS FOR THE BASE CASE<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Saugus WRP Input Discharge (MGD) <sup>2</sup>	Saugus WRP Chloride (mg/L) <sup>3</sup>	Valencia WRP Input Discharge (MGD)	Valencia WRP Chloride (mg/L)	Saugus Daily Mass (lb) <sup>4</sup>	Valencia Daily Mass (lb)	Saugus Monthly Mass (lb)	Valencia Monthly Mass (lb)
8068	5.8	92.8	18.4	92.9	4491	14246	125746	398894
8096	5.6	94.3	17.9	94.5	4404	14083	136510	436559
8127	5.4	103.3	14.7	103.6	4677	12699	140324	380958
8157	5.5	96.1	13.3	96.6	4383	10717	135878	332235
8188	5.4	93.2	12.2	94.0	4231	9578	126939	287334
8218	5.1	100.1	9.3	100.9	4300	7870	133313	243967
8249	5.2	99.6	10.9	100.4	4360	9147	135153	283566
8280	5.6	99.3	13.7	99.8	4612	11440	138354	343214
8310	5.6	93.1	17.2	93.5	4360	13393	135152	415194
8341	5.8	98.9	20.0	99.1	4752	16497	142569	494895
8371	5.9	98.0	21.0	98.1	4799	17237	148771	534362
8402	5.7	100.6	20.1	100.7	4754	16859	147367	522629
8433	5.8	95.8	18.1	95.9	4640	14450	129912	404595
8461	5.6	91.4	17.4	91.6	4265	13328	132216	413173
8492	5.4	98.7	13.9	99.0	4467	11482	134018	344466
8522	5.5	93.4	12.3	93.8	4260	9649	132052	299107
8553	5.4	91.8	11.1	92.2	4166	8514	124972	255432
8583	5.2	96.0	9.1	96.3	4126	7302	127917	226349
8614	5.3	95.3	9.5	96.0	4191	7647	129922	237071
8645	5.6	92.4	12.8	93.0	4306	9917	129195	297511
8675	5.6	90.2	16.6	90.6	4232	12564	131194	389488
8706	5.8	93.6	19.7	93.8	4496	15432	134880	462953
8736	5.9	91.0	21.0	91.2	4455	15960	138120	494762

Notes:

1. WRP = Water Reclamation Plant.
2. MGD = million gallons per day.
3. mg/L = milligrams per liter.
4. lb = pounds.

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
1	0.00	-- <sup>5</sup>	0.0	14.84	94.2	361719.3	361719.3	5.66	94.2	138059.5	499778.9
32	0.00	--	0.0	15.10	88.0	321733.8	321733.8	5.80	88.0	123565.2	445299.0
60	0.00	--	0.0	15.46	88.8	332225.2	332225.2	5.59	88.8	120224.4	452449.6
91	0.00	--	0.0	15.54	96.1	386250.5	386250.5	5.42	96.0	134782.5	521033.0
121	0.01	3.7	11.3	15.53	91.3	354869.9	354881.2	5.47	91.3	124926.6	479807.8
152	0.00	--	0.0	15.82	89.1	364426.1	364426.1	5.44	89.0	125242.4	489668.5
182	0.00	--	0.0	15.85	93.8	371966.7	371966.7	5.15	93.7	120963.4	492930.1
213	0.00	--	0.0	15.91	94.3	388105.5	388105.5	5.26	94.3	128330.4	516435.9
244	0.00	--	0.0	15.80	92.4	377683.5	377683.5	5.58	92.4	133324.3	511007.8
274	0.00	--	0.0	15.69	91.7	360384.8	360384.8	5.62	91.7	129087.0	489471.9
305	0.00	--	0.0	15.73	94.2	383354.2	383354.2	5.76	94.2	140354.9	523709.1
335	0.00	--	0.0	15.40	88.0	339275.8	339275.8	5.87	88.0	129215.6	468491.5
366	0.00	--	0.0	15.86	94.4	387263.5	387263.5	5.66	94.4	138278.2	525541.7
397	0.00	--	0.0	16.01	87.4	361988.2	361988.2	5.79	87.4	130882.9	492871.1
426	0.00	--	0.0	16.09	87.8	365236.9	365236.9	5.59	87.7	126976.4	492213.3
457	0.00	--	0.0	16.22	95.5	387799.7	387799.7	5.42	95.5	129641.3	517441.0
487	0.00	--	0.0	16.18	90.5	378650.5	378650.5	5.47	90.4	127893.5	506544.1
518	0.00	--	0.0	16.11	88.6	357347.0	357347.0	5.44	88.6	120543.0	477889.9
548	0.00	--	0.0	16.36	94.1	398491.4	398491.4	5.13	94.0	124841.1	523332.5
579	0.00	--	0.0	16.66	95.6	411884.4	411884.4	5.23	95.5	129205.4	541089.8
610	0.00	--	0.0	16.29	93.3	380573.5	380573.5	5.55	93.3	129664.5	510238.0
640	0.00	--	0.0	16.10	90.9	378641.0	378641.0	5.60	90.9	131664.3	510305.2
671	0.00	--	0.0	16.26	94.7	385384.0	385384.0	5.75	94.7	136398.1	521782.1
701	0.00	--	0.0	15.72	90.1	366430.1	366430.1	5.87	90.1	136725.1	503155.2
732	0.00	--	0.0	15.91	93.9	386708.2	386708.2	5.66	94.0	137678.4	524386.5
763	0.00	--	0.0	16.21	86.8	328765.7	328765.7	5.80	86.8	117630.6	446396.3
791	0.00	--	0.0	16.60	88.3	379175.4	379175.4	5.59	88.3	127775.0	506950.5
822	0.00	--	0.0	16.72	96.7	404663.2	404663.2	5.42	96.7	131288.8	535952.0
852	0.16	3.7	154.6	16.55	92.7	396714.4	396869.1	5.47	92.7	131036.1	527905.1
883	0.00	--	0.0	17.03	90.9	387397.6	387397.6	5.42	90.8	123193.1	510590.6
913	0.00	--	0.0	17.08	97.4	430210.4	430210.4	5.11	97.4	128827.1	559037.5

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE  
FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
944	1.03	3.9	1051.2	16.02	98.6	408481.6	409532.8	5.22	98.6	133036.0	542568.7
975	1.31	3.8	1246.8	15.59	95.1	370982.4	372229.3	5.54	95.1	131806.9	504036.1
1005	0.00	--	0.0	16.85	92.8	404414.7	404414.7	5.59	92.8	134037.7	538452.4
1036	0.00	--	0.0	16.87	95.1	401627.3	401627.3	5.74	95.1	136572.2	538199.6
1066	0.00	--	0.0	16.51	90.1	384998.7	384998.7	5.86	90.1	136615.0	521613.7
1097	0.00	--	0.0	16.42	98.0	416351.3	416351.3	5.66	98.0	143633.2	559984.4
1128	1.17	3.7	1006.5	15.46	92.0	332320.6	333327.2	5.80	92.0	124717.1	458044.3
1156	0.00	--	0.0	17.13	90.8	402205.8	402205.8	5.59	90.8	131435.2	533640.9
1187	0.00	--	0.0	17.24	95.7	412998.0	412998.0	5.42	95.7	129968.5	542966.5
1217	0.00	--	0.0	17.25	90.7	404955.6	404955.6	5.47	90.8	128407.6	533363.2
1248	0.00	--	0.0	17.56	88.4	388769.9	388769.9	5.44	88.5	120428.3	509198.2
1278	0.00	--	0.0	17.62	94.2	429196.1	429196.1	5.15	94.3	125693.0	554889.2
1309	0.00	--	0.0	17.67	94.9	433710.5	433710.5	5.27	94.9	129372.6	563083.1
1340	0.00	--	0.0	17.54	93.4	410097.8	410097.8	5.58	93.4	130581.1	540678.9
1370	0.00	--	0.0	17.39	90.7	408211.6	408211.6	5.62	90.8	131980.5	540192.2
1401	0.00	--	0.0	17.41	94.3	411174.9	411174.9	5.76	94.4	136021.1	547195.9
1431	0.00	--	0.0	17.04	91.0	400896.1	400896.1	5.87	91.0	138065.1	538961.2
1462	0.00	--	0.0	16.82	95.3	414744.7	414744.7	5.66	95.3	139656.6	554401.3
1493	0.00	--	0.0	17.11	88.2	365268.4	365268.4	5.80	88.2	123848.6	489117.1
1521	0.00	--	0.0	17.51	89.2	377912.6	377912.6	5.59	89.2	120790.0	498702.6
1552	0.00	--	0.0	17.59	95.8	435837.9	435837.9	5.42	95.8	134445.8	570283.7
1582	0.00	--	0.0	17.58	90.7	399075.3	399075.3	5.47	90.7	124145.0	523220.2
1613	0.00	--	0.0	17.88	88.8	410713.5	410713.5	5.44	88.8	124930.8	535644.3
1643	0.00	--	0.0	17.90	92.6	415300.4	415300.4	5.15	92.7	119606.8	534907.2
1674	0.00	--	0.0	17.98	91.9	427199.6	427199.6	5.27	91.9	125192.0	552391.6
1705	0.00	--	0.0	17.88	91.7	424343.8	424343.8	5.58	91.8	132516.1	556859.9
1735	0.00	--	0.0	17.77	89.9	399775.9	399775.9	5.62	89.9	126486.9	526262.8
1766	0.00	--	0.0	17.82	91.9	423785.9	423785.9	5.76	91.9	136935.3	560721.2
1796	0.00	--	0.0	17.46	88.5	386775.3	386775.3	5.87	88.5	129972.0	516747.3
1827	0.00	--	0.0	17.77	94.1	432442.3	432442.3	5.66	94.1	137849.1	570291.4
1858	0.00	--	0.0	17.89	87.3	404210.3	404210.3	5.79	87.3	130827.5	535037.8

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
1887	0.00	--	0.0	17.94	86.3	400422.1	400422.1	5.59	86.3	124850.8	525272.9
1918	0.00	--	0.0	18.02	92.8	418833.1	418833.1	5.42	92.8	126081.6	544914.7
1948	0.00	--	0.0	17.94	88.0	408674.0	408674.0	5.47	88.1	124532.3	533206.4
1979	0.00	--	0.0	17.83	85.6	382223.0	382223.0	5.44	85.7	116604.9	498828.0
2009	0.00	--	0.0	18.06	90.1	420747.2	420747.2	5.15	90.1	120131.1	540878.3
2040	0.00	--	0.0	18.42	90.1	429576.2	429576.2	5.27	90.2	122837.6	552413.8
2071	0.00	--	0.0	18.07	89.2	403633.8	403633.8	5.58	89.2	124722.0	528355.8
2101	0.00	--	0.0	17.94	86.8	402886.9	402886.9	5.62	86.8	126241.0	529127.9
2132	0.00	--	0.0	18.18	90.0	409651.7	409651.7	5.76	90.0	129773.5	539425.1
2162	0.00	--	0.0	17.61	86.6	394416.3	394416.3	5.87	86.6	131404.5	525820.9
2193	0.00	--	0.0	17.63	92.0	419701.3	419701.3	5.66	92.0	134828.6	554529.9
2224	0.00	--	0.0	17.88	85.7	358089.0	358089.0	5.80	85.7	116156.2	474245.3
2252	0.00	--	0.0	18.27	85.4	403526.3	403526.3	5.59	85.4	123528.5	527054.8
2283	0.00	--	0.0	18.29	92.9	425131.9	425131.9	5.42	92.9	126110.2	551242.1
2313	0.00	--	0.0	18.24	87.8	414375.3	414375.3	5.47	87.8	124160.5	538535.8
2344	0.00	--	0.0	18.52	86.2	399965.4	399965.4	5.44	86.2	117388.7	517354.1
2374	0.00	--	0.0	18.48	90.6	433194.7	433194.7	5.15	90.6	120777.4	553972.1
2405	0.00	--	0.0	18.59	92.7	445982.5	445982.5	5.27	92.7	126360.6	572343.1
2436	0.00	--	0.0	18.56	91.6	425491.6	425491.6	5.58	91.6	127979.4	553471.0
2466	0.00	--	0.0	18.53	89.9	430691.2	430691.2	5.62	89.9	130683.2	561374.4
2497	0.00	--	0.0	18.64	97.0	452559.7	452559.7	5.76	97.0	139796.6	592356.3
2527	1.03	3.9	1037.8	17.18	97.0	431141.6	432179.4	5.87	97.0	147230.5	579410.0
2558	1.03	4.1	1091.5	16.92	102.1	447099.7	448191.3	5.66	102.2	149714.8	597906.0
2589	2.19	3.9	1987.8	15.90	97.0	360316.4	362304.1	5.80	97.0	131533.6	493837.7
2617	1.03	3.9	1045.4	17.54	98.1	445034.9	446080.3	5.59	98.1	142006.7	588087.0
2648	1.30	4.2	1381.3	17.22	106.0	456899.5	458280.8	5.42	106.0	144001.4	602282.2
2678	3.04	4.1	3195.0	15.29	101.7	402359.9	405554.9	5.47	101.8	143976.1	549531.0
2709	2.13	4.0	2136.0	16.54	100.0	413994.3	416130.3	5.44	100.1	136257.7	552388.0
2739	1.76	4.2	1927.6	16.87	105.7	461248.6	463176.2	5.15	105.8	141119.0	604295.2
2770	2.97	4.2	3261.4	15.69	106.2	430804.4	434065.8	5.27	106.3	144810.2	578876.0
2801	3.09	4.1	3204.0	15.56	103.5	403058.5	406262.5	5.58	103.6	144736.7	550999.2

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
2831	2.56	3.8	2531.4	16.13	95.4	398028.0	400559.4	5.62	95.4	138726.2	539285.6
2862	0.00	--	0.0	19.06	97.5	465309.6	465309.6	5.76	97.5	140620.3	605929.9
2892	0.41	3.8	397.7	18.28	94.5	446905.3	447303.0	5.87	94.5	143413.4	590716.4
2923	0.00	--	0.0	18.44	98.9	472079.9	472079.9	5.66	99.0	145023.0	617102.9
2954	1.50	3.6	1321.3	17.03	90.8	374400.9	375722.2	5.80	90.9	127558.2	503280.4
2982	0.00	--	0.0	19.04	89.3	411559.5	411559.5	5.59	89.3	120960.2	532519.7
3013	0.00	--	0.0	18.98	94.1	461891.9	461891.9	5.42	94.1	132035.6	593927.5
3043	0.00	--	0.0	18.90	88.4	418484.1	418484.1	5.47	88.4	121033.2	539517.3
3074	0.00	--	0.0	19.16	84.9	420867.1	420867.1	5.44	84.9	119411.6	540278.7
3104	0.00	--	0.0	19.06	90.2	430397.7	430397.7	5.15	90.2	116380.5	546778.2
3135	0.00	--	0.0	19.20	89.5	444827.3	444827.3	5.27	89.5	121995.5	566822.8
3166	0.00	--	0.0	19.24	87.5	435598.9	435598.9	5.58	87.5	126368.6	561967.5
3196	0.00	--	0.0	19.28	84.1	405774.2	405774.2	5.62	84.0	118261.0	524035.2
3227	0.00	--	0.0	19.47	85.9	432454.9	432454.9	5.76	85.9	127885.6	560340.5
3257	0.00	--	0.0	19.14	82.3	394640.5	394640.5	5.87	82.3	120916.0	515556.6
3288	0.00	--	0.0	19.25	88.2	439206.7	439206.7	5.66	88.2	129224.0	568430.6
3319	0.00	--	0.0	19.21	82.2	408767.8	408767.8	5.79	82.2	123188.3	531956.1
3348	0.00	--	0.0	19.15	83.6	414104.6	414104.6	5.59	83.6	120947.2	535051.8
3379	0.00	--	0.0	18.96	91.0	431946.4	431946.4	5.42	91.0	123574.5	555520.9
3409	0.00	--	0.0	18.75	85.1	413077.3	413077.3	5.47	85.1	120363.0	533440.3
3440	0.00	--	0.0	18.49	82.4	381274.2	381274.2	5.44	82.3	112040.5	493314.7
3470	0.00	--	0.0	18.51	86.3	413493.5	413493.5	5.15	86.3	115023.8	528517.2
3501	0.00	--	0.0	19.03	86.5	426015.7	426015.7	5.27	86.5	117814.8	543830.6
3532	0.00	--	0.0	18.90	83.7	395897.5	395897.5	5.58	83.6	116880.7	512778.2
3562	0.00	--	0.0	19.06	81.2	400259.3	400259.3	5.62	81.1	117980.5	518239.8
3593	0.00	--	0.0	19.55	83.1	406628.2	406628.2	5.76	83.0	119681.3	526309.5
3623	0.00	--	0.0	19.07	78.3	386350.3	386350.3	5.87	78.3	118799.5	505149.8
3654	0.00	--	0.0	18.85	82.7	403499.4	403499.4	5.66	82.7	121210.5	524709.9
3685	0.00	--	0.0	18.84	76.5	336648.6	336648.6	5.80	76.4	103599.2	440247.8
3713	0.00	--	0.0	19.12	77.7	384213.2	384213.2	5.59	77.6	112328.0	496541.2
3744	0.00	--	0.0	18.72	84.9	397799.5	397799.5	5.42	84.8	115188.5	512988.0

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
3774	0.00	--	0.0	18.50	81.7	390824.8	390824.8	5.47	81.6	115399.2	506224.0
3805	0.00	--	0.0	18.62	79.8	371906.6	371906.6	5.44	79.7	108532.8	480439.4
3835	0.00	--	0.0	18.23	85.0	401012.5	401012.5	5.15	85.0	113290.9	514303.4
3866	0.00	--	0.0	18.51	87.0	416784.2	416784.2	5.27	87.0	118491.6	535275.8
3897	0.00	--	0.0	18.86	86.0	405848.4	405848.4	5.58	85.9	120097.4	525945.8
3927	0.00	--	0.0	19.27	84.8	422773.7	422773.7	5.62	84.8	123274.6	546048.2
3958	0.00	--	0.0	19.75	90.5	447659.3	447659.3	5.76	90.5	130497.9	578157.2
3988	0.00	--	0.0	19.59	91.1	461404.8	461404.8	5.87	91.1	138204.5	599609.3
4019	0.00	--	0.0	19.07	98.5	485820.4	485820.4	5.66	98.5	144310.7	630131.1
4050	1.42	3.7	1246.5	17.42	93.7	381360.9	382607.4	5.80	93.7	127035.8	509643.1
4078	0.00	--	0.0	19.20	95.1	472248.4	472248.4	5.59	95.1	137685.2	609933.7
4109	0.00	--	0.0	18.63	105.6	492754.0	492754.0	5.42	105.7	143576.2	636330.2
4139	2.97	4.0	3082.7	15.14	100.3	392721.1	395803.9	5.47	100.4	141968.6	537772.5
4170	1.80	4.0	1789.8	16.46	99.5	409760.6	411550.3	5.44	99.6	135548.5	547098.8
4200	1.61	4.2	1747.6	16.14	105.0	438197.3	439944.9	5.15	105.1	140152.8	580097.7
4231	2.71	4.2	2979.4	15.30	106.1	419790.6	422770.0	5.27	106.2	144725.7	567495.8
4262	2.99	4.3	3202.1	15.48	106.8	413960.3	417162.5	5.58	107.0	149487.3	566649.8
4292	3.25	4.1	3444.7	15.79	102.5	418505.4	421950.1	5.62	102.5	149098.6	571048.6
4323	2.38	4.2	2485.9	17.34	104.1	452101.8	454587.7	5.76	104.2	150199.3	604787.0
4353	2.84	4.0	2942.9	16.75	100.2	434228.0	437170.8	5.87	100.2	152076.8	589247.7
4384	1.11	4.2	1200.2	18.08	104.1	487077.2	488277.3	5.66	104.2	152658.1	640935.4
4415	2.76	3.9	2590.4	16.08	97.1	377726.5	380316.9	5.80	97.1	136323.0	516639.9
4443	0.29	3.9	268.1	18.94	97.0	444439.6	444707.8	5.59	97.0	131317.4	576025.2
4474	1.05	4.1	1126.3	17.38	103.3	464200.7	465327.0	5.42	103.3	144956.6	610283.6
4504	2.46	3.9	2418.5	15.50	98.3	381389.4	383807.9	5.47	98.3	134525.0	518332.9
4535	1.31	3.8	1296.6	16.73	95.5	413296.2	414592.8	5.44	95.5	134405.6	548998.4
4565	0.00	--	0.0	17.48	100.5	439911.1	439911.1	5.15	100.6	129688.2	569599.4
4596	1.75	4.0	1826.0	16.01	100.6	416706.4	418532.4	5.25	100.6	136661.0	555193.4
4627	1.81	4.0	1863.2	16.57	99.3	425719.6	427582.9	5.57	99.3	143105.6	570688.5
4657	1.58	3.9	1539.7	17.59	97.1	427676.8	429216.5	5.62	97.1	136616.6	565833.1
4688	1.09	4.0	1141.6	18.88	101.0	493619.2	494760.8	5.76	101.1	150527.6	645288.4



**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
4718	2.13	4.0	2143.2	17.75	100.7	447328.5	449471.7	5.87	100.7	147851.3	597323.0
4749	2.04	4.2	2237.0	17.95	106.0	492151.4	494388.4	5.66	106.0	155353.0	649741.4
4780	3.26	4.1	3437.3	16.20	101.9	426775.3	430212.7	5.79	101.9	152695.3	582908.0
4809	2.30	4.2	2470.1	16.90	103.9	454147.4	456617.6	5.59	104.0	150449.0	607066.6
4840	2.70	4.5	3056.6	15.60	112.9	441223.6	444280.2	5.42	113.1	153554.4	597834.7
4870	4.34	4.4	4904.4	13.34	109.1	376465.9	381370.3	5.47	109.2	154477.1	535847.4
4901	3.57	4.3	3821.0	13.60	106.8	363638.9	367459.9	5.44	107.0	145646.1	513106.0
4931	3.06	4.5	3530.1	13.63	111.5	393113.7	396643.8	5.14	111.7	148545.7	545189.5
4962	3.76	4.5	4360.6	13.70	111.9	396798.9	401159.5	5.24	112.2	152046.4	553205.8
4993	4.01	4.4	4413.6	13.86	110.0	381692.2	386105.8	5.56	110.2	153342.9	539448.7
5023	3.78	4.3	4205.0	14.99	107.5	416890.1	421095.2	5.61	107.6	156140.6	577235.8
5054	3.44	4.4	3792.3	16.44	110.2	453874.7	457667.0	5.76	110.3	159004.8	616671.8
5084	4.17	4.3	4638.8	15.45	107.5	429781.3	434420.1	5.87	107.6	163233.3	597653.4
5115	3.59	5.1	4781.3	15.74	128.6	523788.6	528569.9	5.66	128.7	188602.3	717172.2
5146	7.13	5.4	8930.6	11.44	134.0	358158.3	367088.9	5.80	134.1	181812.0	548900.8
5174	7.75	5.3	10609.9	10.84	132.2	370984.6	381594.6	5.59	132.4	191642.8	573237.4
5205	7.49	5.7	10661.4	10.01	142.1	356382.1	367043.4	5.42	142.4	193380.3	560423.8
5235	8.24	5.6	11936.6	8.69	140.0	314498.3	326434.9	5.47	140.2	198325.4	524760.3
5266	7.84	5.6	11023.9	8.93	140.3	313865.2	324889.2	5.43	140.7	191284.6	516173.7
5296	7.81	6.0	12097.8	7.99	149.6	309263.6	321361.4	5.13	150.3	199356.2	520717.5
5327	8.25	5.8	12369.0	8.10	144.9	303573.3	315942.3	5.23	145.5	196862.9	512805.2
5358	8.07	5.6	11233.3	9.27	139.0	322502.8	333736.1	5.55	139.5	193799.5	527535.6
5388	7.91	5.1	10529.8	10.62	128.7	353637.4	364167.2	5.60	128.9	186675.8	550843.0
5419	6.42	5.0	8049.8	13.32	125.2	417305.4	425355.3	5.75	125.3	180267.3	605622.5
5449	6.20	4.9	7894.2	13.73	123.1	437278.2	445172.4	5.87	123.2	186949.5	632121.9
5480	6.57	5.0	8428.9	12.67	124.0	406546.9	414975.9	5.66	124.1	181816.7	596792.6
5511	6.49	4.8	7230.9	12.16	119.2	338547.8	345778.7	5.80	119.3	161718.1	507496.8
5539	5.62	5.0	7204.4	13.12	124.0	420568.8	427773.3	5.59	124.1	179612.5	607385.8
5570	6.32	5.4	8534.8	11.04	134.9	372764.2	381299.0	5.42	135.1	183482.9	564781.9
5600	7.35	5.3	10119.3	9.32	133.1	320956.8	331076.1	5.46	133.4	188295.1	519371.2
5631	6.96	5.3	9214.7	9.48	132.2	313665.2	322879.9	5.41	132.6	179659.2	502539.1

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
5661	6.77	5.5	9596.5	8.53	137.1	302571.7	312168.2	5.11	137.6	181966.9	494135.1
5692	6.85	5.6	9993.1	9.12	141.0	332753.0	342746.1	5.21	141.7	190973.3	533719.4
5723	7.51	5.2	9714.7	9.55	129.2	308648.2	318362.9	5.54	129.5	179532.3	497895.2
5753	6.62	5.1	8662.9	11.91	126.5	389784.7	398447.5	5.59	126.7	183139.5	581587.1
5784	6.66	5.3	8877.4	13.14	133.2	438059.5	446937.0	5.73	133.4	191524.3	638461.2
5814	8.00	5.4	11076.9	11.94	133.9	413602.4	424679.4	5.85	134.0	202821.0	627500.4
5845	8.20	5.2	10973.8	11.06	129.3	370139.7	381113.5	5.66	129.4	189639.5	570753.0
5876	7.32	4.9	8596.7	11.29	121.3	331433.4	340030.0	5.80	121.5	170572.2	510602.2
5904	5.35	4.9	6343.7	13.37	122.5	396279.9	402623.6	5.59	122.7	166066.0	568689.6
5935	5.48	5.3	7520.7	11.71	132.6	401715.1	409235.9	5.42	132.9	186485.1	595720.9
5965	7.01	5.2	9043.6	9.37	128.9	302290.4	311334.0	5.47	129.1	176747.8	488081.8
5996	6.36	5.1	8334.3	9.72	126.7	318584.0	326918.3	5.43	127.0	178540.2	505458.4
6026	5.98	5.3	7897.1	8.81	131.9	290908.0	298805.0	5.13	132.4	170012.3	468817.3
6057	5.67	5.4	7900.6	9.90	134.7	344766.5	352667.1	5.23	135.1	182915.2	535582.3
6088	6.69	5.4	9352.6	10.12	135.1	353678.2	363030.8	5.55	135.6	194659.0	557689.8
6118	7.26	5.3	9578.1	11.13	131.8	367199.8	376778.0	5.60	132.1	185113.8	561891.7
6149	7.36	5.3	10022.7	12.45	131.6	423807.6	433830.3	5.75	131.8	195909.9	629740.2
6179	7.80	5.1	9893.6	12.32	126.6	390656.7	400550.3	5.87	126.7	186054.1	586604.4
6210	7.20	5.0	9284.3	13.00	124.5	418727.4	428011.8	5.66	124.6	182592.5	610604.3
6241	6.83	4.6	8105.0	12.48	114.6	370072.7	378177.7	5.79	114.8	171927.3	550105.0
6270	4.29	4.5	5032.4	14.55	113.3	426540.1	431572.6	5.59	113.4	164168.2	595740.7
6301	3.90	4.9	4808.0	13.30	123.2	410065.6	414873.6	5.42	123.4	167557.0	582430.6
6331	5.74	4.8	7100.3	10.46	119.5	323543.2	330643.5	5.47	119.7	169331.3	499974.7
6362	5.03	4.7	5895.0	10.27	117.0	300836.0	306731.0	5.44	117.3	159650.9	466381.9
6392	4.45	4.9	5636.3	9.70	122.3	306837.9	312474.2	5.15	122.5	163368.1	475842.3
6423	4.33	5.0	5623.5	11.04	125.5	358422.9	364046.4	5.27	125.7	171307.9	535354.3
6454	5.54	4.9	6819.0	10.85	122.8	333512.2	340331.2	5.58	123.0	171901.1	512232.2
6484	5.56	4.8	6887.1	12.60	119.7	390181.3	397068.4	5.62	119.8	174208.7	571277.1
6515	5.53	4.9	6713.7	14.44	121.3	438427.8	445141.5	5.76	121.4	175005.3	620146.8
6545	6.24	4.7	7615.9	13.83	117.9	421847.0	429462.8	5.87	118.0	179064.3	608527.1
6576	5.72	5.3	7881.8	13.89	133.1	478331.5	486213.4	5.66	133.3	195311.9	681525.2

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
6607	7.89	4.8	8853.7	10.48	120.1	294091.2	302944.9	5.80	120.4	163146.8	466091.7
6635	5.73	4.6	6790.4	12.60	114.4	373149.9	379940.3	5.59	114.7	165922.3	545862.6
6666	4.05	4.9	4976.2	12.38	122.8	380506.9	385483.2	5.42	123.1	167126.9	552610.1
6696	4.96	4.7	5992.6	10.49	116.9	317206.1	323198.6	5.47	117.1	165671.0	488869.7
6727	4.47	4.5	5035.8	10.45	112.6	294491.7	299527.5	5.44	112.8	153620.0	453147.5
6757	3.71	4.7	4500.9	9.50	117.3	288173.5	292674.4	5.15	117.6	156767.9	449442.3
6788	3.48	4.8	4343.1	10.73	120.5	334391.3	338734.4	5.27	120.8	164579.6	503314.0
6819	4.62	4.6	5295.0	11.28	114.5	323581.6	328876.6	5.58	114.7	160293.1	489169.7
6849	4.22	4.5	4910.4	13.91	112.4	404463.3	409373.6	5.62	112.5	163622.3	572996.0
6880	4.28	4.5	4844.3	15.71	113.1	444925.1	449769.4	5.76	113.1	163093.6	612862.9
6910	4.76	4.3	5341.8	15.79	108.5	443012.2	448354.0	5.87	108.5	164621.6	612975.6
6941	3.93	4.4	4513.1	15.92	110.9	456821.7	461334.8	5.66	111.0	162608.9	623943.7
6972	4.29	4.1	4154.0	14.33	103.6	346874.8	351028.8	5.80	103.7	140528.2	491557.0
7000	1.88	4.2	2023.6	16.67	103.8	447774.4	449798.1	5.59	103.9	150397.8	600195.9
7031	2.62	4.5	2941.4	13.61	112.0	381821.5	384762.9	5.42	112.1	152288.3	537051.2
7061	3.82	4.2	4194.1	11.32	106.1	310904.7	315098.8	5.47	106.2	150210.7	465309.5
7092	2.67	4.1	2733.7	11.90	102.2	304262.2	306995.9	5.44	102.2	139118.8	446114.6
7122	1.27	4.3	1401.2	11.47	106.9	317154.4	318555.6	5.15	106.9	142581.5	461137.1
7153	2.41	4.4	2769.0	11.30	110.9	324144.4	326913.4	5.27	110.9	151176.6	478090.1
7184	3.18	4.3	3459.3	12.44	108.6	338342.1	341801.4	5.58	108.7	151904.9	493706.3
7214	3.18	4.2	3496.8	14.86	106.2	408524.4	412021.2	5.62	106.3	154551.2	566572.4
7245	3.08	4.4	3371.4	17.02	109.5	466532.4	469903.8	5.76	109.5	157841.1	627744.9
7275	4.04	4.3	4453.5	16.68	106.6	459775.2	464228.7	5.87	106.6	161753.2	625982.0
7306	3.53	4.5	4131.4	16.38	113.1	479370.2	483501.6	5.66	113.1	165784.5	649286.1
7337	4.72	4.2	4825.7	13.72	105.7	350902.5	355728.2	5.80	105.7	148414.6	504142.8
7365	2.33	4.2	2391.3	15.97	106.1	409918.1	412309.4	5.59	106.1	143662.0	555971.5
7396	3.06	4.6	3607.3	12.66	113.9	373204.0	376811.4	5.42	114.0	159988.1	536799.4
7426	4.04	4.4	4432.5	10.50	109.7	288204.4	292636.9	5.47	109.7	150173.2	442810.1
7457	3.18	4.3	3530.5	10.64	107.3	295314.0	298844.5	5.44	107.3	150957.4	449801.8
7487	2.68	4.5	3000.1	8.99	111.9	251863.0	254863.1	5.15	111.9	144404.3	399267.4
7518	2.49	4.4	2827.8	10.40	109.7	295014.8	297842.6	5.27	109.6	149307.8	447150.4

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
7549	2.87	4.2	3127.5	12.20	105.4	332629.7	335757.2	5.58	105.3	152057.3	487814.5
7579	2.53	4.1	2611.7	15.27	103.1	394035.0	396646.8	5.62	103.0	144903.7	541550.5
7610	2.38	4.2	2589.9	17.70	105.2	482009.2	484599.2	5.76	105.2	156698.0	641297.2
7640	3.12	4.1	3182.8	17.71	101.8	451303.0	454485.8	5.87	101.7	149409.8	603895.5
7671	2.40	4.3	2647.3	18.38	106.5	506204.6	508851.9	5.66	106.4	155952.9	664804.8
7702	3.47	4.0	3547.7	15.67	98.8	400458.8	404006.5	5.79	98.7	147894.8	551901.3
7731	0.74	4.2	807.8	17.54	106.1	481283.8	482091.6	5.59	106.1	153612.0	635703.6
7762	3.05	4.4	3353.8	12.29	109.9	338175.7	341529.5	5.42	109.9	149193.7	490723.1
7792	3.33	4.3	3672.1	10.68	106.7	294851.6	298523.7	5.47	106.6	150786.9	449310.6
7823	2.61	3.9	2521.2	9.97	96.5	240875.8	243397.1	5.44	96.0	130656.2	374053.2
7853	0.07	4.1	70.3	10.60	103.4	283460.0	283530.3	5.15	102.9	137177.8	420708.1
7884	1.15	4.3	1267.1	11.17	106.9	308997.3	310264.4	5.26	106.6	144947.4	455211.8
7915	2.36	4.0	2385.3	11.91	101.1	301621.2	304006.4	5.57	100.8	140698.6	444705.0
7945	1.65	4.0	1690.5	15.61	99.0	399734.3	401424.8	5.62	98.8	143633.5	545058.3
7976	1.43	4.0	1447.5	18.56	101.1	469668.6	471116.1	5.76	101.0	145554.8	616670.9
8006	2.14	3.9	2161.4	18.43	97.7	465966.8	468128.2	5.87	97.6	148181.9	616310.1
8037	1.33	4.1	1399.6	18.70	101.5	490917.3	492316.9	5.66	101.4	148535.3	640852.2
8068	2.22	3.7	1929.8	15.97	92.9	346737.1	348666.9	5.80	92.8	125746.2	474413.1
8096	0.00	--	0.0	17.85	94.5	436558.5	436558.5	5.59	94.3	136509.8	573068.3
8127	0.00	--	0.0	14.69	103.6	380958.3	380958.3	5.42	103.3	140324.3	521282.6
8157	2.11	3.9	2113.4	11.01	96.6	275117.2	277230.5	5.47	96.1	135878.4	413108.9
8188	0.70	3.8	659.0	11.46	94.0	269523.3	270182.3	5.44	93.2	126939.2	397121.5
8218	0.00	--	0.0	9.35	100.9	243966.9	243966.9	5.15	100.1	133312.9	377279.8
8249	1.14	4.0	1180.2	9.69	100.4	251669.9	252850.1	5.24	99.6	135152.9	388003.0
8280	1.20	4.0	1197.1	12.44	99.8	310859.2	312056.3	5.56	99.3	138353.6	450409.9
8310	1.34	3.7	1293.5	15.71	93.5	380233.6	381527.2	5.61	93.1	135152.0	516679.1
8341	0.00	--	0.0	19.95	99.1	494895.4	494895.4	5.76	98.9	142569.0	637464.4
8371	1.63	3.9	1650.4	19.29	98.1	489757.2	491407.6	5.87	98.0	148771.0	640178.6
8402	1.45	4.0	1515.2	18.49	100.7	481676.7	483192.0	5.66	100.6	147367.2	630559.2
8433	2.03	3.8	1814.9	15.87	95.9	355544.5	357359.3	5.80	95.8	129912.1	487271.4
8461	0.00	--	0.0	17.44	91.6	413173.0	413173.0	5.59	91.4	132216.4	545389.5

**TABLE 2**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE  
FROM THE WRPS FOR THE FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP			Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO Discharge Flow to River (MGD) <sup>2</sup>	RO Discharge Concentration (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Concentration (mg/L)	Untreated Discharge Mass (lb)	
8492	0.00	--	0.0	13.90	99.0	344466.3	344466.3	5.42	98.7	134017.7	478484.0
8522	1.20	3.8	1160.9	11.03	93.8	267732.6	268893.5	5.47	93.4	132052.3	400945.8
8553	0.00	--	0.0	11.06	92.2	255431.7	255431.7	5.44	91.8	124972.1	380403.7
8583	0.00	--	0.0	9.08	96.3	226348.5	226348.5	5.15	96.0	127917.4	354266.0
8614	0.03	3.8	31.4	9.51	96.0	236222.2	236253.6	5.27	95.3	129922.4	366175.9
8645	0.00	--	0.0	12.78	93.0	297511.1	297511.1	5.58	92.4	129194.5	426705.7
8675	0.00	--	0.0	16.62	90.6	389488.3	389488.3	5.62	90.2	131194.3	520682.6
8706	0.00	--	0.0	19.72	93.8	462953.2	462953.2	5.76	93.6	134879.9	597833.1
8736	0.00	--	0.0	20.98	91.2	494762.2	494762.2	5.87	91.0	138120.2	632882.4

**Notes:**

1. RO = reverse osmosis; USCR = Upper Santa Clara River; WRP = Water Reclamation Plant.
2. MGD = million gallons per day.
3. mg/L = milligrams per liter.
4. lb = pounds.
5. "--" = Concentration not shown due to zero discharge flow.

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
1	0.00	-- <sup>5</sup>	0.0	14.84	94.2	361719.3	361719.3	0.00	--	0.0	5.66	94.2	138059.5	138059.5	499778.9
32	0.00	--	0.0	15.10	88.0	321733.8	321733.8	0.00	--	0.0	5.80	88.0	123565.2	123565.2	445299.0
60	0.00	--	0.0	15.46	88.8	332225.2	332225.2	0.00	--	0.0	5.59	88.8	120224.4	120224.4	452449.6
91	0.00	--	0.0	15.54	96.1	386250.5	386250.5	0.00	--	0.0	5.42	96.0	134782.5	134782.5	521033.0
121	0.00	--	0.0	15.54	91.3	355174.8	355174.8	0.00	--	0.0	5.47	91.3	124926.6	124926.6	480101.5
152	0.00	--	0.0	15.82	89.1	364426.1	364426.1	0.00	--	0.0	5.44	89.0	125242.4	125242.4	489668.5
182	0.00	--	0.0	15.85	93.8	371966.7	371966.7	0.00	--	0.0	5.15	93.7	120963.4	120963.4	492930.1
213	0.00	--	0.0	15.91	94.3	388105.5	388105.5	0.00	--	0.0	5.26	94.3	128330.4	128330.4	516435.9
244	0.00	--	0.0	15.80	92.4	377683.5	377683.5	0.00	--	0.0	5.58	92.4	133324.3	133324.3	511007.8
274	0.00	--	0.0	15.69	91.7	360384.8	360384.8	0.00	--	0.0	5.62	91.7	129087.0	129087.0	489471.9
305	0.00	--	0.0	15.73	94.2	383354.2	383354.2	0.00	--	0.0	5.76	94.2	140354.9	140354.9	523709.1
335	0.00	--	0.0	15.40	88.0	339275.8	339275.8	0.00	--	0.0	5.87	88.0	129215.6	129215.6	468491.5
366	0.00	--	0.0	15.86	94.4	387263.5	387263.5	0.00	--	0.0	5.66	94.4	138278.2	138278.2	525541.7
397	0.00	--	0.0	16.01	87.4	361988.2	361988.2	0.00	--	0.0	5.79	87.4	130882.9	130882.9	492871.1
426	0.00	--	0.0	16.09	87.8	365236.9	365236.9	0.00	--	0.0	5.59	87.7	126976.4	126976.4	492213.3
457	0.00	--	0.0	16.22	95.5	387799.7	387799.7	0.00	--	0.0	5.42	95.5	129641.3	129641.3	517441.0
487	0.00	--	0.0	16.18	90.5	378650.5	378650.5	0.00	--	0.0	5.47	90.4	127893.5	127893.5	506544.1
518	0.00	--	0.0	16.11	88.6	357347.0	357347.0	0.00	--	0.0	5.44	88.6	120543.0	120543.0	477889.9
548	0.00	--	0.0	16.36	94.1	398491.4	398491.4	0.00	--	0.0	5.13	94.0	124841.1	124841.1	523332.5
579	0.00	--	0.0	16.66	95.6	411884.4	411884.4	0.00	--	0.0	5.23	95.5	129205.4	129205.4	541089.8
610	0.00	--	0.0	16.29	93.3	380573.5	380573.5	0.00	--	0.0	5.55	93.3	129664.5	129664.5	510238.0
640	0.00	--	0.0	16.10	90.9	378641.0	378641.0	0.00	--	0.0	5.60	90.9	131664.3	131664.3	510305.2
671	0.00	--	0.0	16.26	94.7	385384.0	385384.0	0.00	--	0.0	5.75	94.7	136398.1	136398.1	521782.1
701	0.00	--	0.0	15.72	90.1	366430.1	366430.1	0.00	--	0.0	5.87	90.1	136725.1	136725.1	503155.2
732	0.00	--	0.0	15.91	93.9	386708.2	386708.2	0.00	--	0.0	5.66	94.0	137678.4	137678.4	524386.5
763	0.00	--	0.0	16.21	86.8	328765.7	328765.7	0.00	--	0.0	5.80	86.8	117630.6	117630.6	446396.3
791	0.00	--	0.0	16.60	88.3	379175.4	379175.4	0.00	--	0.0	5.59	88.3	127775.0	127775.0	506950.5
822	0.00	--	0.0	16.72	96.7	404663.2	404663.2	0.00	--	0.0	5.42	96.7	131288.8	131288.8	535952.0
852	0.00	--	0.0	16.72	92.7	400893.8	400893.8	0.00	--	0.0	5.47	92.7	131036.1	131036.1	531929.9
883	0.00	--	0.0	17.03	90.9	387397.6	387397.6	0.00	--	0.0	5.42	90.8	123193.1	123193.1	510590.6

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
913	0.00	--	0.0	17.08	97.4	430210.4	430210.4	0.00	--	0.0	5.11	97.4	128827.1	128827.1	559037.5
944	0.00	--	0.0	17.13	98.6	436891.6	436891.6	0.00	--	0.0	5.22	98.6	133036.0	133036.0	569927.6
975	0.00	--	0.0	17.00	95.1	404680.4	404680.4	0.00	--	0.0	5.54	95.1	131806.9	131806.9	536487.3
1005	0.00	--	0.0	16.85	92.8	404414.7	404414.7	0.00	--	0.0	5.59	92.8	134037.7	134037.7	538452.4
1036	0.00	--	0.0	16.87	95.1	401627.3	401627.3	0.00	--	0.0	5.74	95.1	136572.2	136572.2	538199.6
1066	0.00	--	0.0	16.51	90.1	384998.7	384998.7	0.00	--	0.0	5.86	90.1	136615.0	136615.0	521613.7
1097	0.00	--	0.0	16.42	98.0	416351.3	416351.3	0.00	--	0.0	5.66	98.0	143633.2	143633.2	559984.4
1128	0.00	--	0.0	16.73	92.0	359524.3	359524.3	0.00	--	0.0	5.80	92.0	124717.1	124717.1	484241.4
1156	0.00	--	0.0	17.13	90.8	402205.8	402205.8	0.00	--	0.0	5.59	90.8	131435.2	131435.2	533640.9
1187	0.00	--	0.0	17.24	95.7	412998.0	412998.0	0.00	--	0.0	5.42	95.7	129968.5	129968.5	542966.5
1217	0.00	--	0.0	17.25	90.7	404955.6	404955.6	0.00	--	0.0	5.47	90.8	128407.6	128407.6	533363.2
1248	0.00	--	0.0	17.56	88.4	388769.9	388769.9	0.00	--	0.0	5.44	88.5	120428.3	120428.3	509198.2
1278	0.00	--	0.0	17.62	94.2	429196.1	429196.1	0.00	--	0.0	5.15	94.3	125693.0	125693.0	554889.2
1309	0.00	--	0.0	17.67	94.9	433710.5	433710.5	0.00	--	0.0	5.27	94.9	129372.6	129372.6	563083.1
1340	0.00	--	0.0	17.54	93.4	410097.8	410097.8	0.00	--	0.0	5.58	93.4	130581.1	130581.1	540678.9
1370	0.00	--	0.0	17.39	90.7	408211.6	408211.6	0.00	--	0.0	5.62	90.8	131980.5	131980.5	540192.2
1401	0.00	--	0.0	17.41	94.3	411174.9	411174.9	0.00	--	0.0	5.76	94.4	136021.1	136021.1	547195.9
1431	0.00	--	0.0	17.04	91.0	400896.1	400896.1	0.00	--	0.0	5.87	91.0	138065.1	138065.1	538961.2
1462	0.00	--	0.0	16.82	95.3	414744.7	414744.7	0.00	--	0.0	5.66	95.3	139656.6	139656.6	554401.3
1493	0.00	--	0.0	17.11	88.2	365268.4	365268.4	0.00	--	0.0	5.80	88.2	123848.6	123848.6	489117.1
1521	0.00	--	0.0	17.51	89.2	377912.6	377912.6	0.00	--	0.0	5.59	89.2	120790.0	120790.0	498702.6
1552	0.00	--	0.0	17.59	95.8	435837.9	435837.9	0.00	--	0.0	5.42	95.8	134445.8	134445.8	570283.7
1582	0.00	--	0.0	17.58	90.7	399075.3	399075.3	0.00	--	0.0	5.47	90.7	124145.0	124145.0	523220.2
1613	0.00	--	0.0	17.88	88.8	410713.5	410713.5	0.00	--	0.0	5.44	88.8	124930.8	124930.8	535644.3
1643	0.00	--	0.0	17.90	92.6	415300.4	415300.4	0.00	--	0.0	5.15	92.7	119606.8	119606.8	534907.2
1674	0.00	--	0.0	17.98	91.9	427199.6	427199.6	0.00	--	0.0	5.27	91.9	125192.0	125192.0	552391.6
1705	0.00	--	0.0	17.88	91.7	424343.8	424343.8	0.00	--	0.0	5.58	91.8	132516.1	132516.1	556859.9
1735	0.00	--	0.0	17.77	89.9	399775.9	399775.9	0.00	--	0.0	5.62	89.9	126486.9	126486.9	526262.8
1766	0.00	--	0.0	17.82	91.9	423785.9	423785.9	0.00	--	0.0	5.76	91.9	136935.3	136935.3	560721.2
1796	0.00	--	0.0	17.46	88.5	386775.3	386775.3	0.00	--	0.0	5.87	88.5	129972.0	129972.0	516747.3

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
1827	0.00	--	0.0	17.77	94.1	432442.3	432442.3	0.00	--	0.0	5.66	94.1	137849.1	137849.1	570291.4
1858	0.00	--	0.0	17.89	87.3	404210.3	404210.3	0.00	--	0.0	5.79	87.3	130827.5	130827.5	535037.8
1887	0.00	--	0.0	17.94	86.3	400422.1	400422.1	0.00	--	0.0	5.59	86.3	124850.8	124850.8	525272.9
1918	0.00	--	0.0	18.02	92.8	418833.1	418833.1	0.00	--	0.0	5.42	92.8	126081.6	126081.6	544914.7
1948	0.00	--	0.0	17.94	88.0	408674.0	408674.0	0.00	--	0.0	5.47	88.1	124532.3	124532.3	533206.4
1979	0.00	--	0.0	17.83	85.6	382223.0	382223.0	0.00	--	0.0	5.44	85.7	116604.9	116604.9	498828.0
2009	0.00	--	0.0	18.06	90.1	420747.2	420747.2	0.00	--	0.0	5.15	90.1	120131.1	120131.1	540878.3
2040	0.00	--	0.0	18.42	90.1	429576.2	429576.2	0.00	--	0.0	5.27	90.2	122837.6	122837.6	552413.8
2071	0.00	--	0.0	18.07	89.2	403633.8	403633.8	0.00	--	0.0	5.58	89.2	124722.0	124722.0	528355.8
2101	0.00	--	0.0	17.94	86.8	402886.9	402886.9	0.00	--	0.0	5.62	86.8	126241.0	126241.0	529127.9
2132	0.00	--	0.0	18.18	90.0	409651.7	409651.7	0.00	--	0.0	5.76	90.0	129773.5	129773.5	539425.1
2162	0.00	--	0.0	17.61	86.6	394416.3	394416.3	0.00	--	0.0	5.87	86.6	131404.5	131404.5	525820.9
2193	0.00	--	0.0	17.63	92.0	419701.3	419701.3	0.00	--	0.0	5.66	92.0	134828.6	134828.6	554529.9
2224	0.00	--	0.0	17.88	85.7	358089.0	358089.0	0.00	--	0.0	5.80	85.7	116156.2	116156.2	474245.3
2252	0.00	--	0.0	18.27	85.4	403526.3	403526.3	0.00	--	0.0	5.59	85.4	123528.5	123528.5	527054.8
2283	0.00	--	0.0	18.29	92.9	425131.9	425131.9	0.00	--	0.0	5.42	92.9	126110.2	126110.2	551242.1
2313	0.00	--	0.0	18.24	87.8	414375.3	414375.3	0.00	--	0.0	5.47	87.8	124160.5	124160.5	538535.8
2344	0.00	--	0.0	18.52	86.2	399965.4	399965.4	0.00	--	0.0	5.44	86.2	117388.7	117388.7	517354.1
2374	0.00	--	0.0	18.48	90.6	433194.7	433194.7	0.00	--	0.0	5.15	90.6	120777.4	120777.4	553972.1
2405	0.00	--	0.0	18.59	92.7	445982.5	445982.5	0.00	--	0.0	5.27	92.7	126360.6	126360.6	572343.1
2436	0.00	--	0.0	18.56	91.6	425491.6	425491.6	0.00	--	0.0	5.58	91.6	127979.4	127979.4	553471.0
2466	0.00	--	0.0	18.53	89.9	430691.2	430691.2	0.00	--	0.0	5.62	89.9	130683.2	130683.2	561374.4
2497	0.00	--	0.0	18.64	97.0	452559.7	452559.7	0.00	--	0.0	5.76	97.0	139796.6	139796.6	592356.3
2527	0.00	--	0.0	18.30	97.0	459190.6	459190.6	0.00	--	0.0	5.87	97.0	147230.5	147230.5	606421.2
2558	0.00	--	0.0	18.04	102.1	476600.1	476600.1	0.00	--	0.0	5.66	102.2	149714.8	149714.8	626314.9
2589	1.49	3.9	1347.2	15.94	97.0	361140.7	362487.9	0.67	3.9	610.0	5.80	97.0	131533.6	132143.6	494631.5
2617	0.00	--	0.0	18.66	98.1	473288.4	473288.4	0.00	--	0.0	5.59	98.1	142006.7	142006.7	615295.0
2648	0.00	--	0.0	18.63	106.0	494232.3	494232.3	0.00	--	0.0	5.42	106.0	144001.4	144001.4	638233.7
2678	2.17	4.1	2282.3	15.29	101.7	402289.5	404571.8	0.87	4.1	915.3	5.47	101.8	143976.1	144891.4	549463.2
2709	1.46	4.0	1458.8	16.59	100.0	415295.7	416754.5	0.63	4.0	629.1	5.44	100.1	136257.7	136886.8	553641.3



**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
2739	0.00	--	0.0	18.21	105.7	497806.8	497806.8	0.53	4.2	574.9	5.15	105.8	141119.0	141693.9	639500.8
2770	2.14	4.2	2354.5	15.70	106.2	431129.6	433484.1	0.81	4.2	894.9	5.27	106.3	144810.2	145705.0	579189.2
2801	2.23	4.1	2313.0	15.56	103.5	403116.5	405429.4	0.86	4.1	888.9	5.58	103.6	144736.7	145625.6	551055.0
2831	1.79	3.8	1766.1	16.16	95.4	398784.3	400550.4	0.75	3.8	737.3	5.62	95.4	138726.2	139463.5	540013.9
2862	0.00	--	0.0	19.06	97.5	465309.6	465309.6	0.00	--	0.0	5.76	97.5	140620.3	140620.3	605929.9
2892	0.00	--	0.0	18.72	94.5	457652.7	457652.7	0.00	--	0.0	5.87	94.5	143413.4	143413.4	601066.1
2923	0.00	--	0.0	18.44	98.9	472079.9	472079.9	0.00	--	0.0	5.66	99.0	145023.0	145023.0	617102.9
2954	0.00	--	0.0	18.65	90.8	410113.0	410113.0	0.00	--	0.0	5.80	90.9	127558.2	127558.2	537671.2
2982	0.00	--	0.0	19.04	89.3	411559.5	411559.5	0.00	--	0.0	5.59	89.3	120960.2	120960.2	532519.7
3013	0.00	--	0.0	18.98	94.1	461891.9	461891.9	0.00	--	0.0	5.42	94.1	132035.6	132035.6	593927.5
3043	0.00	--	0.0	18.90	88.4	418484.1	418484.1	0.00	--	0.0	5.47	88.4	121033.2	121033.2	539517.3
3074	0.00	--	0.0	19.16	84.9	420867.1	420867.1	0.00	--	0.0	5.44	84.9	119411.6	119411.6	540278.7
3104	0.00	--	0.0	19.06	90.2	430397.7	430397.7	0.00	--	0.0	5.15	90.2	116380.5	116380.5	546778.2
3135	0.00	--	0.0	19.20	89.5	444827.3	444827.3	0.00	--	0.0	5.27	89.5	121995.5	121995.5	566822.8
3166	0.00	--	0.0	19.24	87.5	435598.9	435598.9	0.00	--	0.0	5.58	87.5	126368.6	126368.6	561967.5
3196	0.00	--	0.0	19.28	84.1	405774.2	405774.2	0.00	--	0.0	5.62	84.0	118261.0	118261.0	524035.2
3227	0.00	--	0.0	19.47	85.9	432454.9	432454.9	0.00	--	0.0	5.76	85.9	127885.6	127885.6	560340.5
3257	0.00	--	0.0	19.14	82.3	394640.5	394640.5	0.00	--	0.0	5.87	82.3	120916.0	120916.0	515556.6
3288	0.00	--	0.0	19.25	88.2	439206.7	439206.7	0.00	--	0.0	5.66	88.2	129224.0	129224.0	568430.6
3319	0.00	--	0.0	19.21	82.2	408767.8	408767.8	0.00	--	0.0	5.79	82.2	123188.3	123188.3	531956.1
3348	0.00	--	0.0	19.15	83.6	414104.6	414104.6	0.00	--	0.0	5.59	83.6	120947.2	120947.2	535051.8
3379	0.00	--	0.0	18.96	91.0	431946.4	431946.4	0.00	--	0.0	5.42	91.0	123574.5	123574.5	555520.9
3409	0.00	--	0.0	18.75	85.1	413077.3	413077.3	0.00	--	0.0	5.47	85.1	120363.0	120363.0	533440.3
3440	0.00	--	0.0	18.49	82.4	381274.2	381274.2	0.00	--	0.0	5.44	82.3	112040.5	112040.5	493314.7
3470	0.00	--	0.0	18.51	86.3	413493.5	413493.5	0.00	--	0.0	5.15	86.3	115023.8	115023.8	528517.2
3501	0.00	--	0.0	19.03	86.5	426015.7	426015.7	0.00	--	0.0	5.27	86.5	117814.8	117814.8	543830.6
3532	0.00	--	0.0	18.90	83.7	395897.5	395897.5	0.00	--	0.0	5.58	83.6	116880.7	116880.7	512778.2
3562	0.00	--	0.0	19.06	81.2	400259.3	400259.3	0.00	--	0.0	5.62	81.1	117980.5	117980.5	518239.8
3593	0.00	--	0.0	19.55	83.1	406628.2	406628.2	0.00	--	0.0	5.76	83.0	119681.3	119681.3	526309.5
3623	0.00	--	0.0	19.07	78.3	386350.3	386350.3	0.00	--	0.0	5.87	78.3	118799.5	118799.5	505149.8

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
3654	0.00	--	0.0	18.85	82.7	403499.4	403499.4	0.00	--	0.0	5.66	82.7	121210.5	121210.5	524709.9
3685	0.00	--	0.0	18.84	76.5	336648.6	336648.6	0.00	--	0.0	5.80	76.4	103599.2	103599.2	440247.8
3713	0.00	--	0.0	19.12	77.7	384213.2	384213.2	0.00	--	0.0	5.59	77.6	112328.0	112328.0	496541.2
3744	0.00	--	0.0	18.72	84.9	397799.5	397799.5	0.00	--	0.0	5.42	84.8	115188.5	115188.5	512988.0
3774	0.00	--	0.0	18.50	81.7	390824.8	390824.8	0.00	--	0.0	5.47	81.6	115399.2	115399.2	506224.0
3805	0.00	--	0.0	18.62	79.8	371906.6	371906.6	0.00	--	0.0	5.44	79.7	108532.8	108532.8	480439.4
3835	0.00	--	0.0	18.23	85.0	401012.5	401012.5	0.00	--	0.0	5.15	85.0	113290.9	113290.9	514303.4
3866	0.00	--	0.0	18.51	87.0	416784.2	416784.2	0.00	--	0.0	5.27	87.0	118491.6	118491.6	535275.8
3897	0.00	--	0.0	18.86	86.0	405848.4	405848.4	0.00	--	0.0	5.58	85.9	120097.4	120097.4	525945.8
3927	0.00	--	0.0	19.27	84.8	422773.7	422773.7	0.00	--	0.0	5.62	84.8	123274.6	123274.6	546048.2
3958	0.00	--	0.0	19.75	90.5	447659.3	447659.3	0.00	--	0.0	5.76	90.5	130497.9	130497.9	578157.2
3988	0.00	--	0.0	19.59	91.1	461404.8	461404.8	0.00	--	0.0	5.87	91.1	138204.5	138204.5	599609.3
4019	0.00	--	0.0	19.07	98.5	485820.4	485820.4	0.00	--	0.0	5.66	98.5	144310.7	144310.7	630131.1
4050	0.00	--	0.0	18.96	93.7	415050.0	415050.0	0.00	--	0.0	5.80	93.7	127035.8	127035.8	542085.7
4078	0.00	--	0.0	19.20	95.1	472248.4	472248.4	0.00	--	0.0	5.59	95.1	137685.2	137685.2	609933.7
4109	0.00	--	0.0	18.63	105.6	492754.0	492754.0	0.00	--	0.0	5.42	105.7	143576.2	143576.2	636330.2
4139	2.12	4.0	2197.1	15.14	100.3	392778.4	394975.5	0.85	4.0	883.5	5.47	100.4	141968.6	142852.1	537827.7
4170	1.19	4.0	1187.7	16.52	99.5	411354.0	412541.7	0.55	4.0	543.1	5.44	99.6	135548.5	136091.6	548633.3
4200	0.00	--	0.0	17.88	105.0	485429.9	485429.9	0.00	--	0.0	5.15	105.1	140152.8	140152.8	625582.7
4231	1.93	4.2	2116.2	15.31	106.1	420142.3	422258.4	0.77	4.2	850.2	5.27	106.2	144725.7	145576.0	567834.4
4262	2.14	4.3	2291.7	15.47	106.8	413861.0	416152.7	0.85	4.3	914.1	5.58	107.0	149487.3	150401.4	566554.1
4292	2.32	4.1	2459.1	15.76	102.5	417902.7	420361.8	0.95	4.1	1007.8	5.62	102.5	149098.6	150106.4	570468.2
4323	1.65	4.2	1720.4	17.39	104.1	453323.5	455043.9	0.69	4.2	720.3	5.76	104.2	150199.3	150919.6	605963.5
4353	2.00	4.0	2078.0	16.78	100.2	434931.7	437009.7	0.81	4.0	838.9	5.87	100.2	152076.8	152915.7	589925.3
4384	0.04	4.2	39.6	19.23	104.1	518110.0	518149.6	0.01	4.2	12.4	5.66	104.2	152658.1	152670.4	670820.0
4415	1.94	3.9	1823.0	16.10	97.1	378282.6	380105.7	0.79	3.9	746.8	5.80	97.1	136323.0	137069.8	517175.4
4443	0.00	--	0.0	19.25	97.0	451686.0	451686.0	0.00	--	0.0	5.59	97.0	131317.4	131317.4	583003.4
4474	0.00	--	0.0	18.52	103.3	494641.6	494641.6	0.00	--	0.0	5.42	103.3	144956.6	144956.6	639598.2
4504	1.72	3.9	1688.0	15.54	98.3	382244.4	383932.4	0.71	3.9	698.8	5.47	98.3	134525.0	135223.8	519156.2
4535	0.00	--	0.0	18.14	95.5	448340.2	448340.2	0.00	--	0.0	5.44	95.5	134405.6	134405.6	582745.8

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
4565	0.00	--	0.0	17.48	100.5	439911.1	439911.1	0.00	--	0.0	5.15	100.6	129688.2	129688.2	569599.4
4596	1.17	4.0	1222.7	16.07	100.6	418287.7	419510.3	0.52	4.0	544.9	5.25	100.6	136661.0	137205.8	556716.1
4627	1.22	4.0	1251.4	16.64	99.3	427316.7	428568.1	0.54	4.0	552.7	5.57	99.3	143105.6	143658.4	572226.5
4657	0.00	--	0.0	19.31	97.1	469290.3	469290.3	0.00	--	0.0	5.62	97.1	136616.6	136616.6	605906.9
4688	0.00	--	0.0	20.06	101.0	524474.1	524474.1	0.00	--	0.0	5.76	101.1	150527.6	150527.6	675001.6
4718	1.45	4.0	1458.7	17.82	100.7	449053.4	450512.1	0.62	4.0	620.7	5.87	100.7	147851.3	148472.0	598984.1
4749	1.37	4.2	1505.1	18.02	106.0	494058.6	495563.7	0.60	4.2	661.3	5.66	106.0	155353.0	156014.3	651578.1
4780	2.35	4.1	2477.1	16.20	101.9	426902.2	429379.3	0.91	4.1	955.5	5.79	101.9	152695.3	153650.8	583030.1
4809	1.57	4.2	1692.4	16.96	103.9	455598.0	457290.3	0.67	4.2	724.1	5.59	104.0	150449.0	151173.1	608463.5
4840	1.90	4.5	2151.6	15.63	112.9	442075.1	444226.7	0.77	4.5	873.5	5.42	113.1	153554.4	154427.9	598654.6
4870	3.19	4.4	3601.6	13.20	109.1	372610.3	376211.9	1.28	4.4	1445.5	5.47	109.2	154477.1	155922.6	532134.5
4901	2.57	4.3	2747.3	13.53	106.8	361897.4	364644.7	1.06	4.3	1138.1	5.44	107.0	145646.1	146784.2	511428.9
4931	2.16	4.5	2493.0	13.60	111.5	392236.9	394729.9	0.93	4.5	1069.5	5.14	111.7	148545.7	149615.2	544345.1
4962	1.80	4.5	2082.8	14.60	111.9	422810.3	424893.1	1.14	4.5	1315.4	5.24	112.2	152046.4	153361.7	578254.8
4993	2.93	4.4	3223.8	13.75	110.0	378551.9	381775.8	1.19	4.4	1305.9	5.56	110.2	153342.9	154648.8	536424.6
5023	2.72	4.3	3027.2	14.90	107.5	414498.3	417525.6	1.14	4.3	1266.3	5.61	107.6	156140.6	157406.9	574932.4
5054	2.47	4.4	2726.2	16.41	110.2	453005.9	455732.1	0.99	4.4	1098.3	5.76	110.3	159004.8	160103.1	615835.2
5084	3.06	4.3	3399.1	15.37	107.5	427583.7	430982.8	1.19	4.3	1321.0	5.87	107.6	163233.3	164554.3	595537.0
5115	2.59	5.1	3441.3	15.71	128.6	522733.4	526174.7	1.04	5.1	1379.1	5.66	128.7	188602.3	189981.3	716156.1
5146	5.38	5.4	6737.8	10.85	134.0	339551.7	346289.5	2.30	5.4	2881.2	5.80	134.1	181812.0	184693.1	530982.7
5174	5.81	5.3	7944.5	10.03	132.2	343064.4	351008.8	2.70	5.3	3698.5	5.59	132.4	191642.8	195341.3	546350.2
5205	5.65	5.7	8047.1	9.30	142.1	330810.4	338857.5	2.50	5.7	3560.4	5.42	142.4	193380.3	196940.7	535798.2
5235	5.46	5.6	7903.2	8.43	140.0	305176.9	313080.1	3.02	5.6	4378.3	5.47	140.2	198325.4	202703.7	515783.8
5266	5.11	5.6	7180.1	8.74	140.3	307033.8	314213.9	2.92	5.6	4096.6	5.43	140.7	191284.6	195381.2	509595.1
5296	5.09	6.0	7880.5	7.77	149.6	300846.2	308726.7	2.92	6.0	4528.8	5.13	150.3	199356.2	203884.9	512611.6
5327	5.52	5.8	8280.6	7.47	144.9	280024.8	288305.4	3.31	5.8	4959.7	5.23	145.5	196862.9	201822.5	490127.9
5358	5.35	5.6	7449.3	8.86	139.0	308348.4	315797.7	3.09	5.6	4307.6	5.55	139.5	193799.5	198107.1	513904.9
5388	5.14	5.1	6841.6	10.47	128.7	348501.8	355343.4	2.91	5.1	3878.2	5.60	128.9	186675.8	190554.1	545897.4
5419	4.37	5.0	5475.2	13.83	125.2	433407.6	438882.8	1.58	5.0	1978.9	5.75	125.3	180267.3	182246.1	621129.0
5449	4.17	4.9	5317.1	13.62	123.1	433940.1	439257.1	2.12	4.9	2700.7	5.87	123.2	186949.5	189650.1	628907.3

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
5480	4.94	5.0	6333.6	12.24	124.0	392813.1	399146.8	2.03	5.0	2603.5	5.66	124.1	181816.7	184420.2	583567.0
5511	4.88	4.8	5441.3	11.71	119.2	326277.5	331718.8	2.01	4.8	2243.6	5.80	119.3	161718.1	163961.7	495680.5
5539	3.17	5.0	4069.3	13.85	124.0	444227.8	448297.1	1.76	5.0	2259.7	5.59	124.1	179612.5	181872.2	630169.4
5570	4.73	5.4	6393.5	10.60	134.9	357932.1	364325.6	1.99	5.4	2690.1	5.42	135.1	183482.9	186173.0	550498.6
5600	5.50	5.3	7575.9	8.52	133.1	293467.9	301043.8	2.59	5.3	3560.5	5.46	133.4	188295.1	191855.6	492899.4
5631	5.15	5.3	6823.2	8.73	132.2	288974.4	295797.6	2.50	5.3	3305.0	5.41	132.6	179659.2	182964.2	478761.8
5661	4.23	5.5	5995.5	8.65	137.1	306698.7	312694.3	2.43	5.5	3448.3	5.11	137.6	181966.9	185415.1	498109.4
5692	4.36	5.6	6369.9	9.02	141.0	329022.6	335392.5	2.58	5.6	3761.3	5.21	141.7	190973.3	194734.5	530127.0
5723	4.89	5.2	6322.4	9.29	129.2	300243.1	306565.5	2.86	5.2	3703.3	5.54	129.5	179532.3	183235.6	489801.0
5753	4.90	5.1	6406.9	11.29	126.5	369492.4	375899.3	2.30	5.1	3006.8	5.59	126.7	183139.5	186146.3	562045.6
5784	4.08	5.3	5447.4	13.59	133.2	453330.7	458778.0	2.15	5.3	2865.1	5.73	133.4	191524.3	194389.3	653167.3
5814	6.08	5.4	8423.6	11.18	133.9	386992.1	395415.7	2.63	5.4	3637.9	5.85	134.0	202821.0	206458.9	601874.6
5845	6.23	5.2	8336.9	10.25	129.3	343106.1	351443.0	2.72	5.2	3637.2	5.66	129.4	189639.5	193276.7	544719.7
5876	4.62	4.9	5426.5	11.67	121.3	342630.5	348057.0	2.35	4.9	2755.9	5.80	121.5	170572.2	173328.0	521385.0
5904	3.47	4.9	4109.4	14.10	122.5	417806.7	421916.1	1.21	4.9	1437.8	5.59	122.7	166066.0	167503.8	589419.9
5935	3.61	5.3	4948.7	11.68	132.6	400634.8	405583.4	1.90	5.3	2612.1	5.42	132.9	186485.1	189097.1	594680.6
5965	5.22	5.2	6738.5	8.65	128.9	279022.6	285761.2	2.45	5.2	3166.0	5.47	129.1	176747.8	179913.8	465674.9
5996	4.67	5.1	6121.9	9.12	126.7	298770.2	304892.1	2.25	5.1	2945.5	5.43	127.0	178540.2	181485.6	486377.7
6026	3.58	5.3	4726.6	9.12	131.9	301406.6	306133.3	2.11	5.3	2782.0	5.13	132.4	170012.3	172794.3	478927.5
6057	3.77	5.4	5257.5	9.47	134.7	329938.2	335195.7	2.29	5.4	3191.7	5.23	135.1	182915.2	186106.9	521302.6
6088	4.91	5.4	6872.4	9.34	135.1	326390.4	333262.9	2.50	5.4	3489.8	5.55	135.6	194659.0	198148.8	531411.7
6118	5.36	5.3	7076.6	10.29	131.8	339447.0	346523.6	2.67	5.3	3528.4	5.60	132.1	185113.8	188642.2	535165.8
6149	5.53	5.3	7535.0	11.74	131.6	399652.2	407187.2	2.48	5.3	3381.4	5.75	131.8	195909.9	199291.4	606478.6
6179	5.00	5.1	6342.8	12.62	126.6	399965.0	406307.8	2.53	5.1	3206.4	5.87	126.7	186054.1	189260.5	595568.2
6210	4.47	5.0	5755.8	13.52	124.5	435584.6	441340.4	2.25	5.0	2904.8	5.66	124.6	182592.5	185497.3	626837.8
6241	5.20	4.6	6169.0	12.03	114.6	356770.2	362939.3	2.05	4.6	2428.1	5.79	114.8	171927.3	174355.5	537294.7
6270	2.61	4.5	3065.5	15.47	113.3	453421.8	456487.4	0.83	4.5	972.3	5.59	113.4	164168.2	165140.4	621627.8
6301	2.32	4.9	2865.8	13.55	123.2	417780.4	420646.2	1.34	4.9	1656.7	5.42	123.4	167557.0	169213.7	589859.9
6331	4.24	4.8	5238.7	10.05	119.5	310756.8	315995.5	1.89	4.8	2334.7	5.47	119.7	169331.3	171666.0	487661.5
6362	3.64	4.7	4268.4	9.95	117.0	291420.7	295689.1	1.69	4.7	1975.0	5.44	117.3	159650.9	161625.9	457315.0

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
6392	3.17	4.9	4007.4	9.44	122.3	298502.7	302510.1	1.53	4.9	1937.3	5.15	122.5	163368.1	165305.3	467815.4
6423	2.71	5.0	3520.8	10.91	125.5	354023.6	357544.4	1.74	5.0	2265.5	5.27	125.7	171307.9	173573.4	531117.8
6454	4.02	4.9	4946.7	10.37	122.8	318711.9	323658.6	1.97	4.9	2419.9	5.58	123.0	171901.1	174320.9	497979.5
6484	4.03	4.8	4996.3	12.18	119.7	377038.6	382035.0	1.92	4.8	2377.1	5.62	119.8	174208.7	176585.7	558620.7
6515	4.08	4.9	4961.9	14.12	121.3	428728.0	433689.8	1.74	4.9	2110.7	5.76	121.4	175005.3	177116.1	610805.9
6545	4.70	4.7	5730.9	13.47	117.9	410798.0	416528.9	1.88	4.7	2293.8	5.87	118.0	179064.3	181358.1	597886.9
6576	3.22	5.3	4430.2	14.76	133.1	508426.4	512856.6	1.70	5.3	2338.1	5.66	133.3	195311.9	197650.0	710506.6
6607	6.00	4.8	6733.4	9.72	120.1	272921.6	279655.1	2.59	4.8	2903.6	5.80	120.4	163146.8	166050.3	445705.4
6635	3.27	4.6	3872.9	13.29	114.4	393494.7	397367.5	1.83	4.6	2164.8	5.59	114.7	165922.3	168087.1	565454.6
6666	3.45	4.9	4235.7	11.50	122.8	353466.6	357702.3	1.42	4.9	1741.0	5.42	123.1	167126.9	168868.0	526570.3
6696	3.19	4.7	3852.4	11.09	116.9	335270.9	339123.3	1.22	4.7	1471.7	5.47	117.1	165671.0	167142.8	506266.1
6727	3.18	4.5	3581.3	10.19	112.6	287138.2	290719.5	1.53	4.5	1726.6	5.44	112.8	153620.0	155346.6	446066.1
6757	1.76	4.7	2137.4	10.23	117.3	310386.8	312524.2	1.27	4.7	1541.6	5.15	117.6	156767.9	158309.5	470833.7
6788	2.75	4.8	3423.9	9.94	120.5	309787.8	313211.7	1.47	4.8	1829.5	5.27	120.8	164579.6	166409.1	479620.8
6819	3.26	4.6	3736.4	10.93	114.5	313498.6	317235.1	1.68	4.6	1931.6	5.58	114.7	160293.1	162224.7	479459.8
6849	2.99	4.5	3484.0	13.70	112.4	398496.5	401980.5	1.42	4.5	1647.2	5.62	112.5	163622.3	165269.5	567250.0
6880	3.11	4.5	3521.7	15.58	113.1	441059.5	444581.1	1.29	4.5	1465.6	5.76	113.1	163093.6	164559.2	609140.3
6910	3.53	4.3	3957.0	15.65	108.5	439075.4	443032.4	1.36	4.3	1530.4	5.87	108.5	164621.6	166152.0	609184.4
6941	2.87	4.4	3299.2	16.54	110.9	474725.5	478024.8	0.48	4.4	551.4	5.66	111.0	162608.9	163160.3	641185.1
6972	3.16	4.1	3063.0	14.24	103.6	344740.9	347803.9	1.21	4.1	1170.0	5.80	103.7	140528.2	141698.2	489502.1
7000	0.68	4.2	733.5	17.12	103.8	459899.6	460633.1	0.78	4.2	841.5	5.59	103.9	150397.8	151239.3	611872.4
7031	1.83	4.5	2053.2	13.64	112.0	382476.5	384529.7	0.77	4.5	863.9	5.42	112.1	152288.3	153152.2	537681.9
7061	2.72	4.2	2986.6	11.19	106.1	307148.2	310134.8	1.23	4.2	1346.5	5.47	106.2	150210.7	151557.2	461692.0
7092	1.82	4.1	1864.5	11.86	102.2	303238.3	305102.8	0.89	4.1	907.1	5.44	102.2	139118.8	140025.8	445128.6
7122	0.33	4.3	360.8	11.78	106.9	325902.4	326263.2	0.65	4.3	716.8	5.15	106.9	142581.5	143298.3	469561.5
7153	1.60	4.4	1835.1	11.81	110.9	338692.0	340527.0	0.34	4.4	395.7	5.27	110.9	151176.6	151572.4	492099.4
7184	2.18	4.3	2368.3	12.31	108.6	334818.0	337186.3	1.12	4.3	1221.4	5.58	108.7	151904.9	153126.2	490312.6
7214	2.20	4.2	2421.4	14.78	106.2	406261.5	408682.8	1.05	4.2	1159.2	5.62	106.3	154551.2	155710.4	564393.2
7245	2.18	4.4	2384.5	17.01	109.5	466054.7	468439.2	0.92	4.4	1004.6	5.76	109.5	157841.1	158845.7	627284.8
7275	2.96	4.3	3261.3	16.62	106.6	458106.1	461367.5	1.14	4.3	1253.9	5.87	106.6	161753.2	163007.2	624374.6

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
7306	2.56	4.5	2994.0	16.38	113.1	479280.1	482274.1	0.97	4.5	1140.7	5.66	113.1	165784.5	166925.2	649199.3
7337	3.50	4.2	3582.9	13.59	105.7	347425.9	351008.8	1.34	4.2	1371.4	5.80	105.7	148414.6	149786.0	500794.8
7365	1.04	4.2	1072.4	16.38	106.1	420307.1	421379.6	0.91	4.2	934.5	5.59	106.1	143662.0	144596.5	565976.1
7396	2.17	4.6	2557.0	12.65	113.9	372860.5	375417.5	0.90	4.6	1063.1	5.42	114.0	159988.1	161051.1	536468.6
7426	2.87	4.4	3150.9	10.31	109.7	283198.0	286348.9	1.34	4.4	1466.8	5.47	109.7	150173.2	151640.0	437988.9
7457	2.19	4.3	2426.4	10.53	107.3	292356.8	294783.2	1.09	4.3	1213.5	5.44	107.3	150957.4	152170.9	446954.0
7487	0.99	4.5	1108.9	9.79	111.9	274323.3	275432.2	0.95	4.5	1060.2	5.15	111.9	144404.3	145464.5	420896.7
7518	1.95	4.4	2217.1	9.73	109.7	276193.8	278410.9	1.15	4.4	1307.1	5.27	109.6	149307.8	150614.9	429025.8
7549	1.93	4.2	2101.3	12.08	105.4	329561.7	331663.0	1.04	4.2	1139.7	5.58	105.3	152057.3	153197.0	484860.0
7579	1.71	4.1	1764.8	15.24	103.1	393202.8	394967.6	0.85	4.1	877.7	5.62	103.0	144903.7	145781.5	540749.1
7610	1.64	4.2	1781.8	18.33	105.2	499094.0	500875.8	0.16	4.2	176.0	5.76	105.2	156698.0	156874.0	657749.8
7640	2.24	4.1	2280.2	17.72	101.8	451699.9	453980.1	0.87	4.1	887.9	5.87	101.7	149409.8	150297.7	604277.8
7671	1.67	4.3	1839.5	18.45	106.5	508101.7	509941.1	0.67	4.3	737.7	5.66	106.4	155952.9	156690.6	666631.7
7702	2.53	4.0	2589.5	15.68	98.8	400621.7	403211.3	0.93	4.0	952.1	5.79	98.7	147894.8	148846.9	552058.2
7731	0.00	--	0.0	18.33	106.1	503117.1	503117.1	0.00	--	0.0	5.59	106.1	153612.0	153612.0	656729.1
7762	2.16	4.4	2373.1	12.27	109.9	337796.7	340169.8	0.90	4.4	994.7	5.42	109.9	149193.7	150188.3	490358.1
7792	2.33	4.3	2567.9	10.58	106.7	292086.3	294654.2	1.09	4.3	1206.5	5.47	106.6	150786.9	151993.4	446647.6
7823	1.75	3.9	1694.2	9.91	96.5	239454.4	241148.6	0.91	3.9	879.6	5.44	96.0	130656.2	131535.8	372684.4
7853	0.00	--	0.0	10.67	103.4	285360.4	285360.4	0.00	--	0.0	5.15	102.9	137177.8	137177.8	422538.1
7884	0.36	4.3	400.8	11.31	106.9	312930.9	313331.7	0.65	4.3	720.8	5.26	106.6	144947.4	145668.2	458999.9
7915	1.55	4.0	1565.4	11.84	101.1	299843.0	301408.3	0.87	4.0	885.7	5.57	100.8	140698.6	141584.3	442992.6
7945	1.06	4.0	1082.3	15.62	99.0	400077.4	401159.7	0.58	4.0	595.4	5.62	98.8	143633.5	144228.9	545388.6
7976	0.00	--	0.0	20.10	101.1	508790.0	508790.0	0.00	--	0.0	5.76	101.0	145554.8	145554.8	654344.8
8006	1.46	3.9	1478.7	18.50	97.7	467720.8	469199.5	0.61	3.9	617.8	5.87	97.6	148181.9	148799.7	617999.2
8037	0.00	--	0.0	20.14	101.5	528743.6	528743.6	0.00	--	0.0	5.66	101.4	148535.3	148535.3	677278.9
8068	1.53	3.7	1332.8	16.03	92.9	348217.7	349550.4	0.62	3.7	542.3	5.80	92.8	125746.2	126288.5	475838.9
8096	0.00	--	0.0	17.85	94.5	436558.5	436558.5	0.00	--	0.0	5.59	94.3	136509.8	136509.8	573068.3
8127	0.00	--	0.0	14.69	103.6	380958.3	380958.3	0.00	--	0.0	5.42	103.3	140324.3	140324.3	521282.6
8157	1.41	3.9	1408.1	11.00	96.6	274934.5	276342.6	0.71	3.9	712.0	5.47	96.1	135878.4	136590.4	412933.0
8188	0.00	--	0.0	12.21	94.0	287333.7	287333.7	0.00	--	0.0	5.44	93.2	126939.2	126939.2	414272.8

**TABLE 3**

**FLOW, CHLORIDE CONCENTRATION, AND CHLORIDE MASS IN RO AND USCR DISCHARGE FROM THE WRPS FOR THE NON FLOW-WEIGHTED SIMULATION<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Valencia WRP							Saugus WRP							Total WRP Discharge Mass (Saugus + Valencia, lb)
	RO <sup>2</sup> Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L) <sup>3</sup>	RO Discharge Mass (lb) <sup>4</sup>	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	RO Discharge Flow to River (MGD)	RO Discharge Conc. (mg/L)	RO Discharge Mass (lb)	Untreated Discharge Flow to River (MGD)	Untreated Discharge Conc. (mg/L)	Untreated Discharge Mass (lb)	Total Discharge Mass (RO + Untreated, lb)	
8218	0.00	--	0.0	9.35	100.9	243966.9	243966.9	0.00	--	0.0	5.15	100.1	133312.9	133312.9	377279.8
8249	0.66	4.0	686.1	9.66	100.4	250977.3	251663.5	0.50	4.0	519.7	5.24	99.6	135152.9	135672.5	387336.0
8280	0.72	4.0	723.8	12.95	99.8	323650.2	324374.1	0.00	--	0.0	5.56	99.3	138353.6	138353.6	462727.7
8310	0.00	--	0.0	17.16	93.5	415193.7	415193.7	0.00	--	0.0	5.61	93.1	135152.0	135152.0	550345.7
8341	0.00	--	0.0	19.95	99.1	494895.4	494895.4	0.00	--	0.0	5.76	98.9	142569.0	142569.0	637464.4
8371	0.00	--	0.0	21.05	98.1	534361.6	534361.6	0.00	--	0.0	5.87	98.0	148771.0	148771.0	683132.6
8402	0.00	--	0.0	20.06	100.7	522629.4	522629.4	0.00	--	0.0	5.66	100.6	147367.2	147367.2	669996.6
8433	1.38	3.8	1236.1	15.95	95.9	357239.6	358475.6	0.58	3.8	516.1	5.80	95.8	129912.1	130428.2	488903.8
8461	0.00	--	0.0	17.44	91.6	413173.0	413173.0	0.00	--	0.0	5.59	91.4	132216.4	132216.4	545389.5
8492	0.00	--	0.0	13.90	99.0	344466.3	344466.3	0.00	--	0.0	5.42	98.7	134017.7	134017.7	478484.0
8522	0.00	--	0.0	12.33	93.8	299107.0	299107.0	0.00	--	0.0	5.47	93.4	132052.3	132052.3	431159.3
8553	0.00	--	0.0	11.06	92.2	255431.7	255431.7	0.00	--	0.0	5.44	91.8	124972.1	124972.1	380403.7
8583	0.00	--	0.0	9.08	96.3	226348.5	226348.5	0.00	--	0.0	5.15	96.0	127917.4	127917.4	354266.0
8614	0.00	--	0.0	9.54	96.0	237070.9	237070.9	0.00	--	0.0	5.27	95.3	129922.4	129922.4	366993.2
8645	0.00	--	0.0	12.78	93.0	297511.1	297511.1	0.00	--	0.0	5.58	92.4	129194.5	129194.5	426705.7
8675	0.00	--	0.0	16.62	90.6	389488.3	389488.3	0.00	--	0.0	5.62	90.2	131194.3	131194.3	520682.6
8706	0.00	--	0.0	19.72	93.8	462953.2	462953.2	0.00	--	0.0	5.76	93.6	134879.9	134879.9	597833.1
8736	0.00	--	0.0	20.98	91.2	494762.2	494762.2	0.00	--	0.0	5.87	91.0	138120.2	138120.2	632882.4

**Notes:**

1. RO = reverse osmosis; USCR = Upper Santa Clara River; WRP = Water Reclamation Plant.
2. MGD = million gallons per day.
3. mg/L = milligrams per liter.
4. lb = pounds.
5. "--" = Concentration not shown due to zero discharge flow.

**TABLE 4**

**NUMBER OF DAYS WITH SIMULATED SURFACE WATER CHLORIDE  
CONCENTRATION LESS THAN 100 MG/L AT BLUE CUT FOR  
FLOW-WEIGHTED AND NON FLOW-WEIGHTED SIMULATIONS<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Flow-Weighted Simulation			Non Flow-Weighted Simulation		
Model Day	Chloride Concentration (mg/L)	Count above 100 mg/L	Model Day	Chloride Concentration (mg/L)	Count above 100 mg/L
5802	105.4	1	5802	107.8	1
5803	103.3	2	5803	107.1	2
6254	102.9	3	5804	104.4	3
5145	102.6	4	5801	103.9	4
5144	102.5	5	5805	103.8	5
5143	102.3	6	5806	103.6	6
5141	102.3	7	5809	103.6	7
5140	102.3	8	5808	103.5	8
5142	102.3	9	5807	103.5	9
5135	102.2	10	5810	103.5	10
5134	102.2	11	5811	103.5	11
5139	102.1	12	5812	103.5	12
5136	102.1	13	5813	103.5	13
5133	102.1	14	5800	103.3	14
5138	102.1	15	5799	103.3	15
5137	102.0	16	5798	103.2	16
5132	102.0	17	5797	103.2	17
5131	101.8	18	5796	103.1	18
5130	101.7	19	5795	103.1	19
5129	101.5	20	5145	103.1	20
5128	101.4	21	5791	103.1	21
5127	101.4	22	5790	103.1	22
8304	101.3	23	5144	103.1	23
5126	101.3	24	5794	103.1	24
5125	101.2	25	5789	103.1	25
5124	101.0	26	5793	103.0	26
5801	100.5	27	5792	103.0	27
5804	100.4	28	6254	103.0	28
5123	100.4	29	5788	103.0	29
8349	100.4	30	5143	102.9	30
8348	100.4	31	5141	102.8	31
8347	100.2	32	5142	102.8	32
8346	100.1	33	5787	102.8	33
8345	100.1	34	5140	102.8	34
-- <sup>2</sup>	--	--	5135	102.7	35
--	--	--	5134	102.7	36
--	--	--	5139	102.7	37
--	--	--	5136	102.6	38
--	--	--	5133	102.6	39



**TABLE 4**

**NUMBER OF DAYS WITH SIMULATED SURFACE WATER CHLORIDE  
CONCENTRATION LESS THAN 100 MG/L AT BLUE CUT FOR  
FLOW-WEIGHTED AND NON FLOW-WEIGHTED SIMULATIONS<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Flow-Weighted Simulation			Non Flow-Weighted Simulation		
Model Day	Chloride Concentration (mg/L)	Count above 100 mg/L	Model Day	Chloride Concentration (mg/L)	Count above 100 mg/L
--	--	--	8304	102.6	40
--	--	--	5138	102.6	41
--	--	--	5137	102.6	42
--	--	--	5132	102.5	43
--	--	--	5131	102.4	44
--	--	--	5786	102.3	45
--	--	--	5130	102.2	46
--	--	--	5129	102.1	47
--	--	--	5128	101.9	48
--	--	--	5127	101.9	49
--	--	--	7994	101.8	50
--	--	--	5126	101.8	51
--	--	--	7993	101.8	52
--	--	--	7992	101.7	53
--	--	--	5125	101.7	54
--	--	--	7995	101.6	55
--	--	--	7990	101.6	56
--	--	--	7991	101.5	57
--	--	--	5124	101.5	58
--	--	--	7989	101.4	59
--	--	--	7988	101.2	60
--	--	--	5123	101.1	61
--	--	--	7987	101.0	62
--	--	--	7986	100.9	63
--	--	--	7985	100.7	64
--	--	--	5914	100.7	65
--	--	--	5964	100.6	66
--	--	--	5785	100.6	67
--	--	--	5913	100.5	68
--	--	--	5963	100.5	69
--	--	--	5117	100.5	70
--	--	--	5915	100.5	71
--	--	--	5962	100.5	72
--	--	--	7984	100.5	73
--	--	--	5961	100.4	74
--	--	--	5912	100.4	75
--	--	--	5960	100.4	76
--	--	--	5959	100.3	77
--	--	--	5958	100.3	78

**TABLE 4**

**NUMBER OF DAYS WITH SIMULATED SURFACE WATER CHLORIDE  
CONCENTRATION LESS THAN 100 MG/L AT BLUE CUT FOR  
FLOW-WEIGHTED AND NON FLOW-WEIGHTED SIMULATIONS<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Flow-Weighted Simulation			Non Flow-Weighted Simulation		
Model Day	Chloride Concentration (mg/L)	Count above 100 mg/L	Model Day	Chloride Concentration (mg/L)	Count above 100 mg/L
--	--	--	8349	100.3	79
--	--	--	8348	100.3	80
--	--	--	5957	100.3	81
--	--	--	7983	100.3	82
--	--	--	5956	100.3	83
--	--	--	5954	100.3	84
--	--	--	5955	100.2	85
--	--	--	8347	100.2	86
--	--	--	5953	100.2	87
--	--	--	7982	100.2	88
--	--	--	5952	100.2	89
--	--	--	5951	100.2	90
--	--	--	5950	100.2	91
--	--	--	7981	100.2	92
--	--	--	5949	100.1	93
--	--	--	5948	100.1	94
--	--	--	8346	100.1	95
--	--	--	5947	100.1	96
--	--	--	5911	100.0	97
--	--	--	8345	100.0	98
--	--	--	5946	100.0	99

<b>SUMMARY</b>	
TOTAL DAYS IN SIMULATION	8766
PERCENT FW <sup>3</sup> BELOW 100 MG/L	99.6% <sup>4</sup>
PERCENT NFW <sup>5</sup> BELOW 100 MG/L	98.9%
PERCENT FW - PERCENT NFW	0.7%

Notes:

1. mg/L = milligrams per liter.
2. "--" = not applicable.
3. FW = flow-weighted.
4. % = percent.
5. NFW = non flow-weighted.

**TABLE 5**

**MAXIMUM AND AVERAGE CHLORIDE CONCENTRATION DIFFERENCES  
BETWEEN THE FLOW-WEIGHTED AND NON FLOW-WEIGHTED SIMULATIONS<sup>1</sup>**

Upper Santa Clara River  
Santa Clara River Valley, California

Monitoring Well	Maximum Chloride Concentration Difference (mg/L) <sup>2</sup>					Average Chloride Concentration Difference (mg/L)				
	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7
VWC-S6	8.9	5.2	-- <sup>3</sup>	--	--	1.3	1.1	--	--	--
NLF-S3	5.8	3.7	--	--	--	0.9	0.8	--	--	--
VWC-N	3.0	2.3	--	--	--	0.4	0.4	--	--	--
VWC-I	2.6	1.0	--	--	--	0.5	0.3	--	--	--
VWC-160	0.9	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
NLF-G45	1.7	0.4	--	--	--	0.4	0.1	--	--	--
NLF-B7	0.5	0.1	--	--	--	0.1	0.0	--	--	--
V-0013	0.5	0.0	0.0	--	--	-0.4	-0.3	-0.1	--	--

Notes:

1. Difference calculated as Flow-Weighted concentration minus Non Flow-Weighted concentration.
2. mg/L = milligrams per liter.
3. "--" = not applicable.

**TABLE 6**

**AREAS OF CONCENTRATION DIFFERENCE IMPACT BETWEEN THE FLOW-WEIGHTED AND NON FLOW-WEIGHTED SIMULATIONS FOR PEAK DROUGHT AND AFTER-DROUGHT CONDITIONS**

Upper Santa Clara River  
Santa Clara River Valley, California

Model Day	Subbasin	Difference in Chloride Concentration (mg/L) <sup>1</sup>					
		<1.0	1.0 - 3.0	3.0 - 5.0	5.0 - 7.0	7.0 - 9.0	> 9.0
		Percentage of Subbasin Area					
<b>5844, Peak Drought</b>	Bouquet & San Francisquito Canyons	85.37	10.27	3.06	0.92	0.29	0.09
	Castaic Valley	98.55	1.34	0.11	0.00	0.00	0.00
	Piru East	99.75	0.25	0.00	0.00	0.00	0.00
	Saugus Formation <sup>2</sup>	99.76	0.18	0.06	0.00	0.00	0.00
<b>6575, After-Drought</b>	Santa Clara Bouquet & San Francisquito Canyons	76.45	21.81	1.74	0.00	0.00	0.00
	Castaic Valley	99.81	0.19	0.00	0.00	0.00	0.00
	Piru East	99.95	0.05	0.00	0.00	0.00	0.00
	Saugus Formation	99.38	0.52	0.10	0.00	0.00	0.00

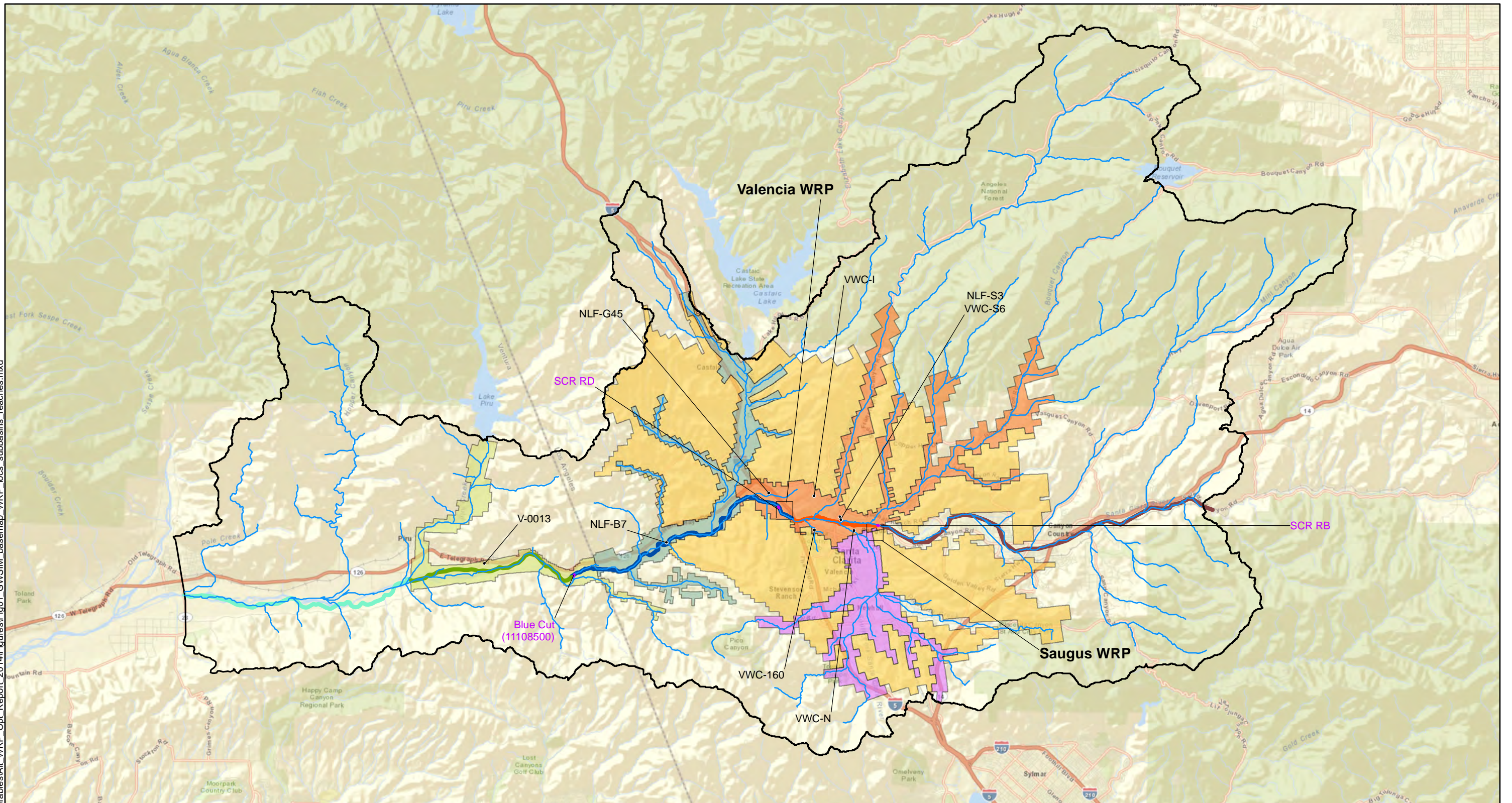
Note:

1. mg/L = milligrams per liter.
2. Saugus Formation is not an alluvial subbasin, subbasin area shown based on portions of layer 4 of the Groundwater/Surface Water Interaction Model (GSWIM).

## FIGURES

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Q:\103540000\_USCR2014\_work\deliverables\Alt\_WRP\_Opt\_Report\_2014\Figures\Fig01\_GWSIM\_basemap\_WRP\_locs\_subbasins\_reaches.mxd



Basemap modified from ESRI's online content.

**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Santa Clara River and Tributaries
- Water Reclamation Plant (WRP)

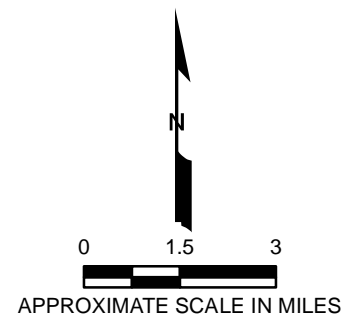
Subbasins/Formations

- Bouquet and San Francisquito Canyons Subbasin
- Upper Saugus Formation
- Castaic Valley Subbasin
- Piru East Subbasin
- South Fork Subbasin

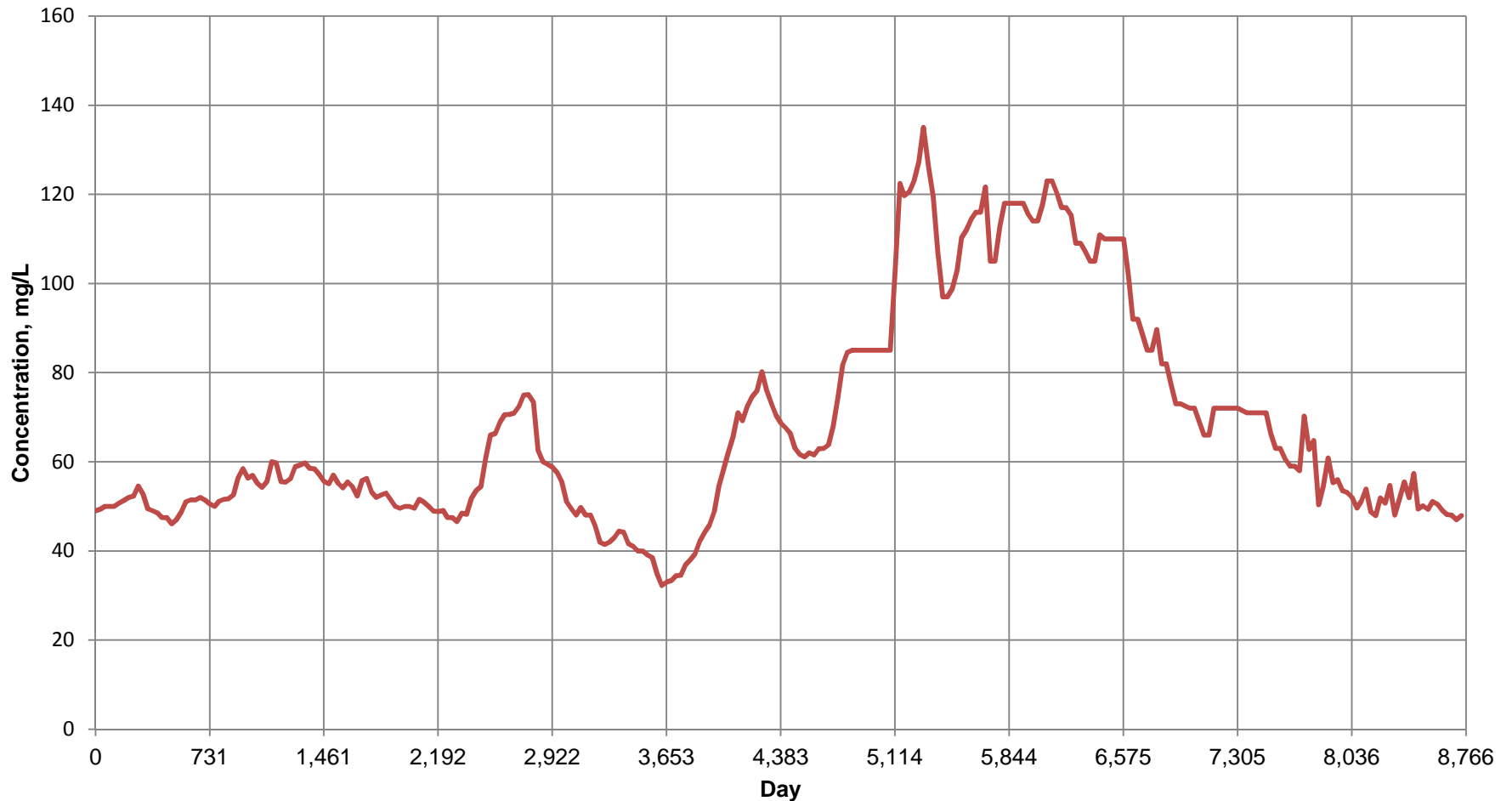
Santa Clara River Reaches

- Reach 4A
- Reach 4B
- Reach 5
- Reach 6
- Reach 7

**Note:**  
 Saugus Formation underlies portions of Bouquet and San Francisquito Canyon Subbasin and Castaic Valley Subbasin; San Pedro Formation underlies portions of Piru East Subbasin.



UPPER SANTA CLARA RIVER VALLEY WATERSHED OVERVIEW Upper Santa Clara River Santa Clara River Valley, California		
By: jmp	Date: 07/10/2014	Project No. 10354
		Figure <b>1</b>



Explanation

— Imported Water Concentrations

Notes:

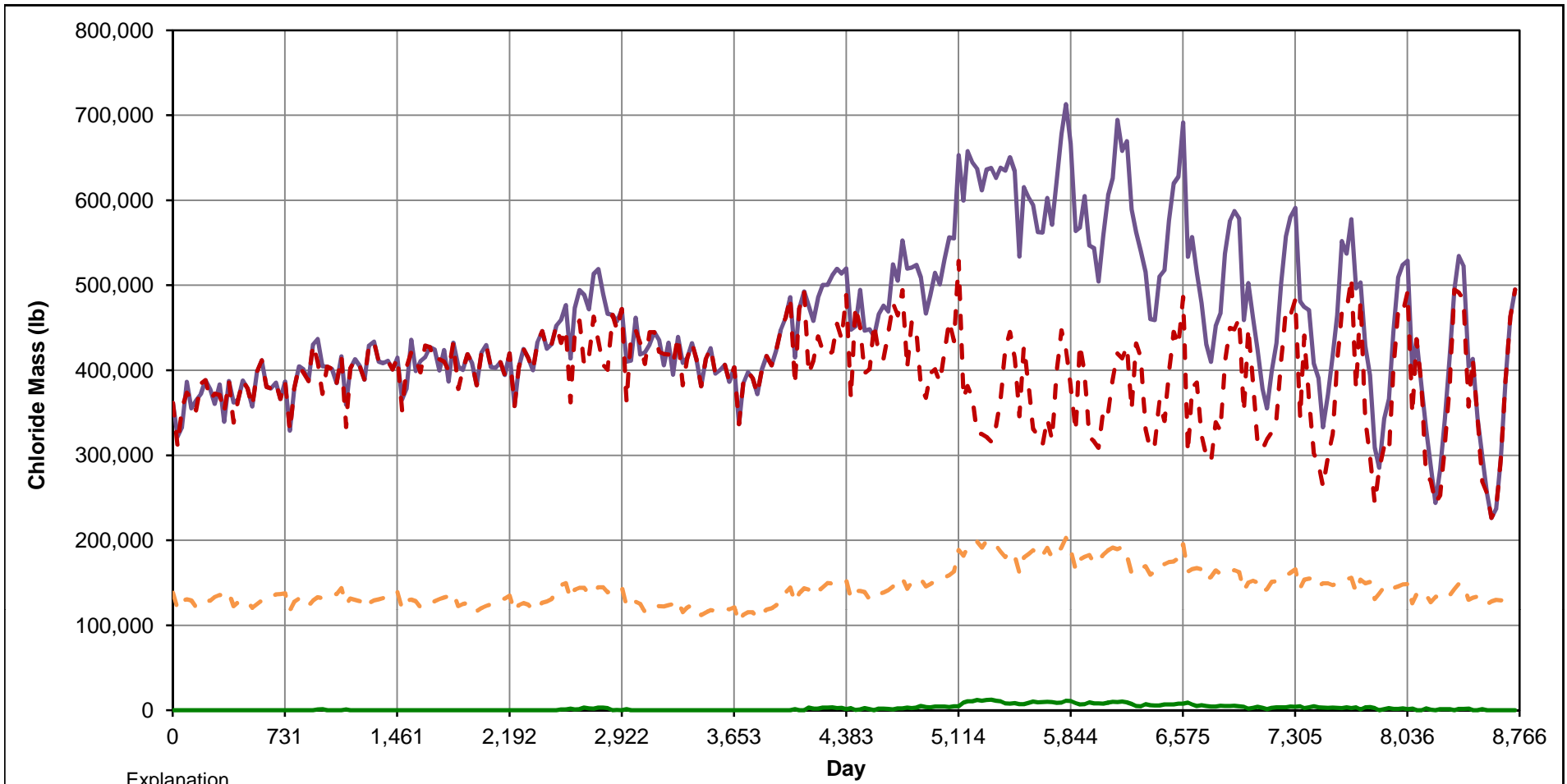
1. Concentration shown in milligrams per liter (mg/L).
2. Imported water concentrations shown include 4 mg/L for purveyor additions, peak concentration shown is 135 mg/L.

**IMPORTED WATER CHLORIDE  
CONCENTRATIONS WITH 131 MG/L PEAK  
CONCENTRATION  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No.: 10354
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Figure **2**



Explanation

- Valencia WRP Pre-RO Mass
- Valencia WRP Mass of RO Permeate Flow
- - Saugus WRP Mass of Discharge Flow to River (No RO Treatment)
- - Valencia WRP Mass of Treated Flow to River (Combined RO and Non-RO Discharge)

Notes:

1. Mass shown in pounds (lb).
2. WRP = water reclamation plant; RO = reverse osmosis.

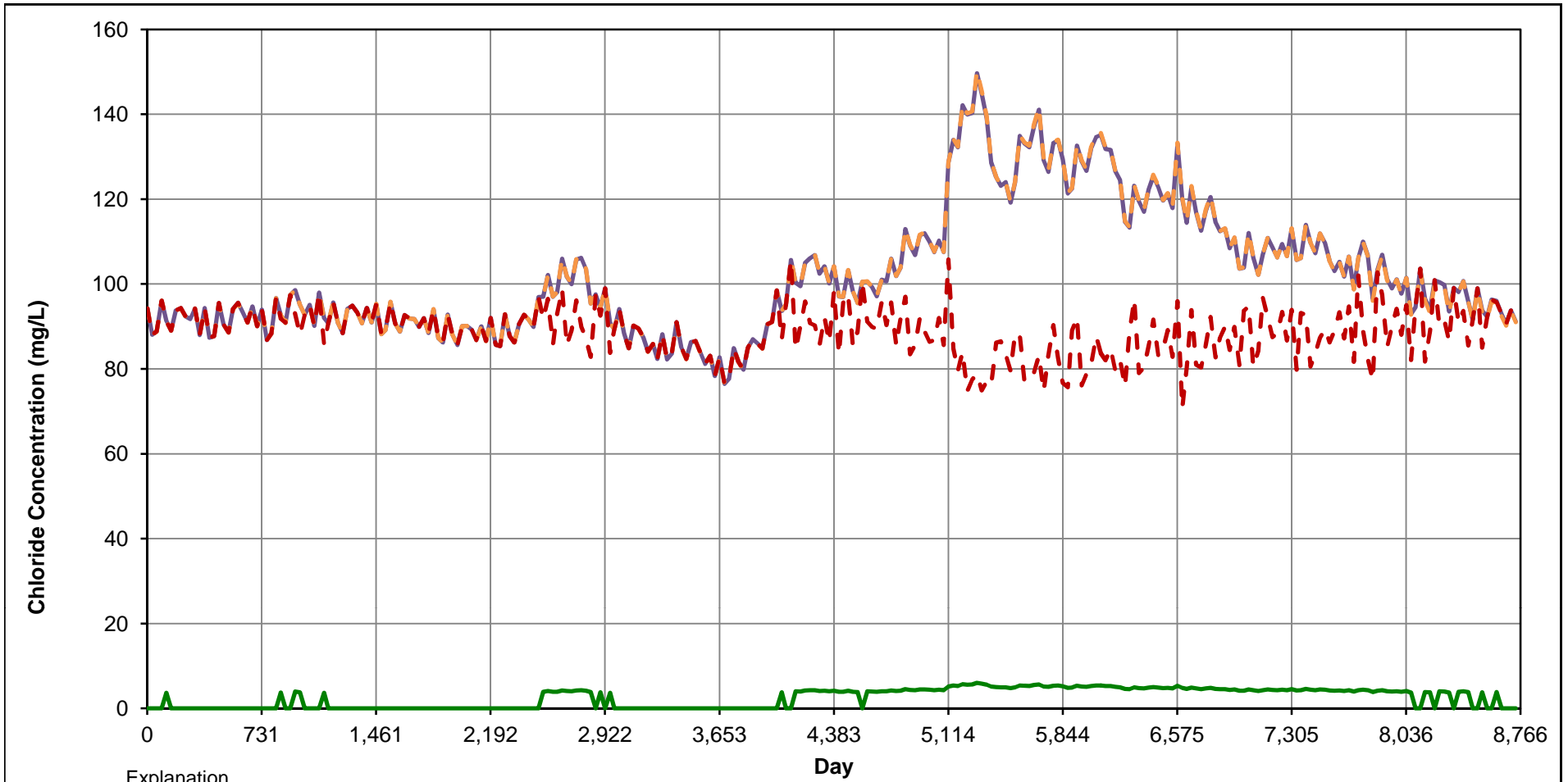
ESTIMATED WRP INPUT - RO AND SURFACE  
 WATER DISCHARGE TOTAL MASS FOR  
 FLOW-WEIGHTED SIMULATION  
 Upper Santa Clara River  
 Santa Clara River Valley, California

By: jmp	Date: 07/09/2014	Project No.: 10354
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Figure **3a**





Explanation

- Valencia WRP Pre-RO Concentration
- Valencia WRP RO Permeate Concentration
- Saugus Discharge Concentration to River (No RO Treatment)
- - Valencia WRP Treated Concentration to River (Combined RO and Non-RO Discharge)

Notes:

1. Concentrations shown in milligrams per liter (mg/L).
2. WRP = water reclamation plant; RO = reverse osmosis.

ESTIMATED WRP INPUT - RO AND SURFACE  
 WATER DISCHARGE CONCENTRATIONS FOR  
 FLOW-WEIGHTED SIMULATION  
 Upper Santa Clara River  
 Santa Clara River Valley, California

By: jmp

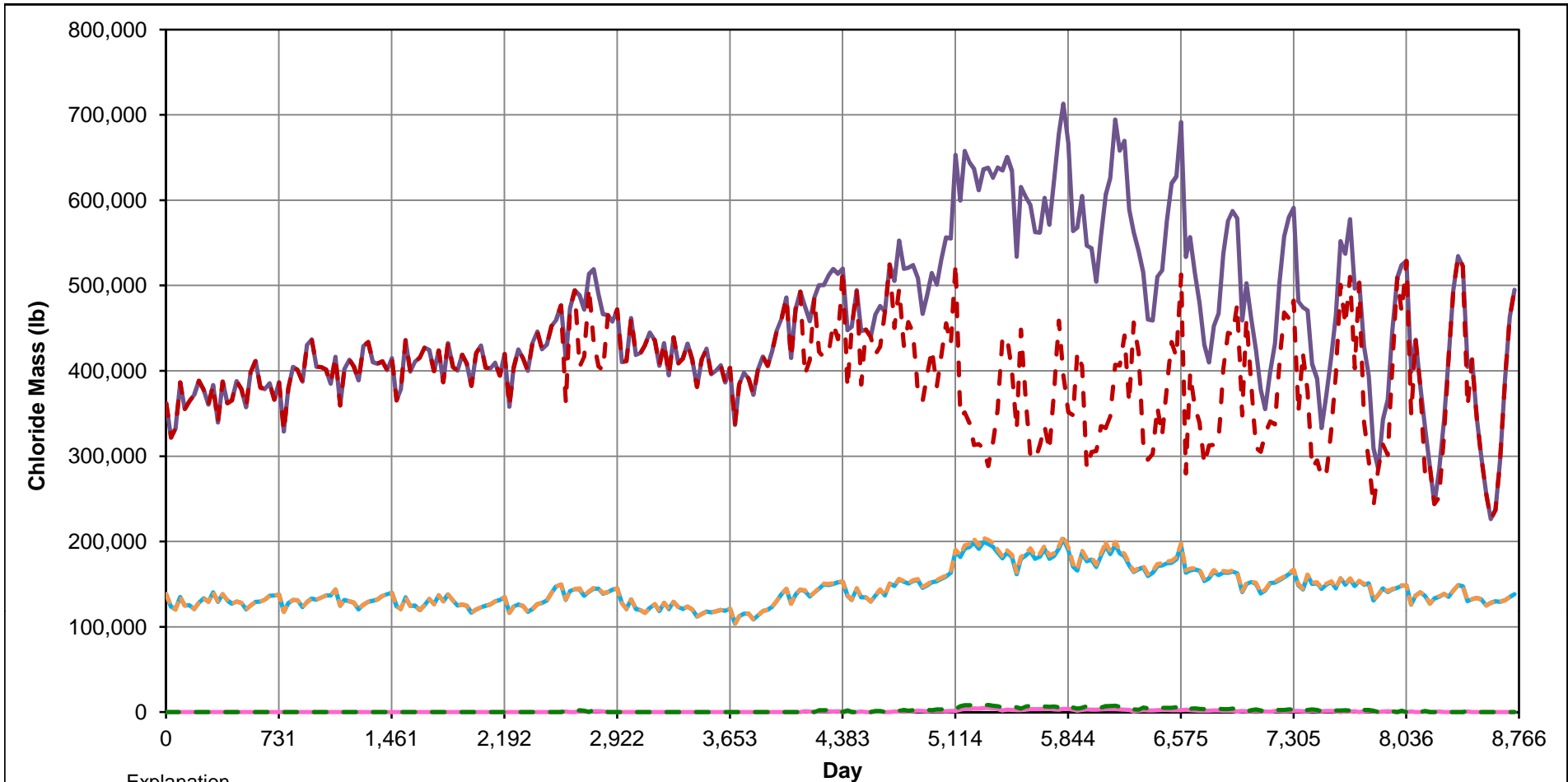
Date: 07/09/2014

Project No.: 10354



Figure

**3b**



Explanation

- Saugus WRP Pre-RO Mass
- Valencia WRP Pre-RO Mass
- - - Saugus WRP Mass of RO Permeate Flow
- - - Valencia WRP Mass of RO Permeate Flow
- - - Saugus WRP Mass of Treated Flow to River (Combined RO and Non-RO Discharge)
- - - Valencia WRP Mass of Treated Flow to River (Combined RO and Non-RO Discharge)

Notes:

1. Mass shown in pounds (lb).
2. WRP = water reclamation plant; RO = reverse osmosis.

ESTIMATED WRP INPUT - RO AND SURFACE  
 WATER DISCHARGE TOTAL MASS FOR NON  
 FLOW-WEIGHTED SIMULATION  
 Upper Santa Clara River  
 Santa Clara River Valley, California

By: jmp

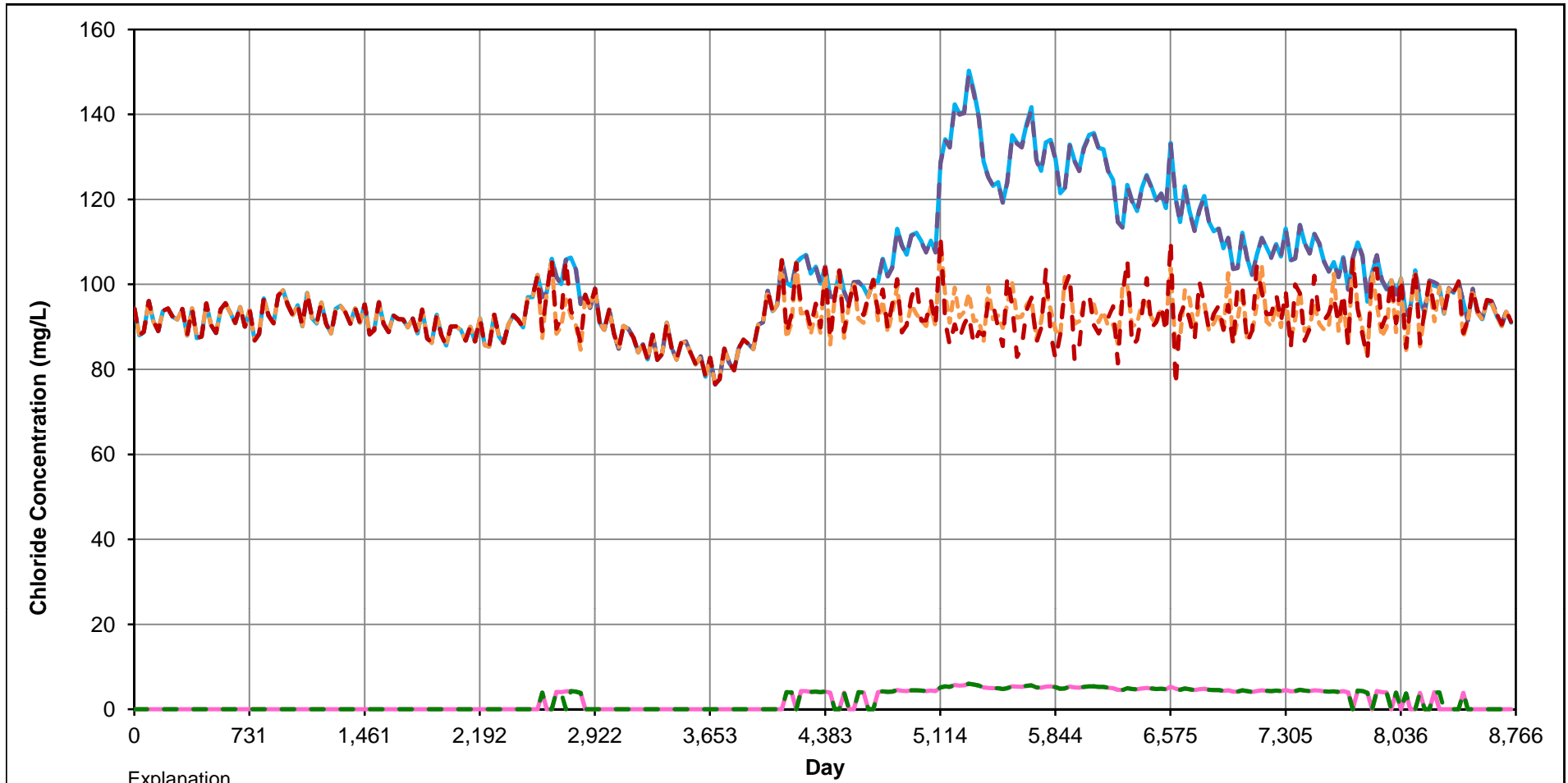
Date: 07/09/2014

Project No.: 10354



Figure

**4a**



Explanation

- Saugus WRP Pre-RO Concentration
- Valencia WRP Pre-RO Concentration
- Saugus WRP RO Permeate Concentration
- Valencia WRP RO Permeate Concentration
- Saugus WRP Treated Concentration to River (Combined RO and Non-RO Discharge)
- Valencia WRP Treated Concentration to River (Combined RO and Non-RO Discharge)

Notes:

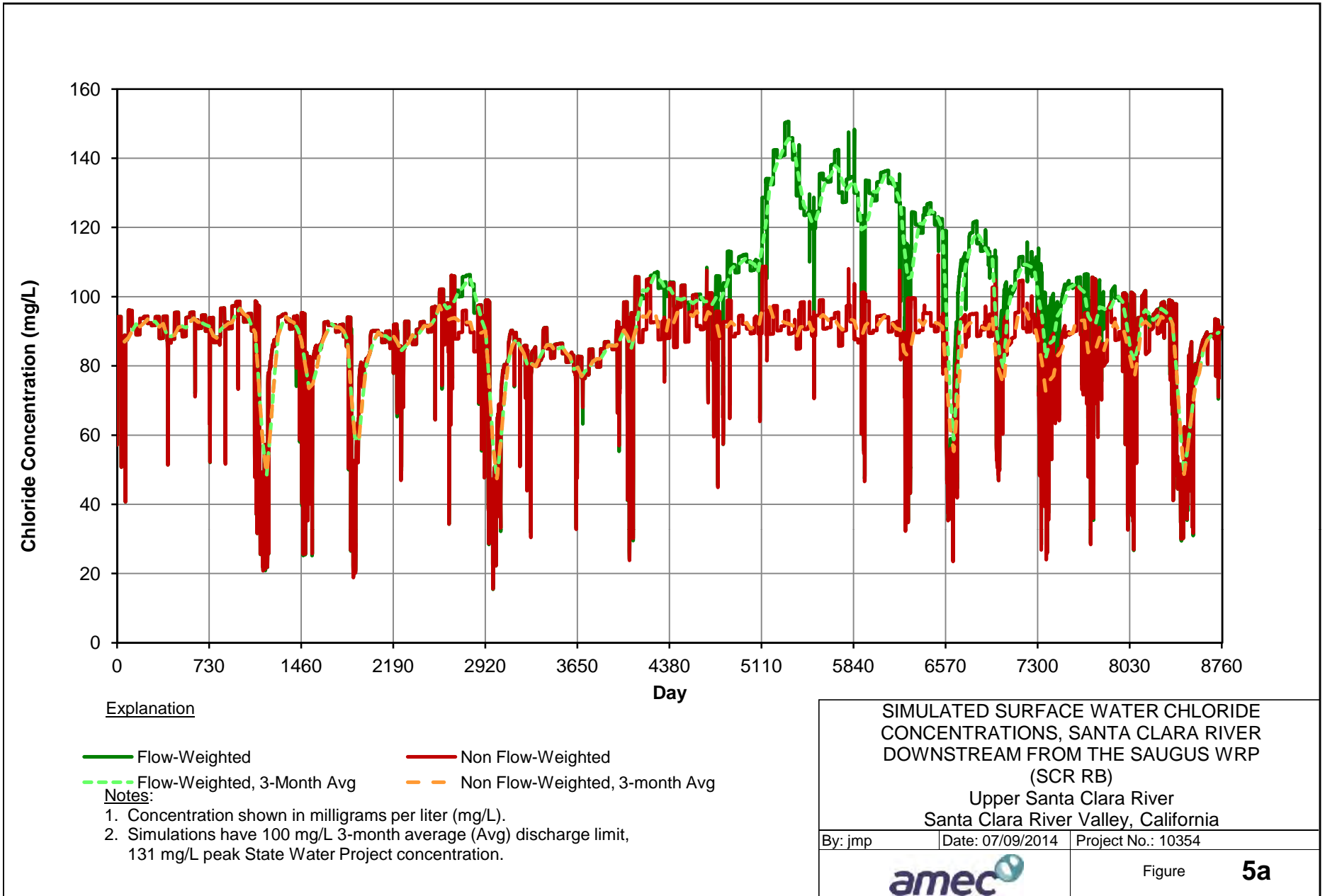
1. Concentration shown in milligrams per liter (mg/L)
2. WRP = water reclamation plant; RO = reverse osmosis.

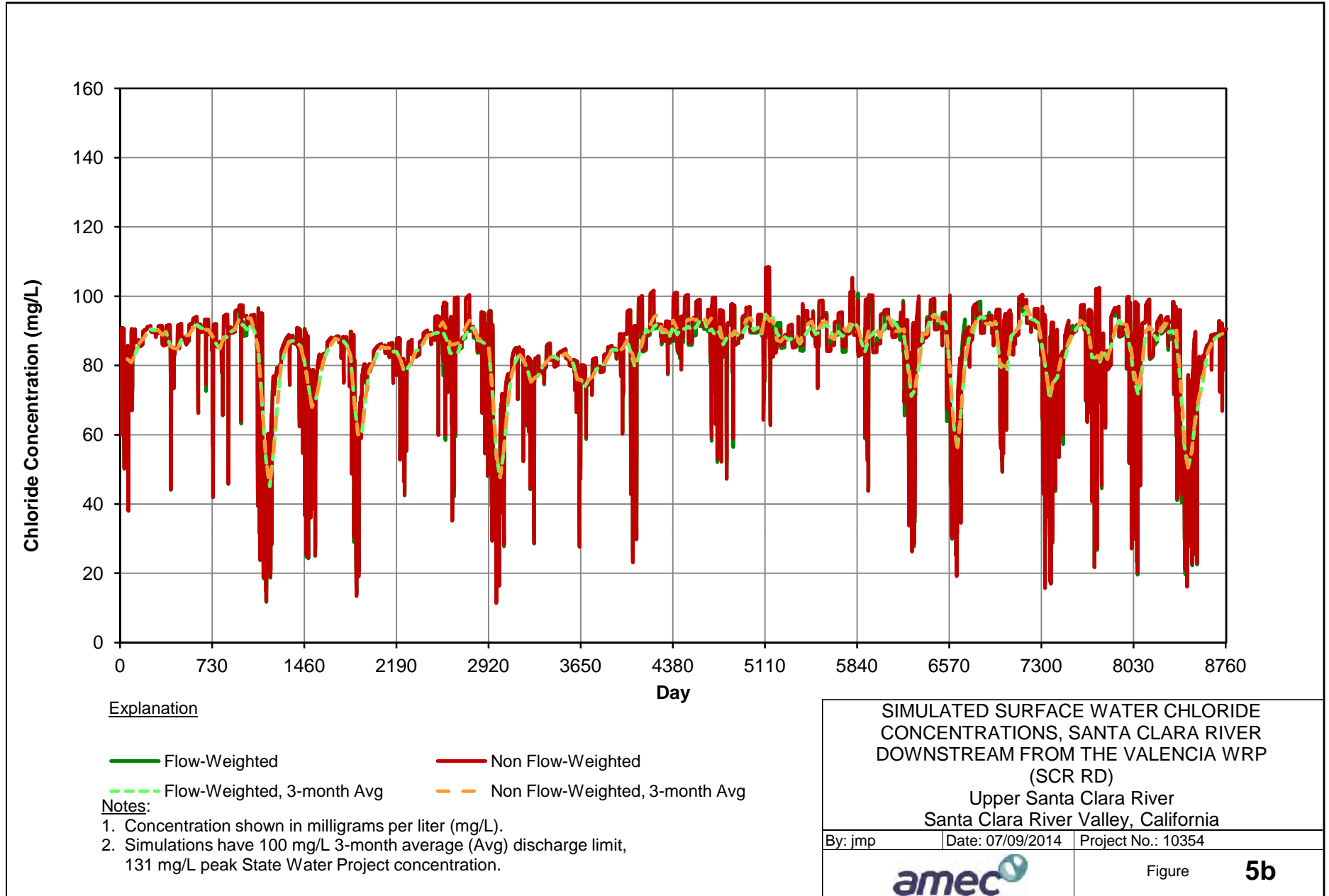
ESTIMATED WRP INPUT - RO AND SURFACE  
 WATER DISCHARGE CONCENTRATIONS FOR  
 NON FLOW-WEIGHTED SIMULATION  
 Upper Santa Clara River  
 Santa Clara River Valley, California

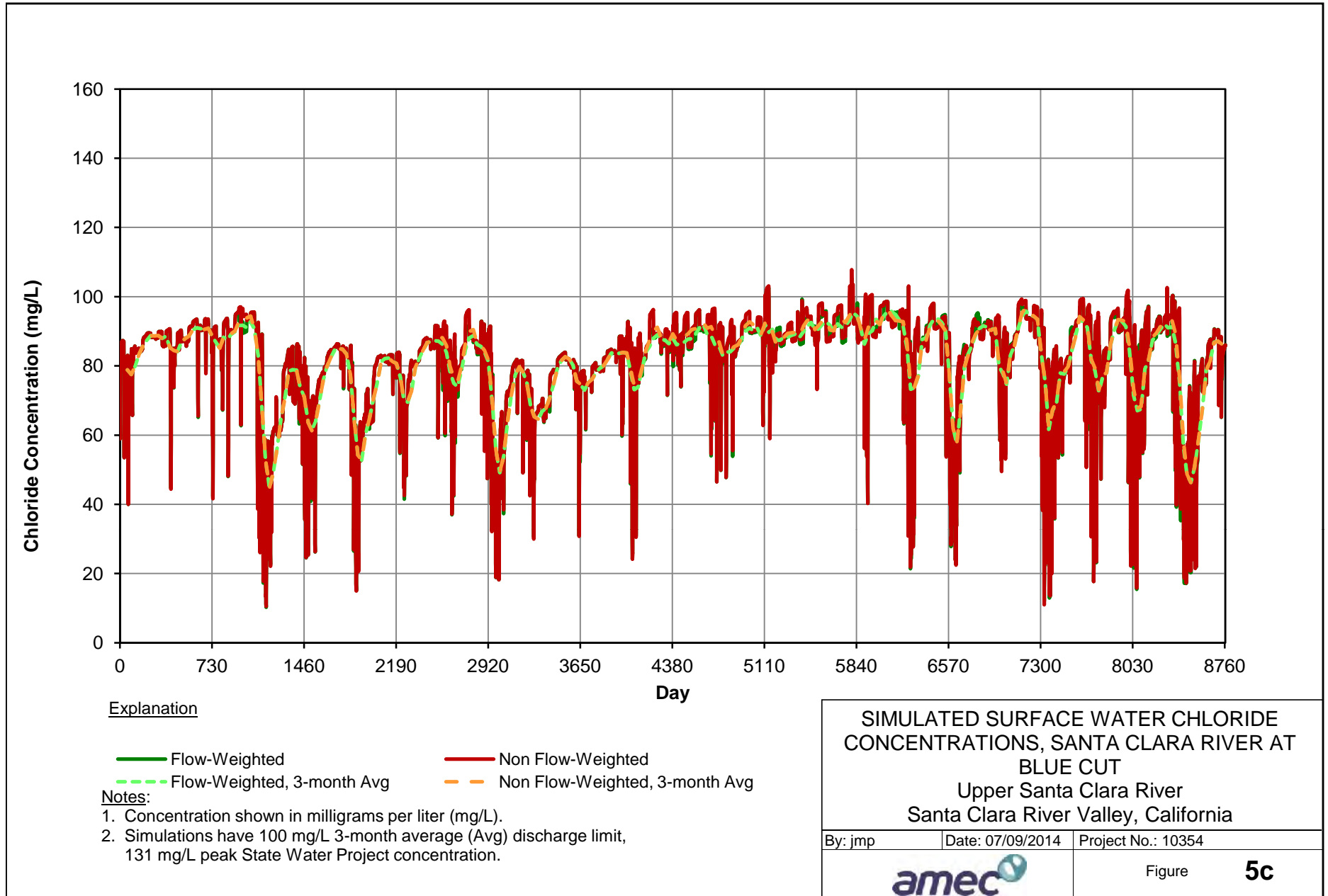
By: jmp	Date: 07/09/2014	Project No.: 10354
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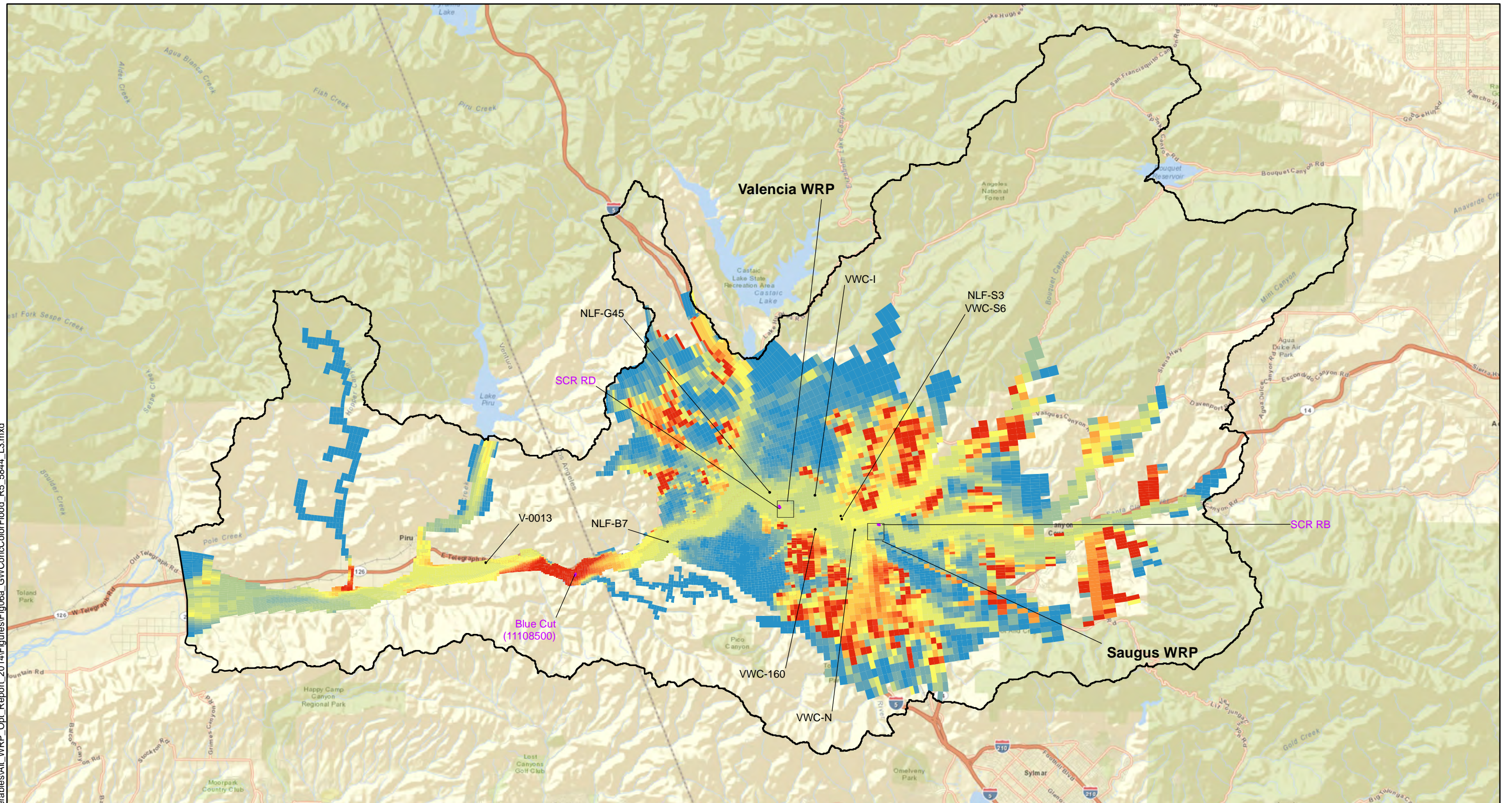
Figure **4b**







Q:\103540000\_USCR2014\_work\deliverables\WRP\_Opt\_Report\_2014\Figures\Fig06a\_GWConcColorFlood\_R5\_5844\_L3.mxd

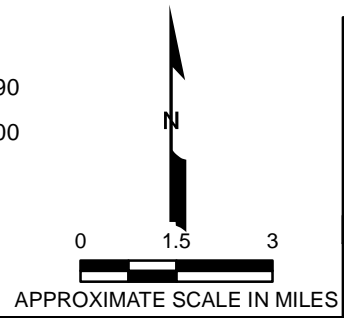


**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200

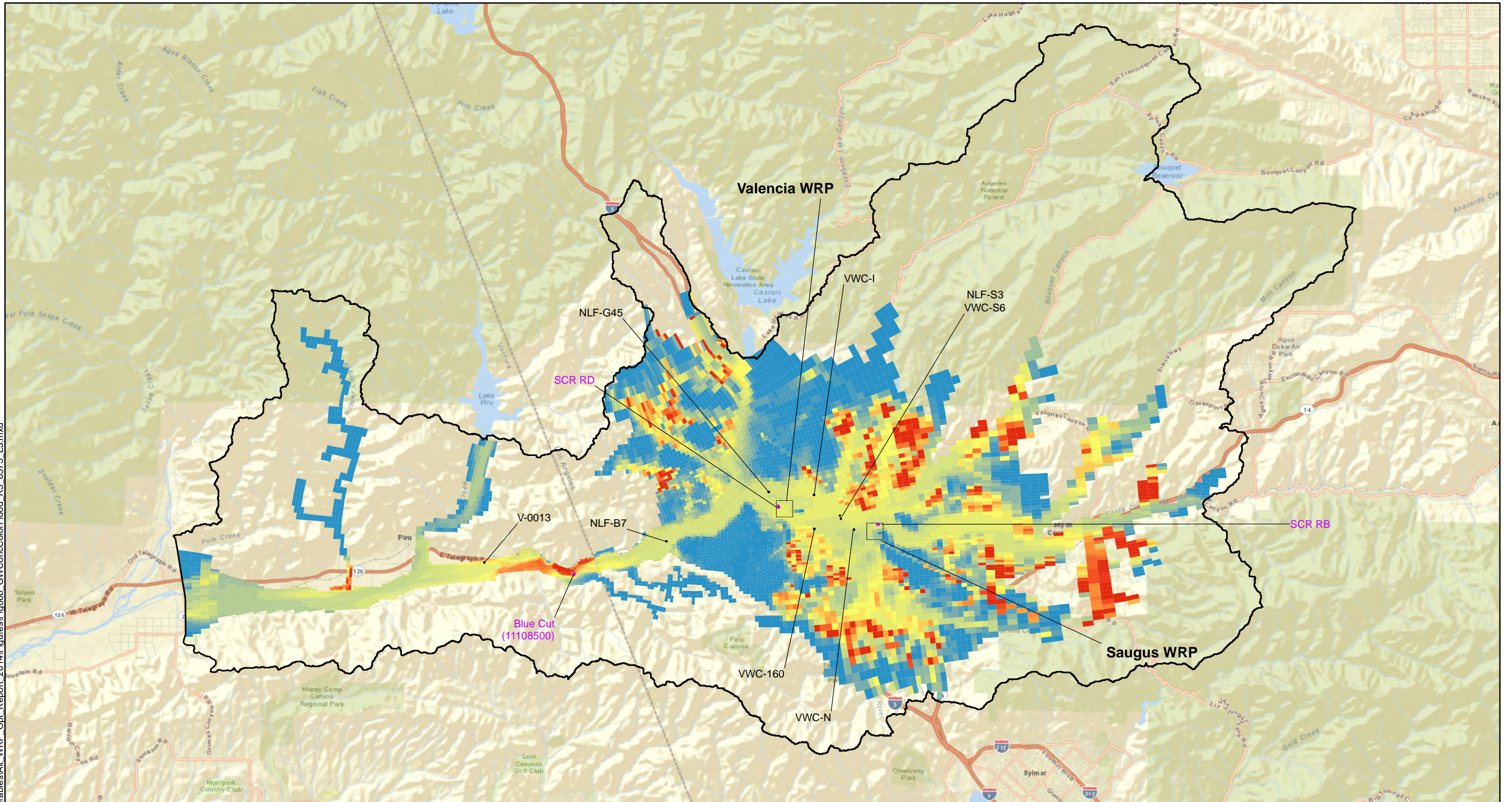


Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED  
GSWIM LAYER 3, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>6a</b>

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig06b\_GWConcColor\Flood\_R5\_6575\_L3.mxd

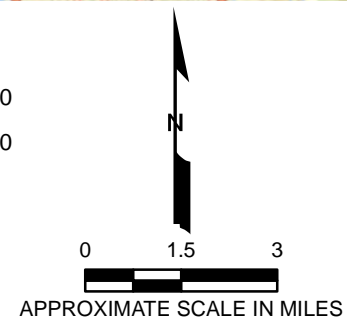


**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200



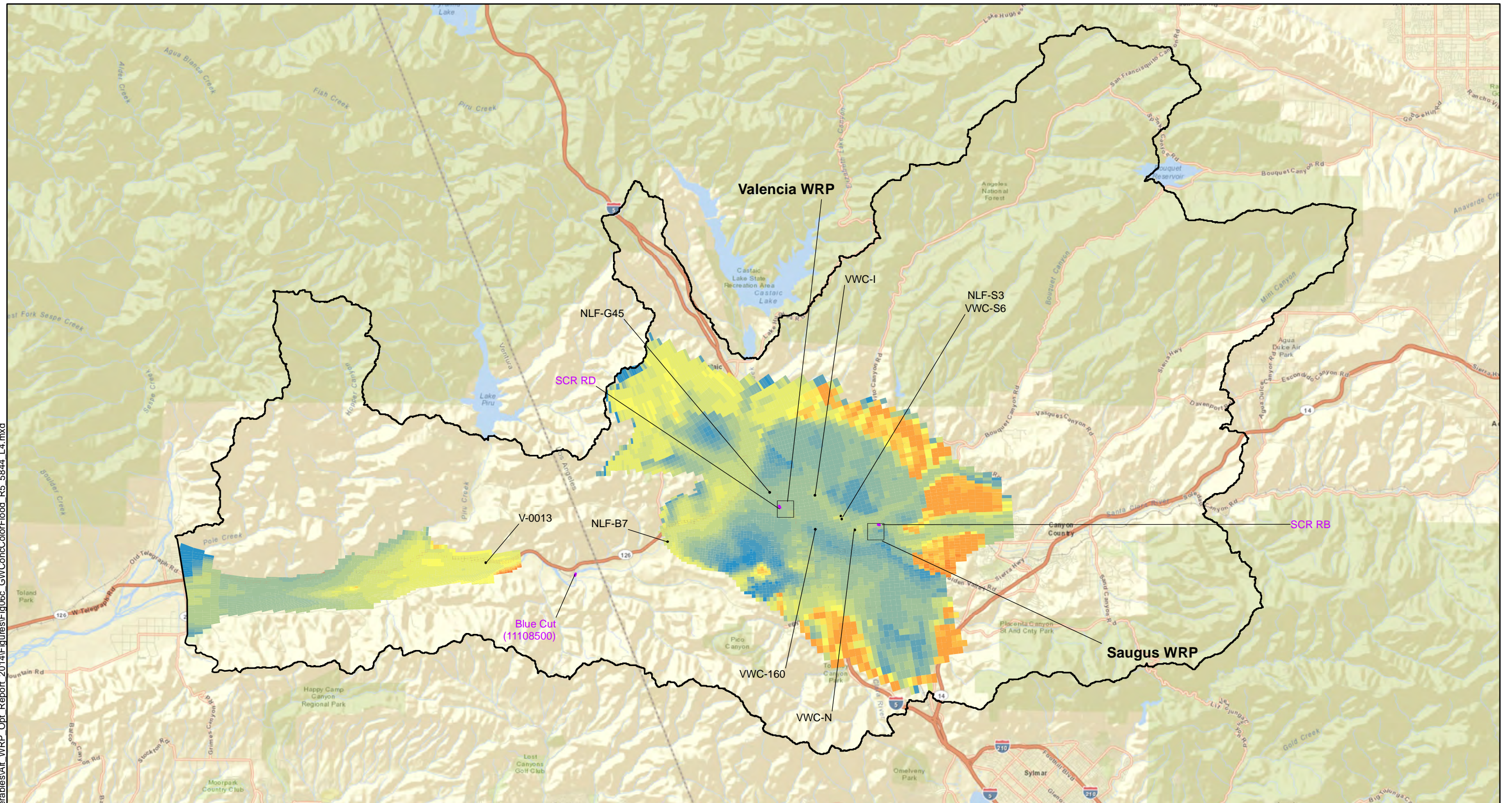
Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED  
GSWIM LAYER 3, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>6b</b>



Q:\103540000\_USCR2014\_work\deliverables\WRP\_Opt\_Report\_2014\Figures\Fig06c\_GWConcColorFlood\_R5\_5844\_L4.mxd

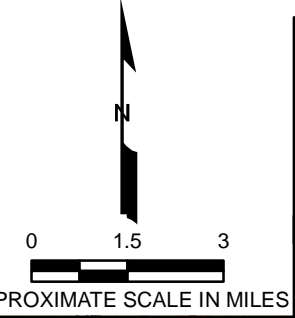


**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200



Basemap modified from ESRI's online content.

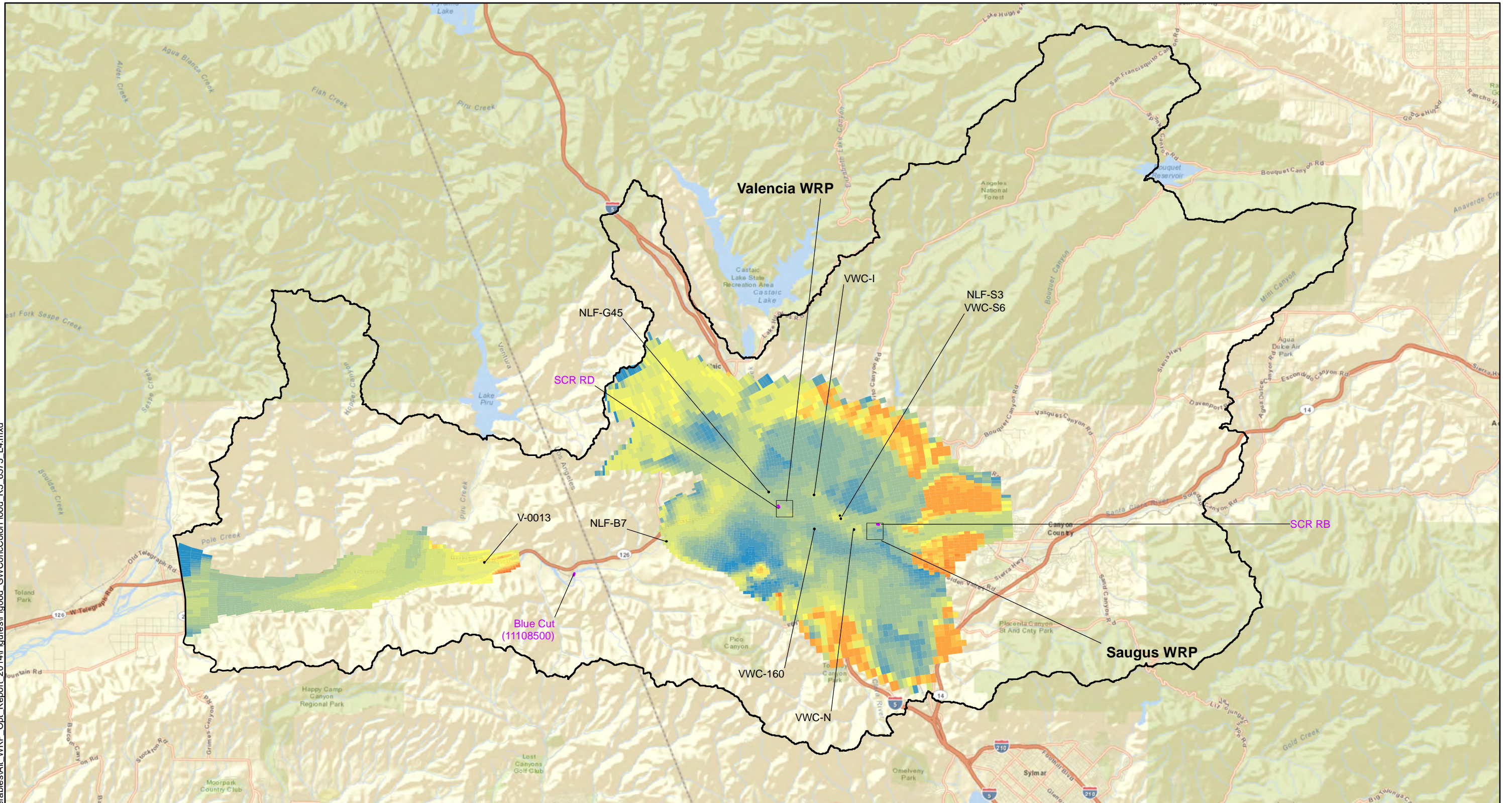
**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS**  
100 MG/L FLOW-WEIGHTED  
GSWIM LAYER 4, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California

By: jmp	Date: 07/08/2014	Project No. 10354
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Figure **6c**



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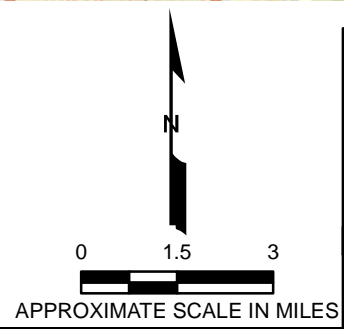


**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200

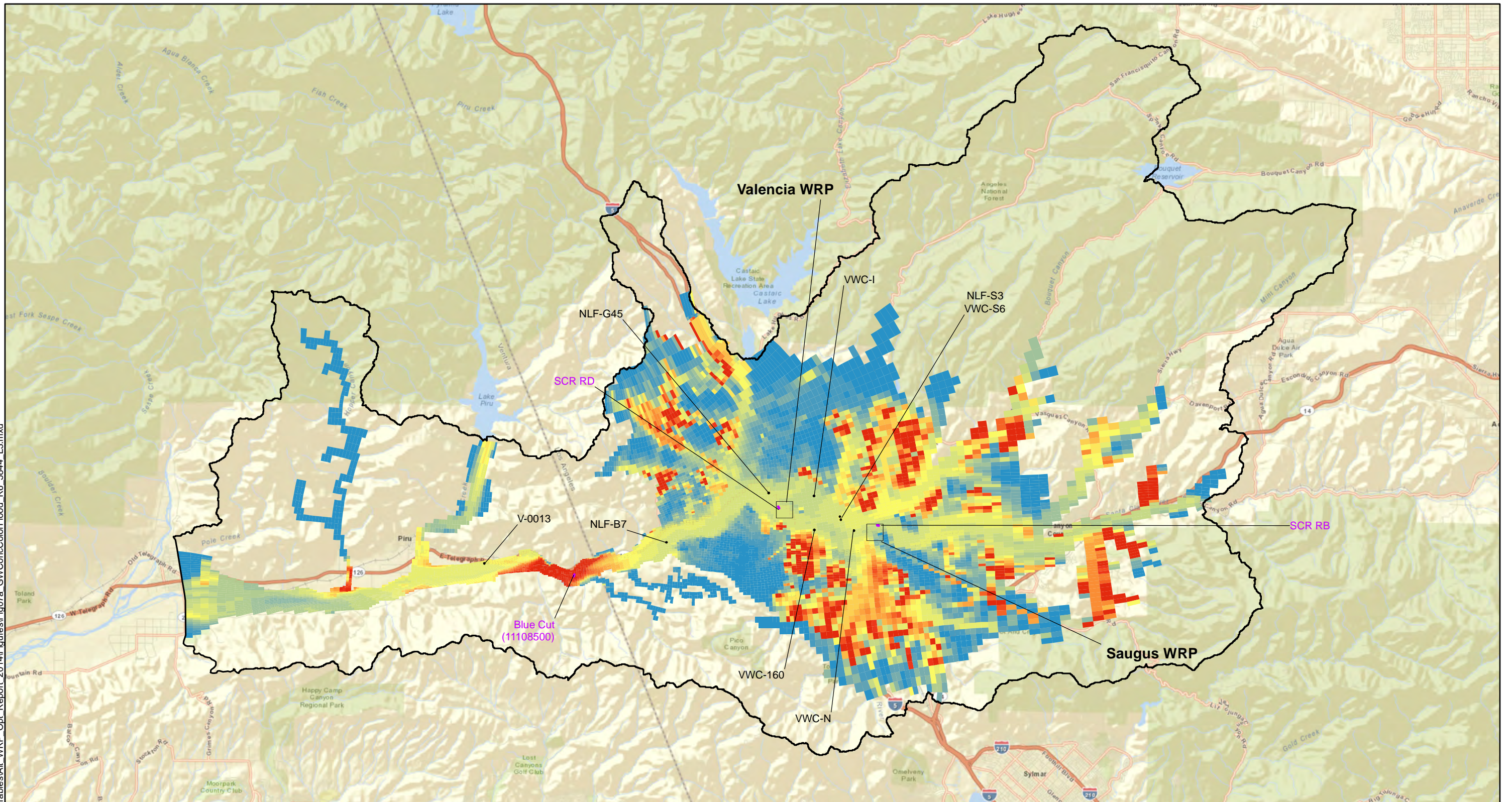


Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED  
GSWIM LAYER 4, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>6d</b>

Q:\103540000\_USCR2014\_work\deliverables\WRP\_Opt\_Report\_2014\Figures\Fig07a\_GWConcColor\Flood\_R6\_5844\_L3.mxd

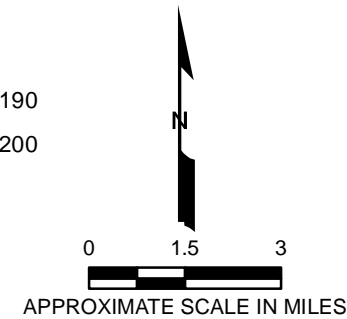


**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200

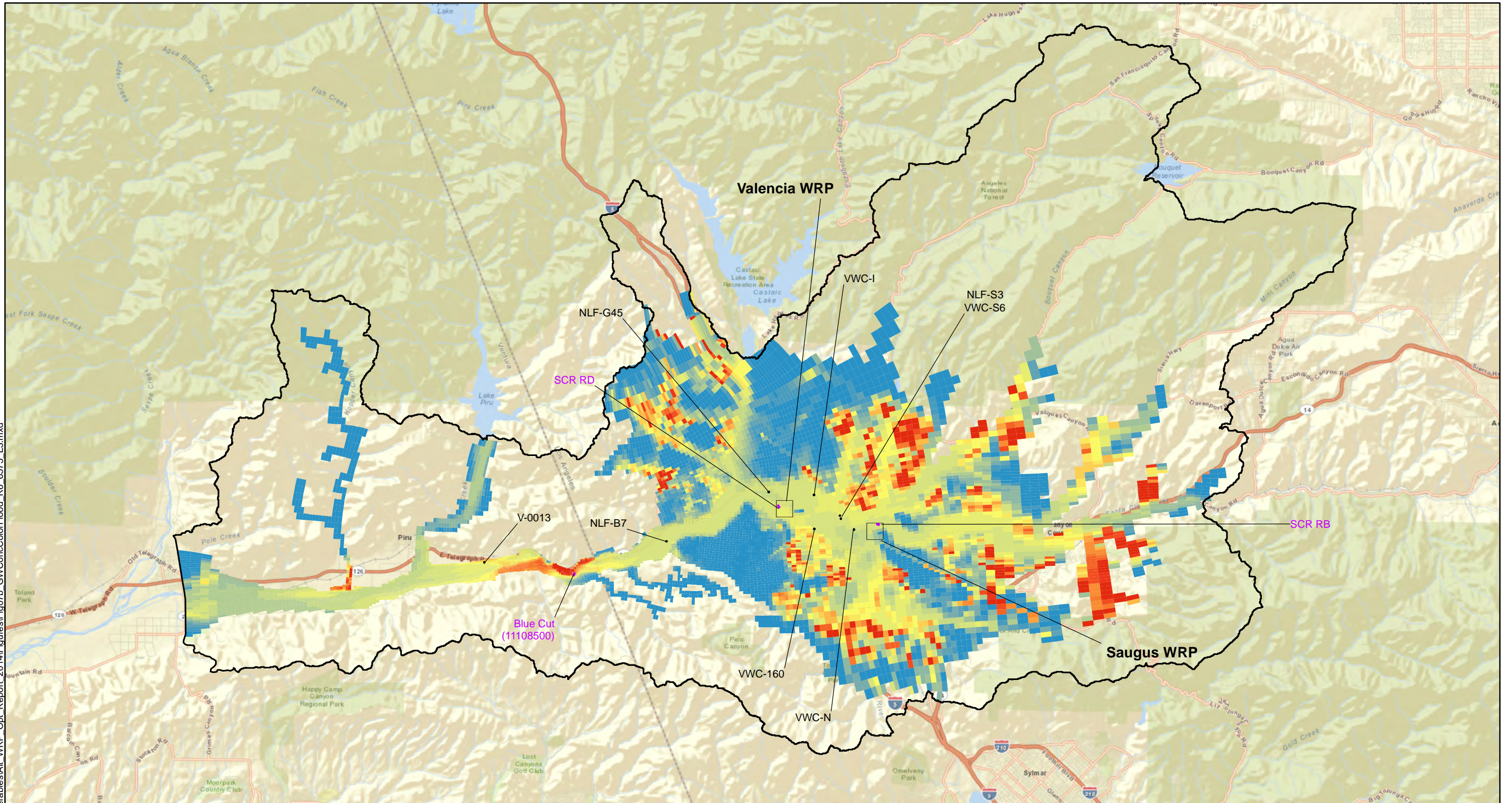


Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L NON FLOW-WEIGHTED  
GSWIM LAYER 3, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>7a</b>

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig07b\_GWConcColor\Flood\_R6\_6575\_L3.mxd

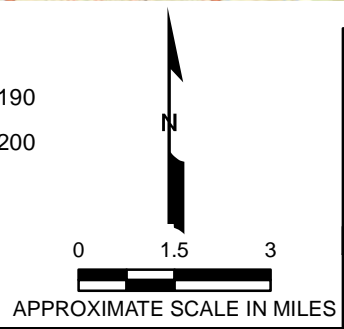


**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200

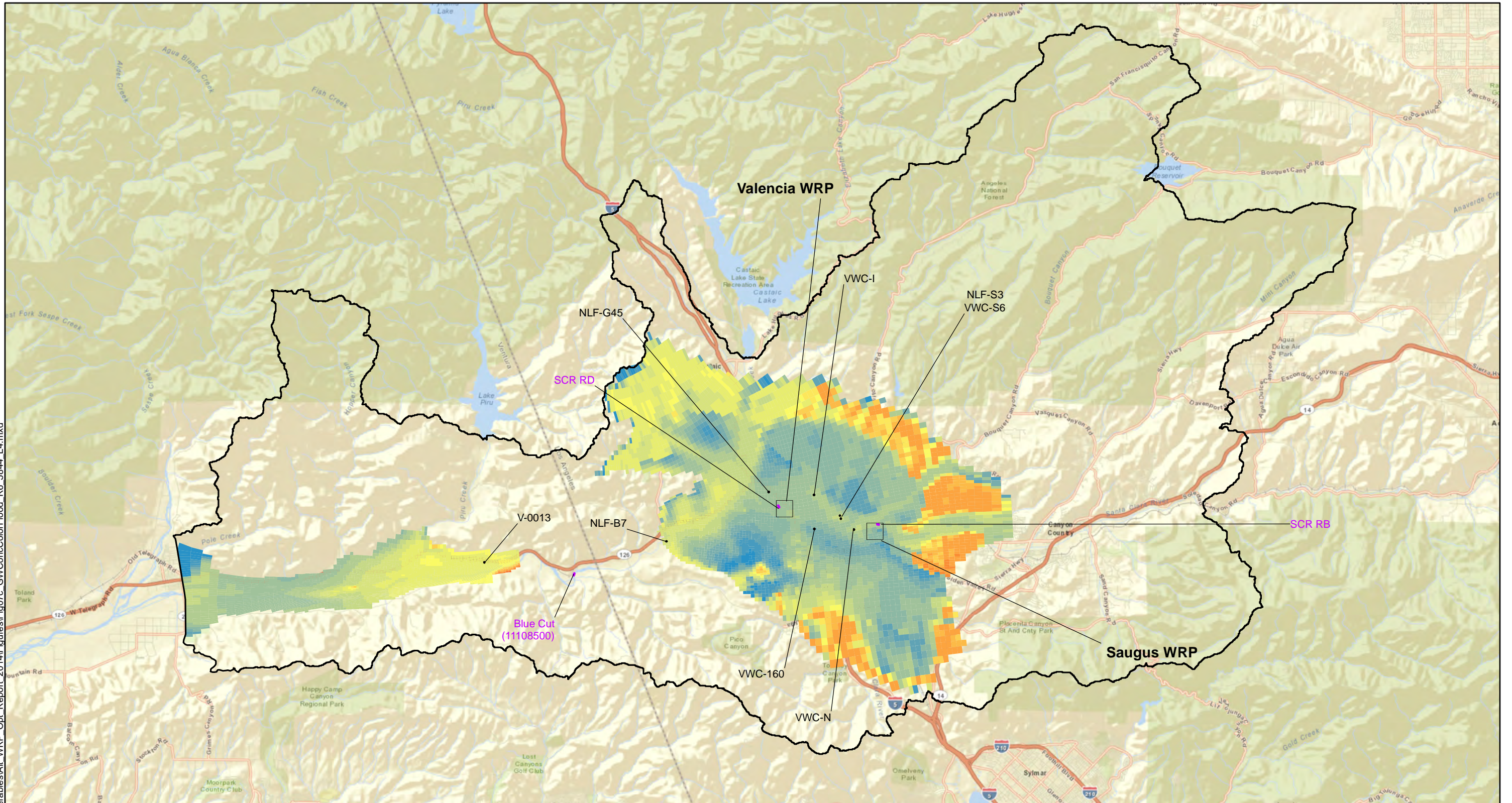


Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L NON FLOW-WEIGHTED  
GSWIM LAYER 3, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>7b</b>

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig07c\_GWConcColorFlood\_R6\_5844\_L4.mxd



**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200

Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L NON FLOW-WEIGHTED  
GSWIM LAYER 4, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
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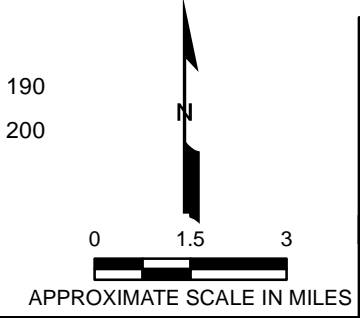
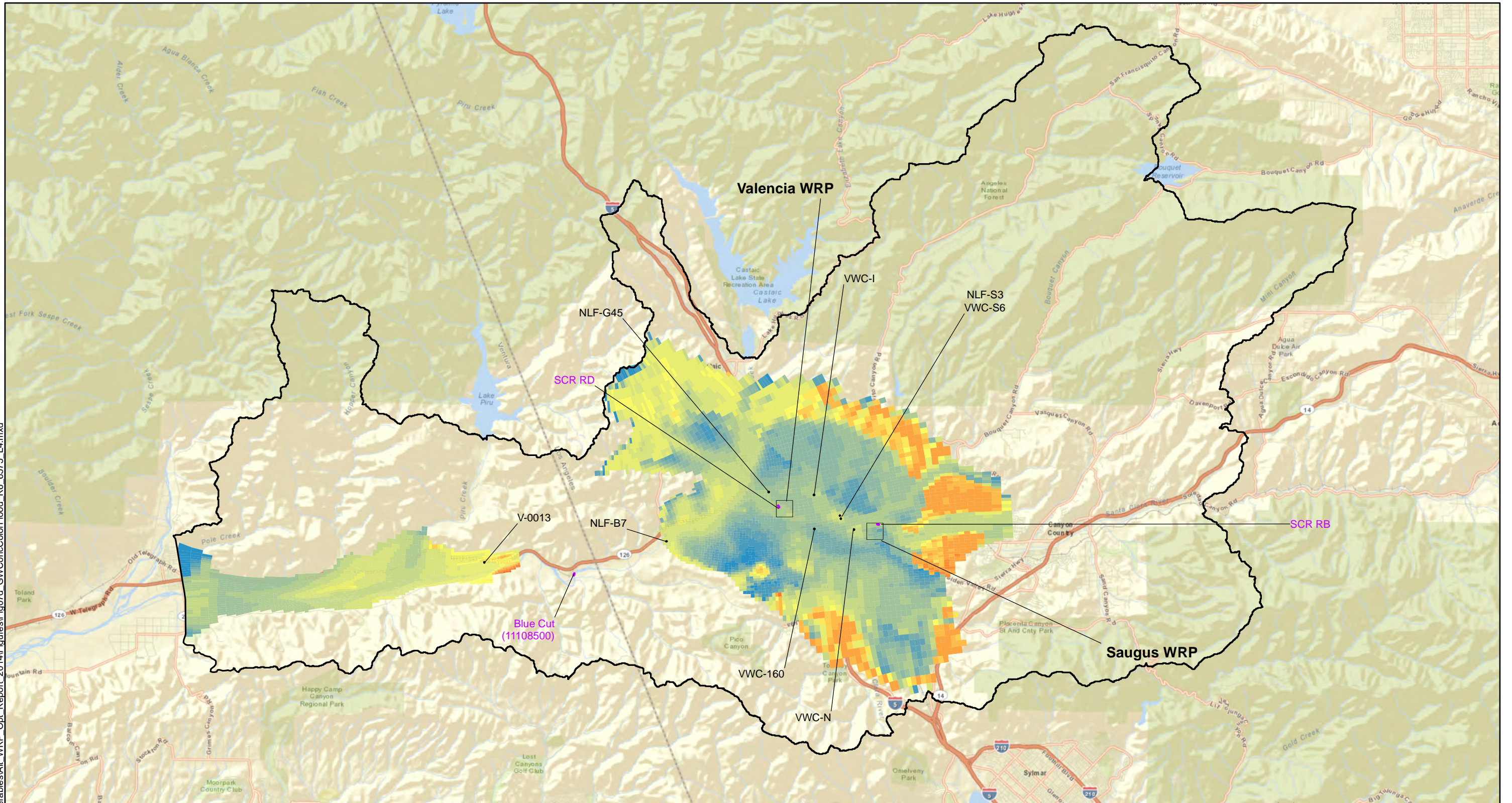


Figure **7c**

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig07d\_GWConcColor\Flood\_R6\_6575\_L4.mxd



**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater Surface Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

**Chloride concentration (in milligrams per liter [mg/L])**

0 - 10	30.1 - 40	60.1 - 70	90.1 - 100	120.1 - 130	150.1 - 160	180.1 - 190
10.1 - 20	40.1 - 50	70.1 - 80	100.1 - 110	130.1 - 140	160.1 - 170	190.1 - 200
20.1 - 30	50.1 - 60	80.1 - 90	110.1 - 120	140.1 - 150	170.1 - 180	> 200

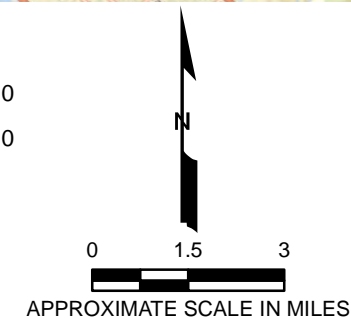
Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L NON FLOW-WEIGHTED  
GSWIM LAYER 4, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California**

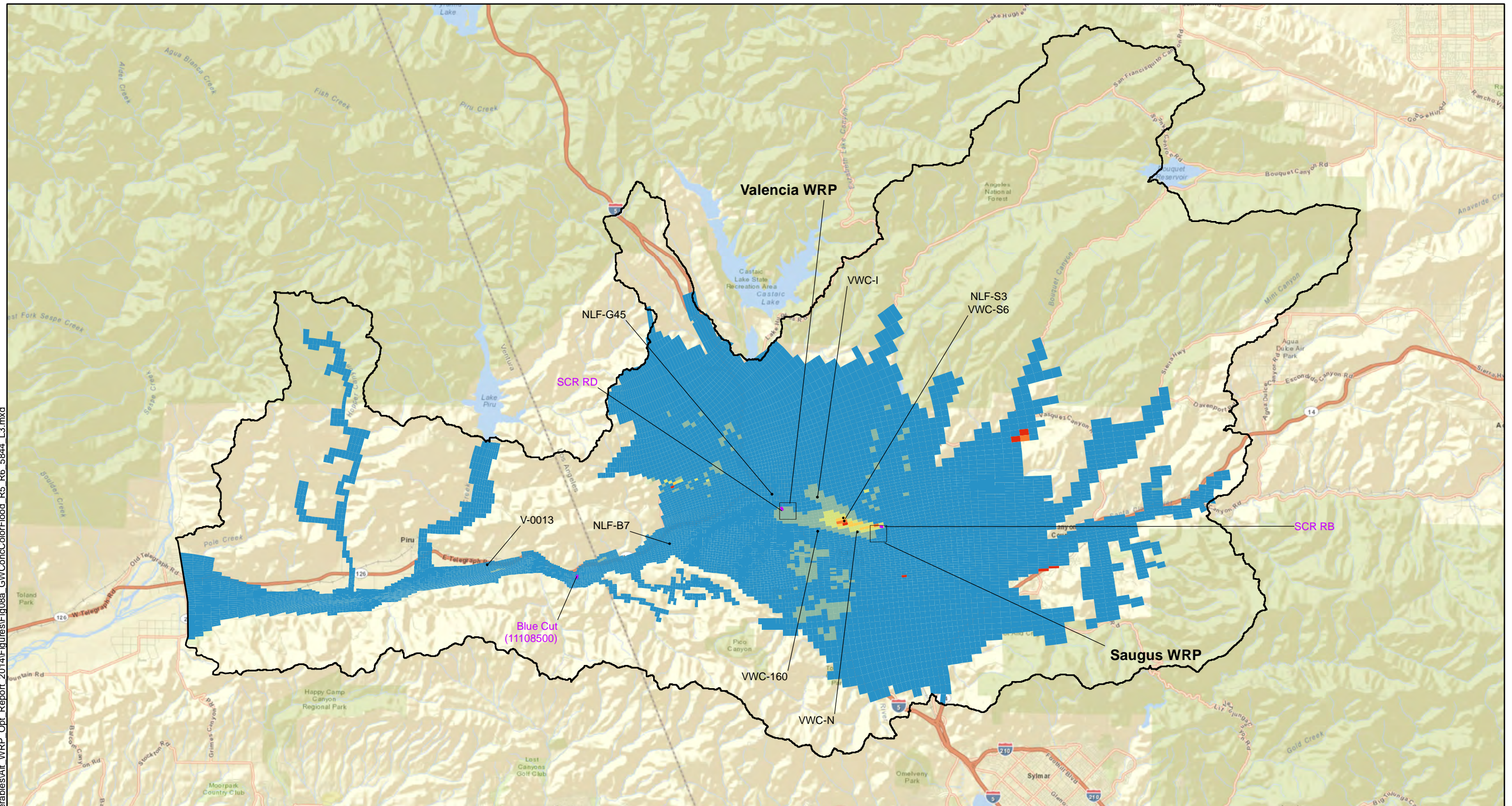
By: jmp Date: 07/08/2014 Project No. 10354



Figure 7d



Q:\103540000\_USCR2014\_work\deliverables\Alt\_WRP\_Opt\_Report\_2014\Figures\Fig08a\_GWConcColor\Flood\_R5\_R6\_5844\_L3.mxd



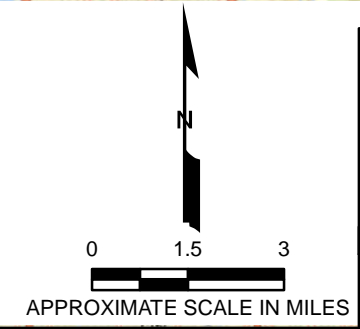
**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

< 1.0	3.0 - 5.0	7.0 - 9.0
1.0 - 3.0	5.0 - 7.0	> 9.0

**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.

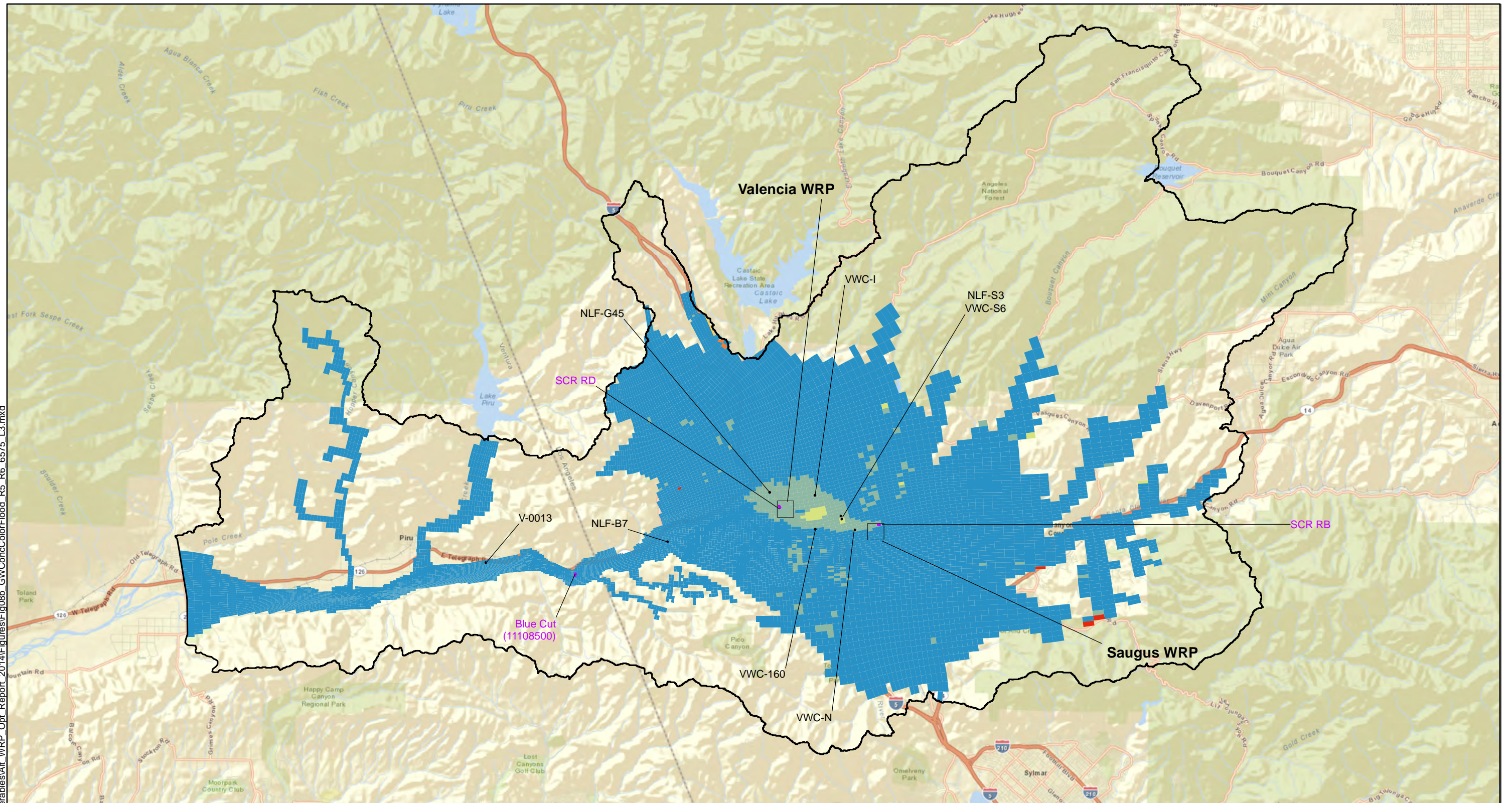


Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM LAYER 3, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>8a</b>

Q:\103540000\_USCR2014\_work\deliverables\Alt\_WRP\_Opt\_Report\_2014\Figures\Fig08b\_GWConcColor\Flood\_R5\_R6\_6575\_L3.mxd



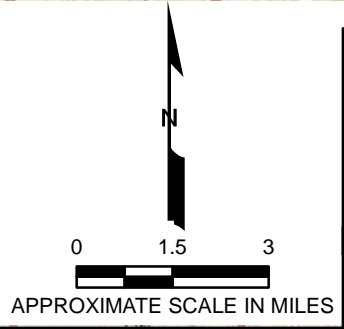
**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

< 1.0	3.0 - 5.0	7.0 - 9.0
1.0 - 3.0	5.0 - 7.0	> 9.0

**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.



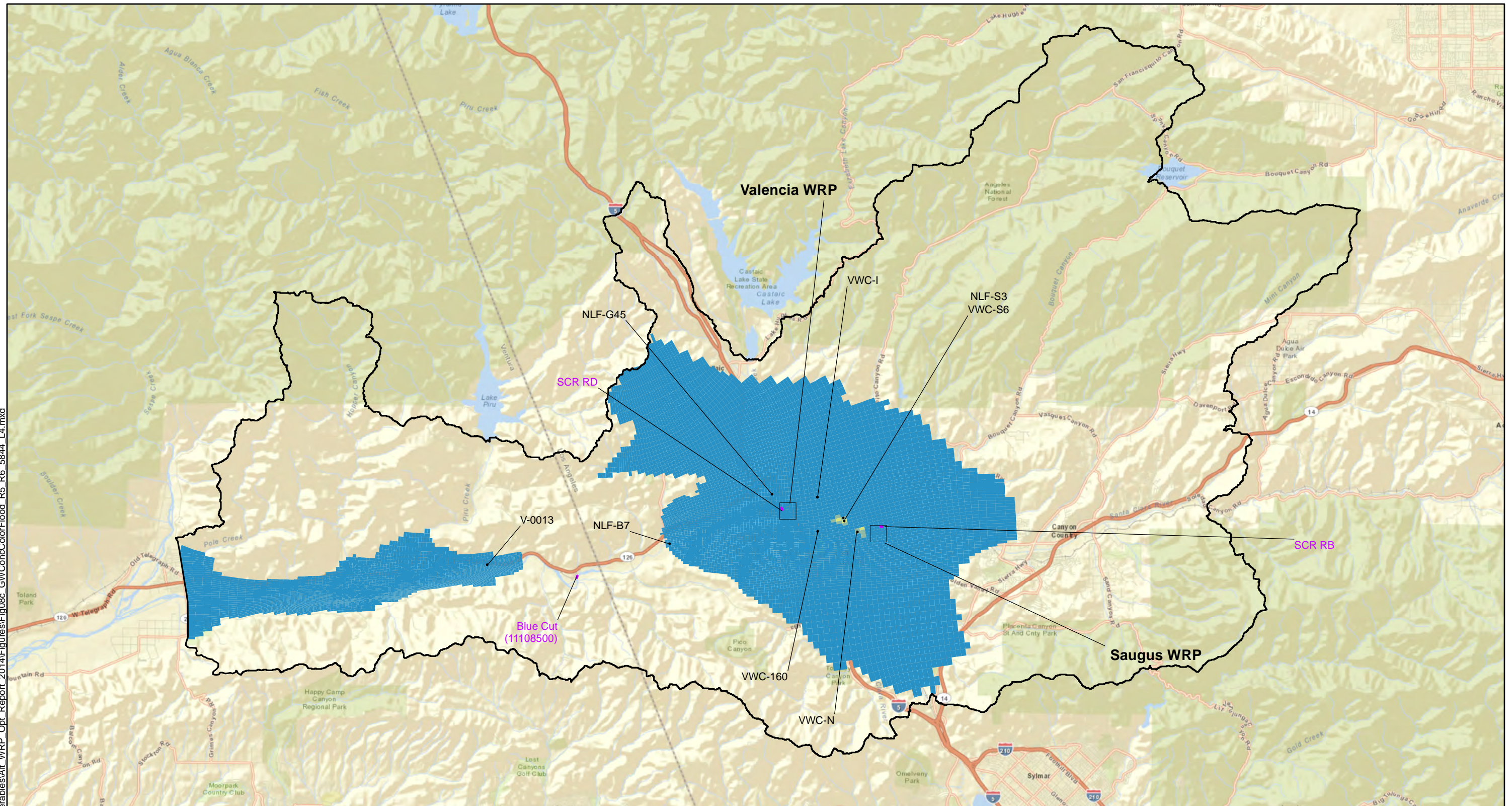
Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM LAYER 3, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>8b</b>



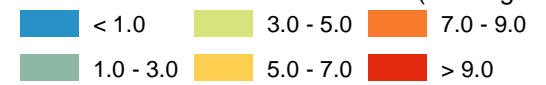
Q:\103540000\_USCR2014\_work\deliverables\WRP\_Opt\_Report\_2014\Figures\Fig08c\_GWConcColorFlood\_R5\_R6\_5844\_L4.mxd



**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

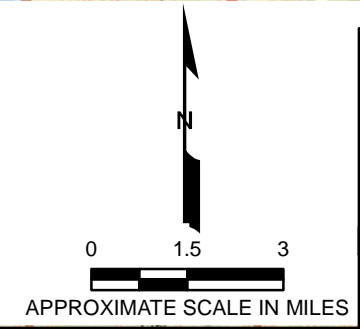


**Note:**  
Chloride concentration difference calculated as  
100 mg/L flow-weighted concentration minus  
100 mg/L non flow-weighted concentration.

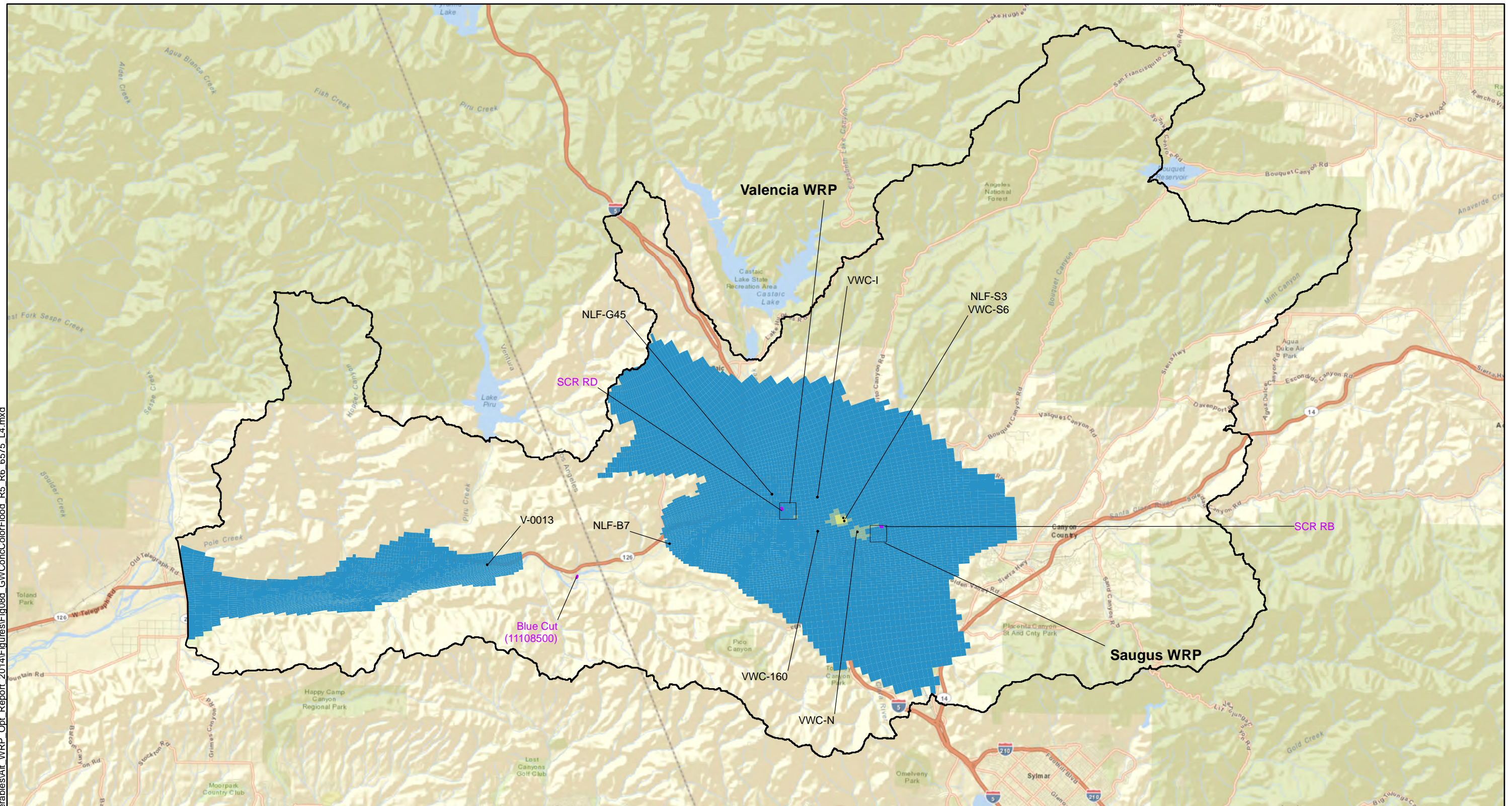
Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM LAYER 4, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
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Q:\103540000\_USCR2014\_work\deliverables\Alt\_WRP\_Opt\_Report\_2014\Figures\Fig08d\_GWConcColor\Flood\_R5\_R6\_6575\_L4.mxd



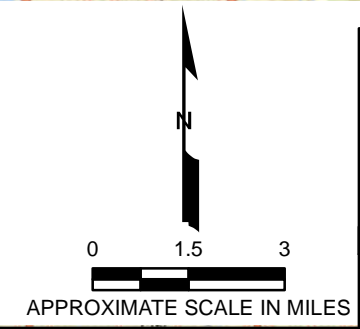
**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

<span style="display: inline-block; width: 15px; height: 10px; background-color: #0070C0; border: 1px solid black;"></span> < 1.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black;"></span> 3.0 - 5.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #FF8C00; border: 1px solid black;"></span> 7.0 - 9.0
<span style="display: inline-block; width: 15px; height: 10px; background-color: #66CDAA; border: 1px solid black;"></span> 1.0 - 3.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #FFD700; border: 1px solid black;"></span> 5.0 - 7.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #FF0000; border: 1px solid black;"></span> > 9.0

**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.

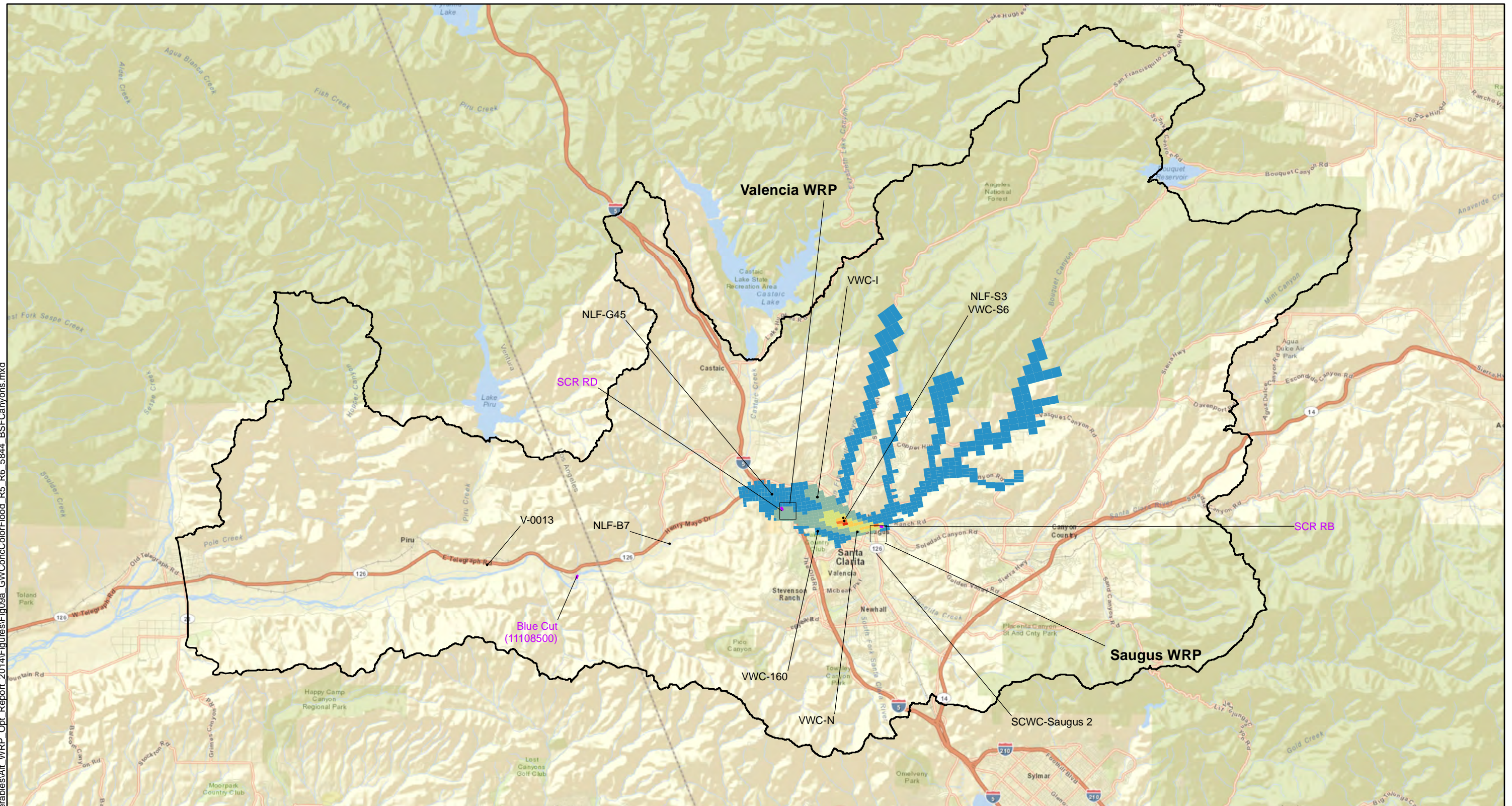


Basemap modified from ESRI's online content.

**LOS ANGELES AND VENTURA COUNTY  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM LAYER 4, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>8d</b>

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig09a\_GWConcColor\Flood\_R5\_R6\_5844\_BSFCanyons.mxd



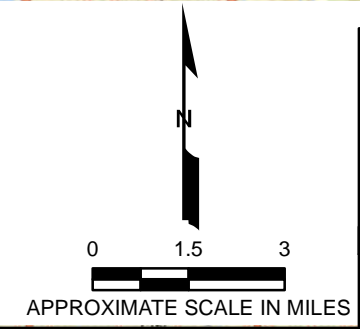
**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

<span style="color: blue;">■</span> < 1.0	<span style="color: lightgreen;">■</span> 3.0 - 5.0	<span style="color: orange;">■</span> 7.0 - 9.0
<span style="color: teal;">■</span> 1.0 - 3.0	<span style="color: yellow;">■</span> 5.0 - 7.0	<span style="color: red;">■</span> > 9.0

**Note:**  
Chloride concentration difference calculated as  
100 mg/L flow-weighted concentration minus  
100 mg/L non flow-weighted concentration.



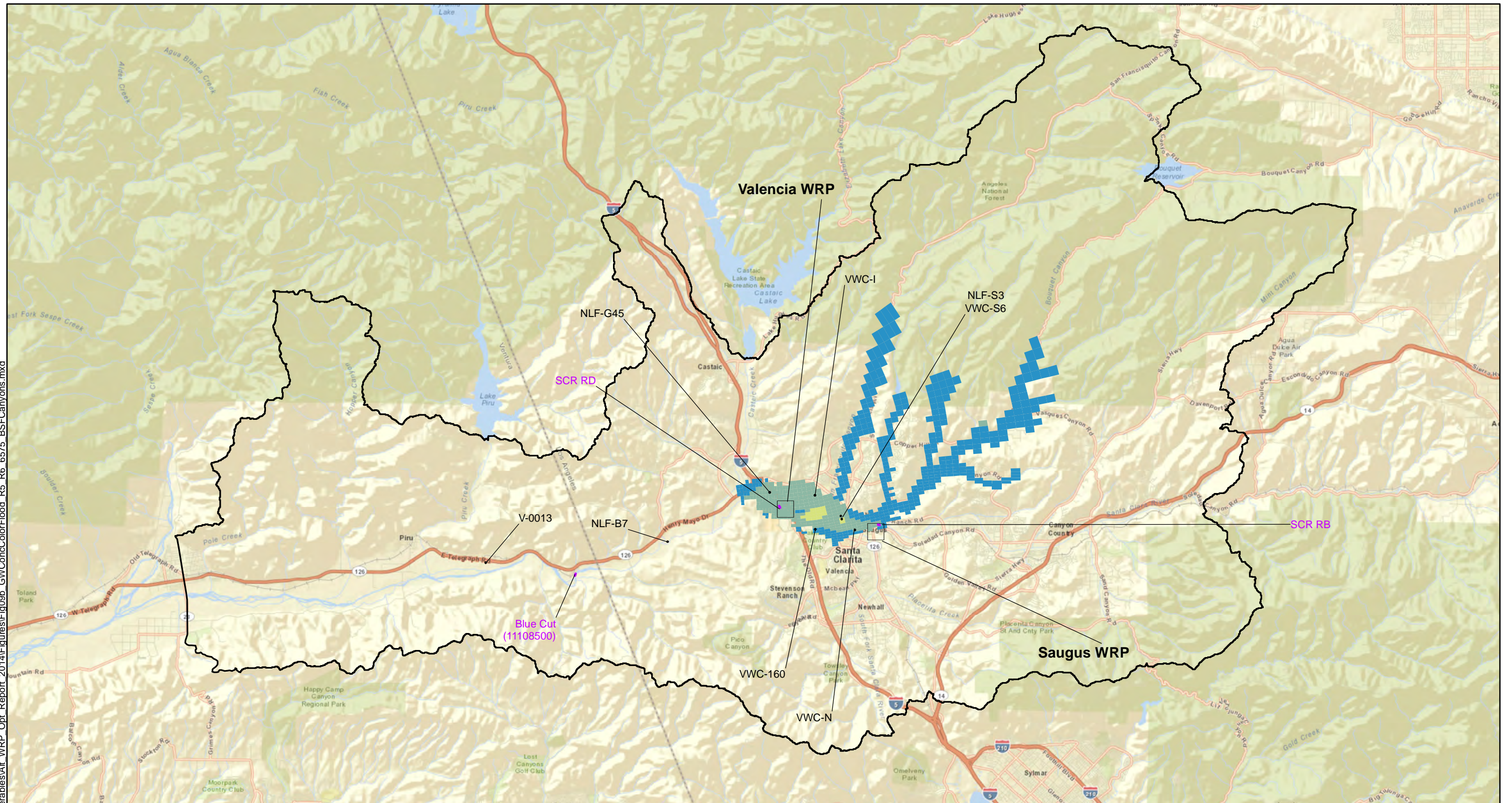
Basemap modified from ESRI's online content.

**BOUQUET AND SAN FRANCISCO CANYONS SUBBASIN  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM ALLUVIUM, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
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Figure **9a**

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig09b\_GWConcColor\Flood\_R5\_R6\_6575\_BSFCanyons.mxd



Basemap modified from ESRI's online content.

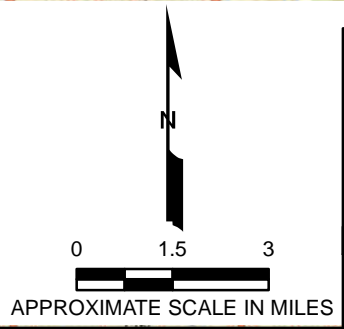
**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

< 1.0	3.0 - 5.0	7.0 - 9.0
1.0 - 3.0	5.0 - 7.0	> 9.0

**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.



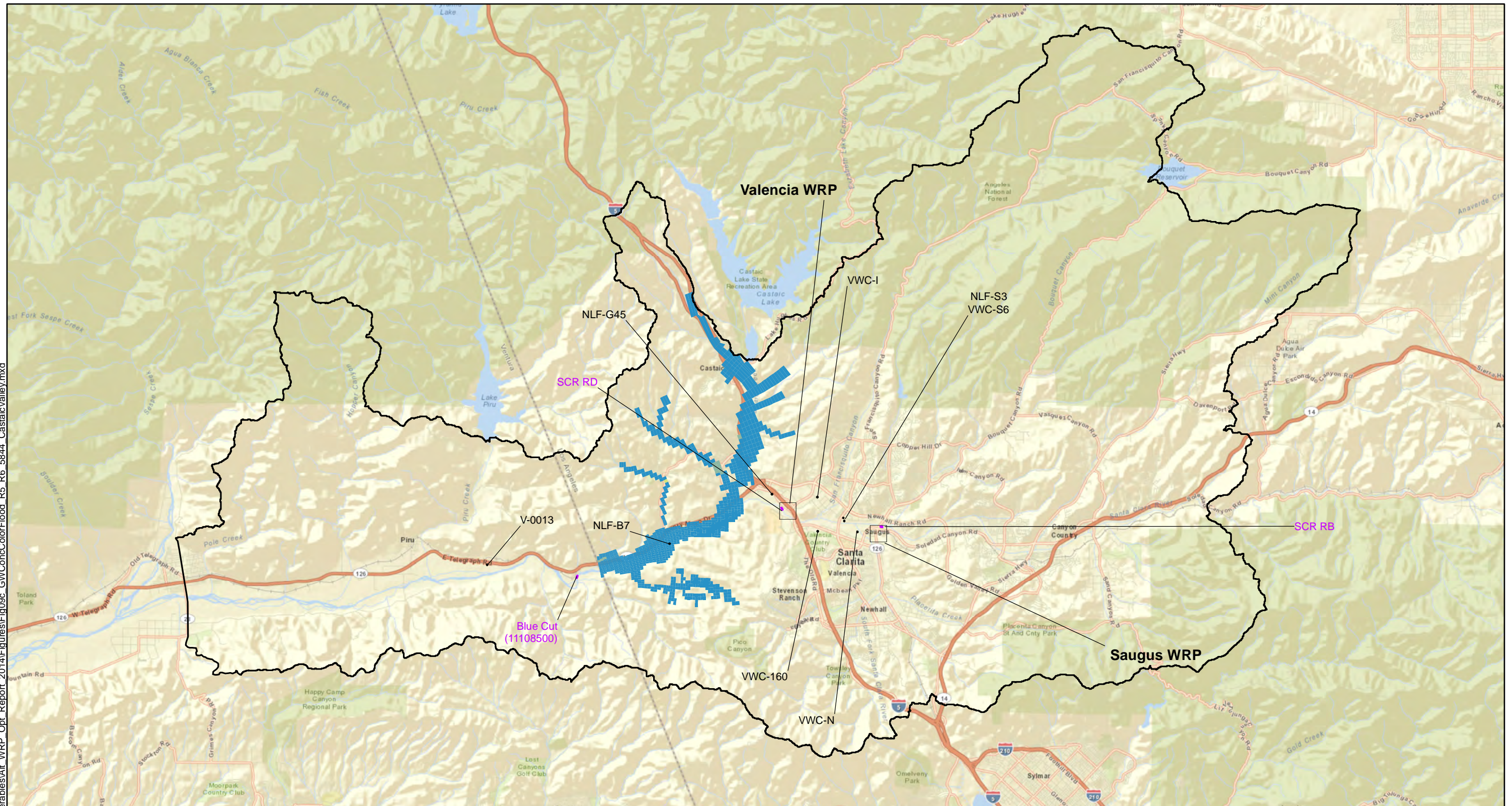
BOUQUET AND SAN FRANCISCO CANYONS SUBBASIN  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM ALLUVIUM, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California

By: jmp	Date: 07/08/2014	Project No. 10354
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Figure **9b**

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig09c\_GWConcColorFlood\_R5\_R6\_5844\_CastaicValley.mxd



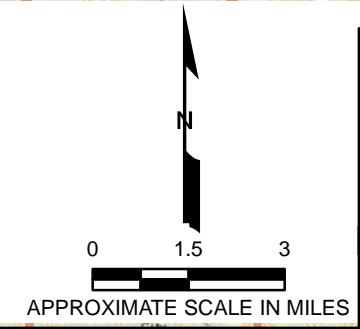
Basemap modified from ESRI's online content.

**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])


**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.

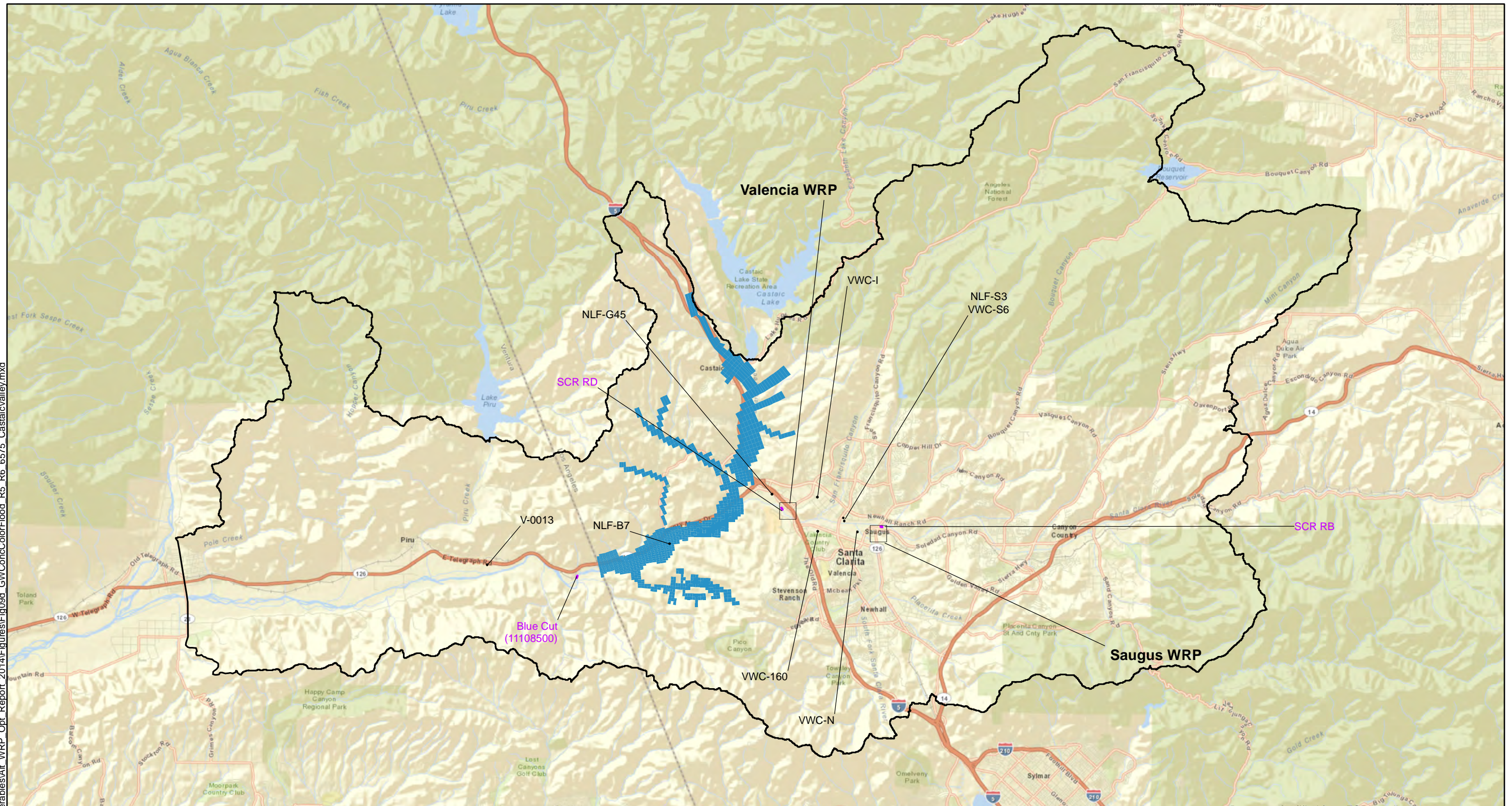


CASTAIC VALLEY SUBBASIN  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM ALLUVIUM, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California

By: jmp	Date: 07/08/2014	Project No. 10354
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Figure **9c**

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig09d\_GWConcColor\Flood\_R5\_R6\_6575\_CastaicValley.mxd



Basemap modified from ESRI's online content.

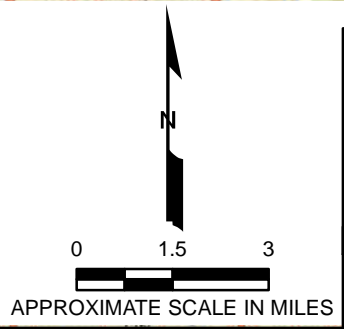
**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

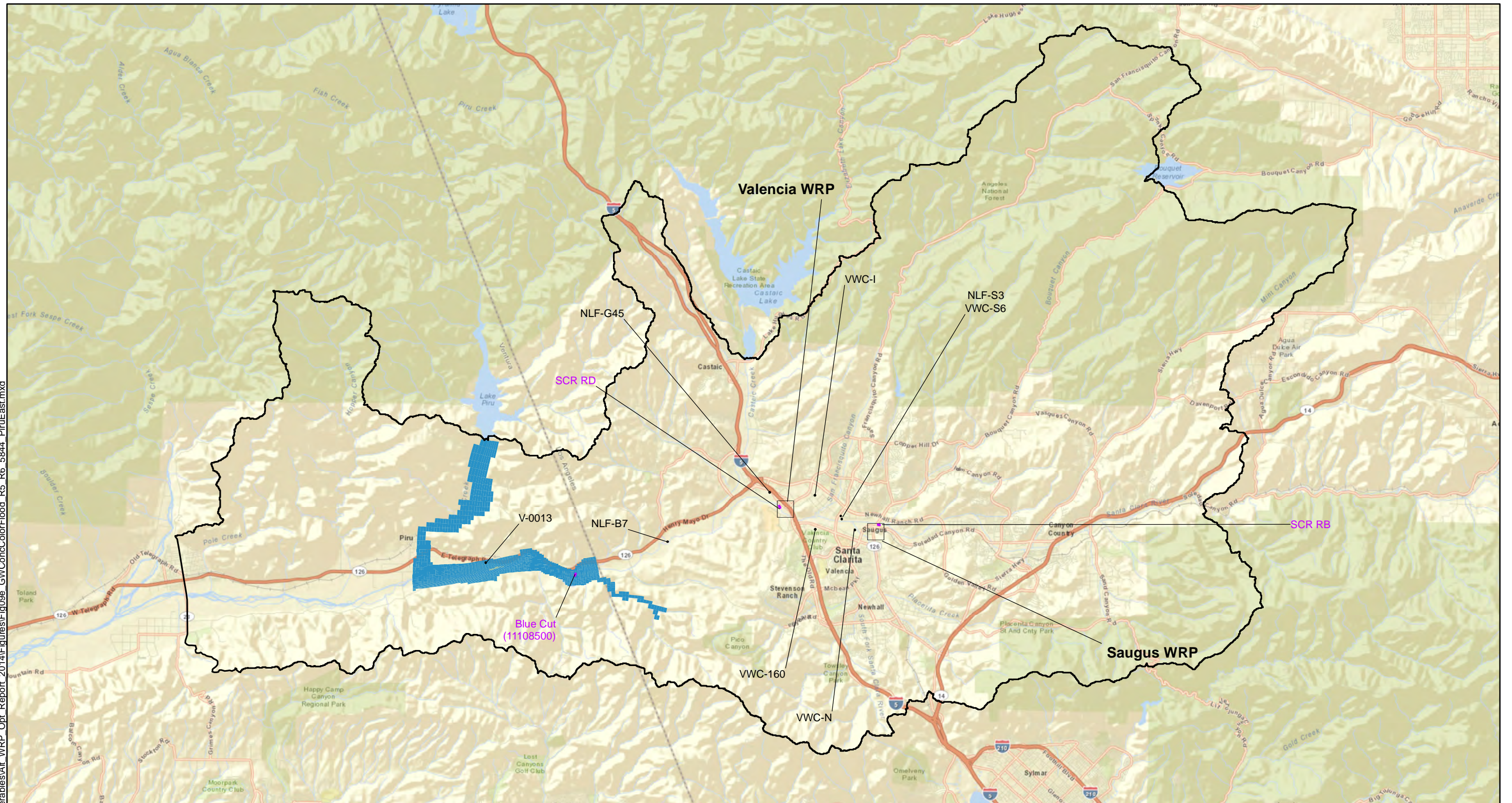
<span style="color: blue;">■</span> < 1.0	<span style="color: lightgreen;">■</span> 3.0 - 5.0	<span style="color: orange;">■</span> 7.0 - 9.0
<span style="color: teal;">■</span> 1.0 - 3.0	<span style="color: yellow;">■</span> 5.0 - 7.0	<span style="color: red;">■</span> > 9.0

**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.



<b>CASTAIC VALLEY SUBBASIN GROUNDWATER CHLORIDE CONCENTRATIONS 100 MG/L FLOW-WEIGHTED MINUS 100 MG/L NON FLOW-WEIGHTED, GSWIM ALLUVIUM, DAY 6575 Upper Santa Clara River Santa Clara River Valley, California</b>		
By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>9d</b>

Q:\103540000\_USCR2014\_work\deliverables\All\_WRP\_Opt\_Report\_2014\Figures\Fig09e\_GWConcColor\Flood\_R5\_R6\_5844\_PiruEast.mxd



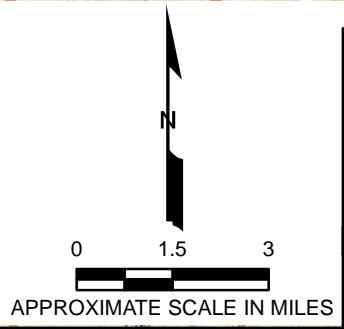
Basemap modified from ESRI's online content.

**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])


**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.

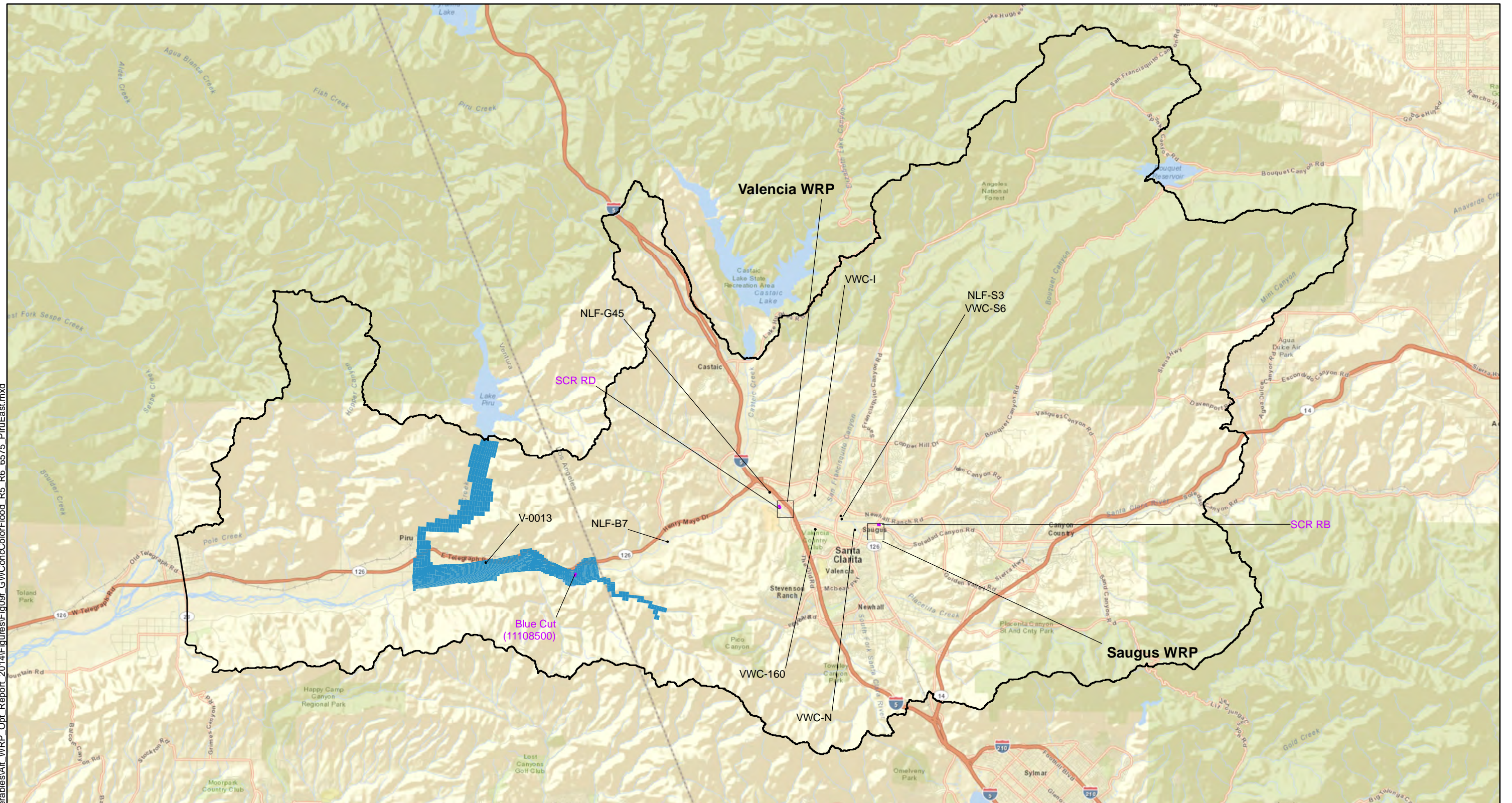


PIRU EAST SUBBASIN  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, GSWIM ALLUVIUM, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California

By: jmp	Date: 07/08/2014	Project No. 10354
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Figure **9e**

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Basemap modified from ESRI's online content.

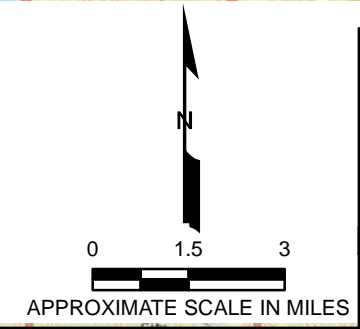
**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

Chloride concentration difference (in milligrams per liter [mg/L])

<span style="display: inline-block; width: 15px; height: 10px; background-color: #0070C0; border: 1px solid black;"></span> < 1.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #92D050; border: 1px solid black;"></span> 3.0 - 5.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #FF8C00; border: 1px solid black;"></span> 7.0 - 9.0
<span style="display: inline-block; width: 15px; height: 10px; background-color: #4CAF50; border: 1px solid black;"></span> 1.0 - 3.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC107; border: 1px solid black;"></span> 5.0 - 7.0	<span style="display: inline-block; width: 15px; height: 10px; background-color: #F44336; border: 1px solid black;"></span> > 9.0

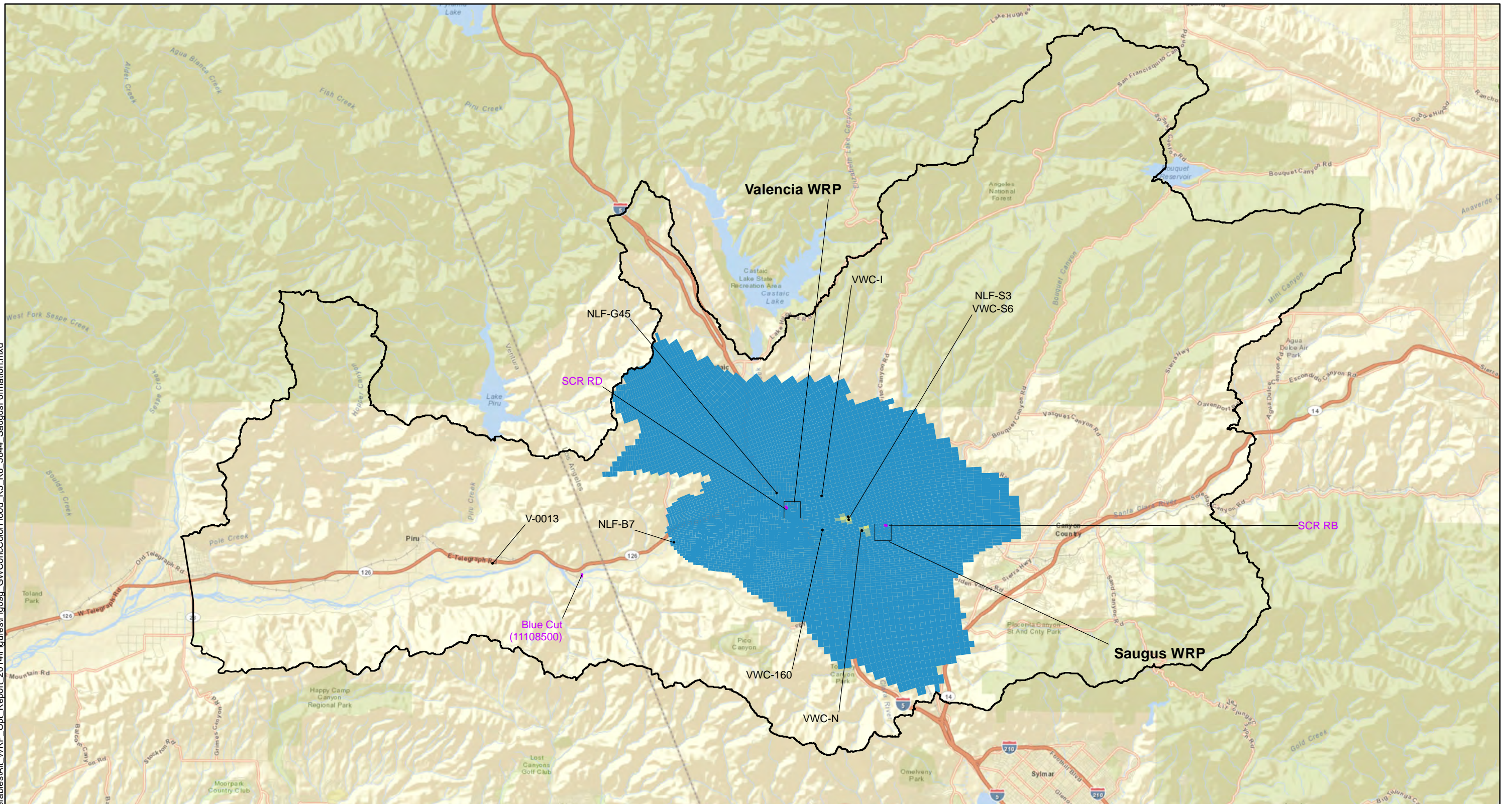
**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.



PIRU EAST SUBBASIN GROUNDWATER CHLORIDE CONCENTRATIONS 100 MG/L FLOW-WEIGHTED MINUS 100 MG/L NON FLOW-WEIGHTED, GSWIM ALLUVIUM, DAY 6575 Upper Santa Clara River Santa Clara River Valley, California		
By: jmp	Date: 07/08/2014	Project No. 10354
		Figure <b>9f</b>



Q:\103540000\_USCR2014\_work\deliverables\Alt\_WRP\_Opt\_Report\_2014\Figures\Fig09g\_GWConcColor\Flood\_R5\_R6\_5844\_SaugusFormation.mxd



Basemap modified from ESRI's online content.

**Explanation**

- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

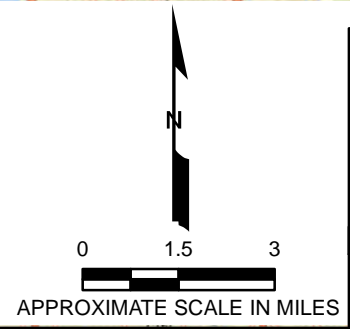
Chloride concentration difference (in milligrams per liter [mg/L])


**Note:**  
Chloride concentration difference calculated as 100 mg/L flow-weighted concentration minus 100 mg/L non flow-weighted concentration.

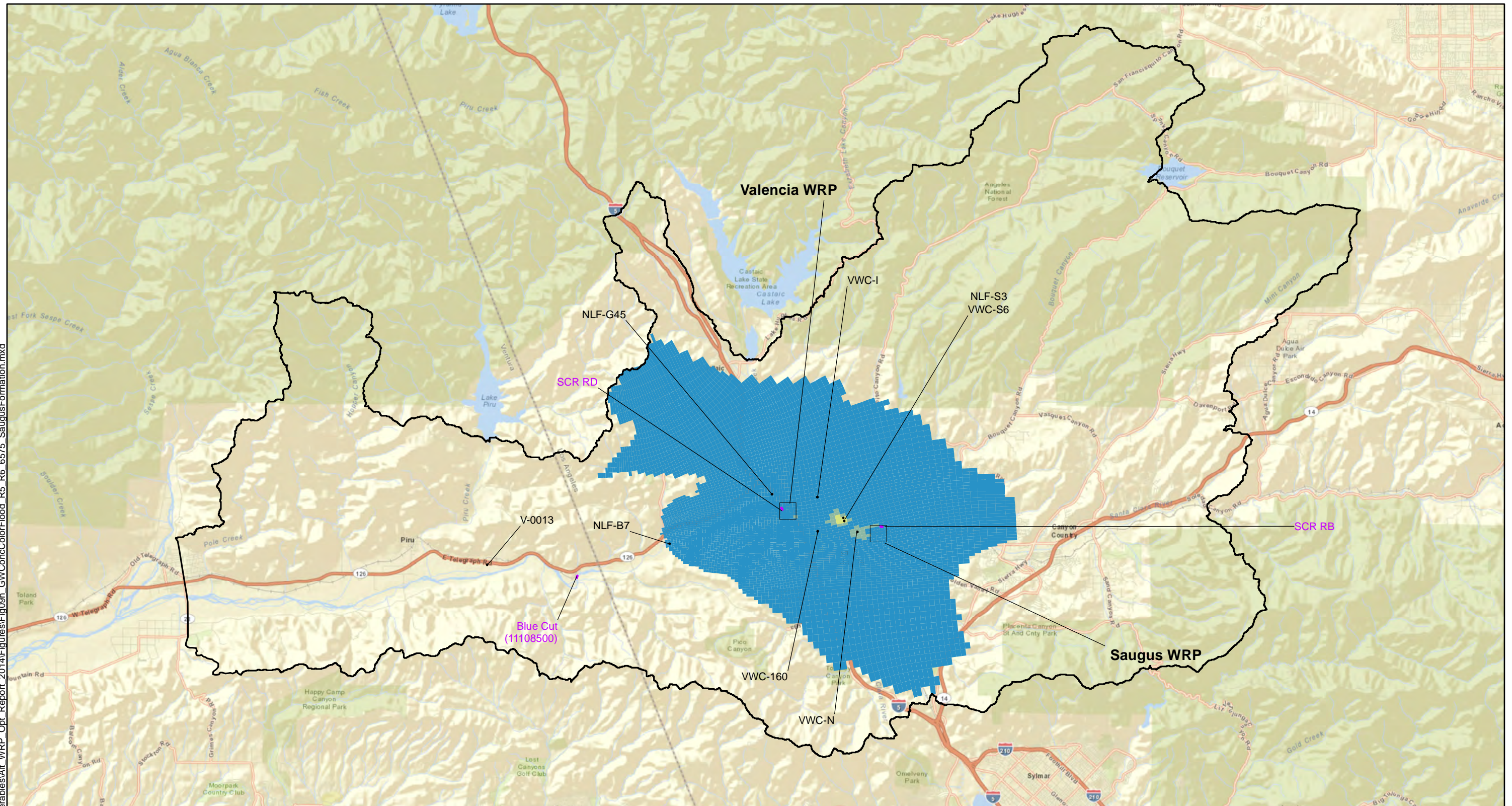
**SAUGUS FORMATION  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, DAY 5844  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
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**amec**



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Basemap modified from ESRI's online content.

**SAUGUS FORMATION  
GROUNDWATER CHLORIDE CONCENTRATIONS  
100 MG/L FLOW-WEIGHTED MINUS 100 MG/L  
NON FLOW-WEIGHTED, DAY 6575  
Upper Santa Clara River  
Santa Clara River Valley, California**

By: jmp	Date: 07/08/2014	Project No. 10354
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	Figure <b>9h</b>
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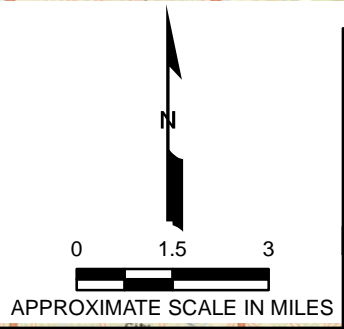
**Explanation**

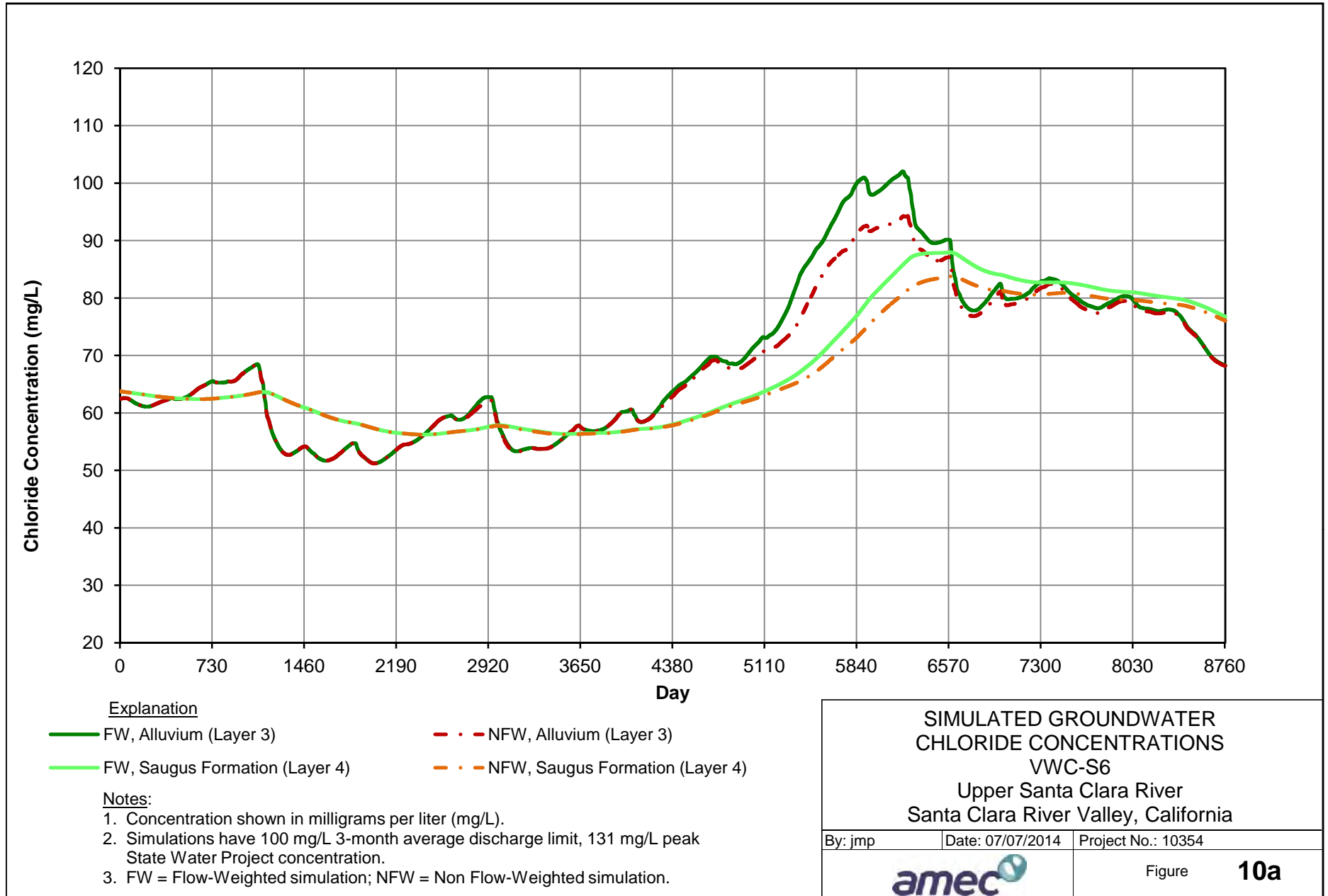
- Groundwater observation location
- Surface water observation location
- Groundwater/Surface-Water Interaction Model (GSWIM) boundary
- Water Reclamation Plant (WRP)

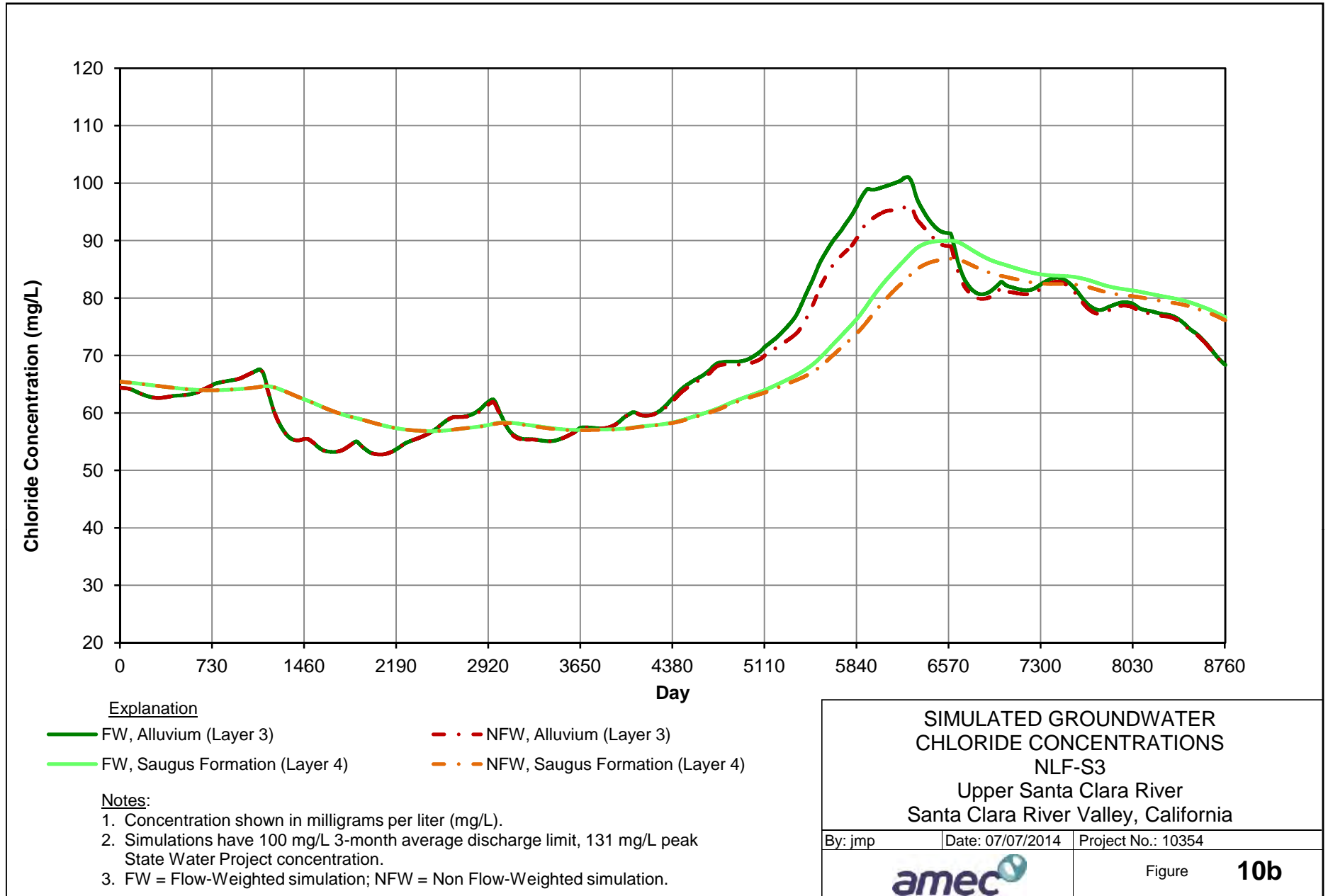
Chloride concentration difference (in milligrams per liter [mg/L])

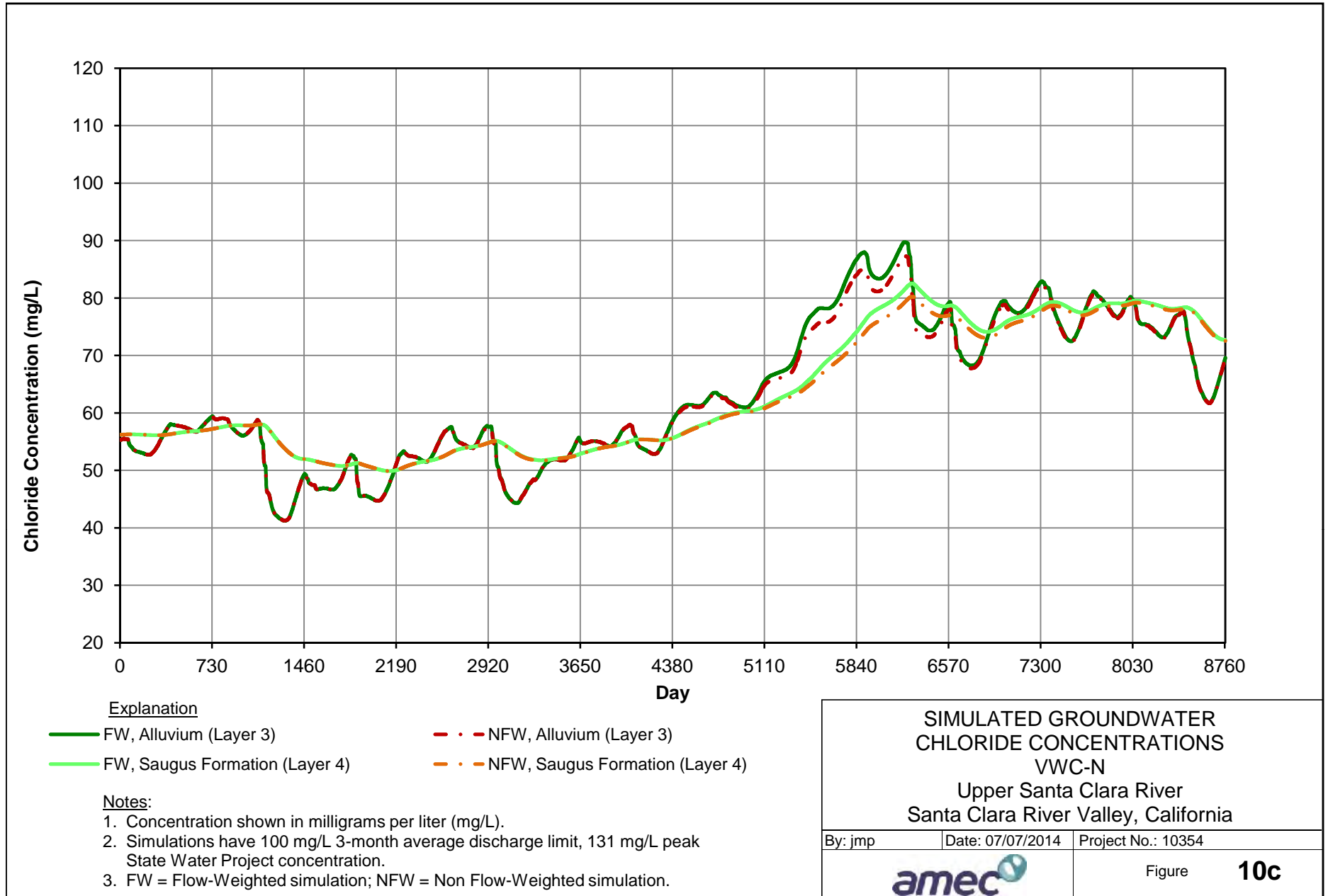
● < 1.0	● 3.0 - 5.0	● 7.0 - 9.0
● 1.0 - 3.0	● 5.0 - 7.0	● > 9.0

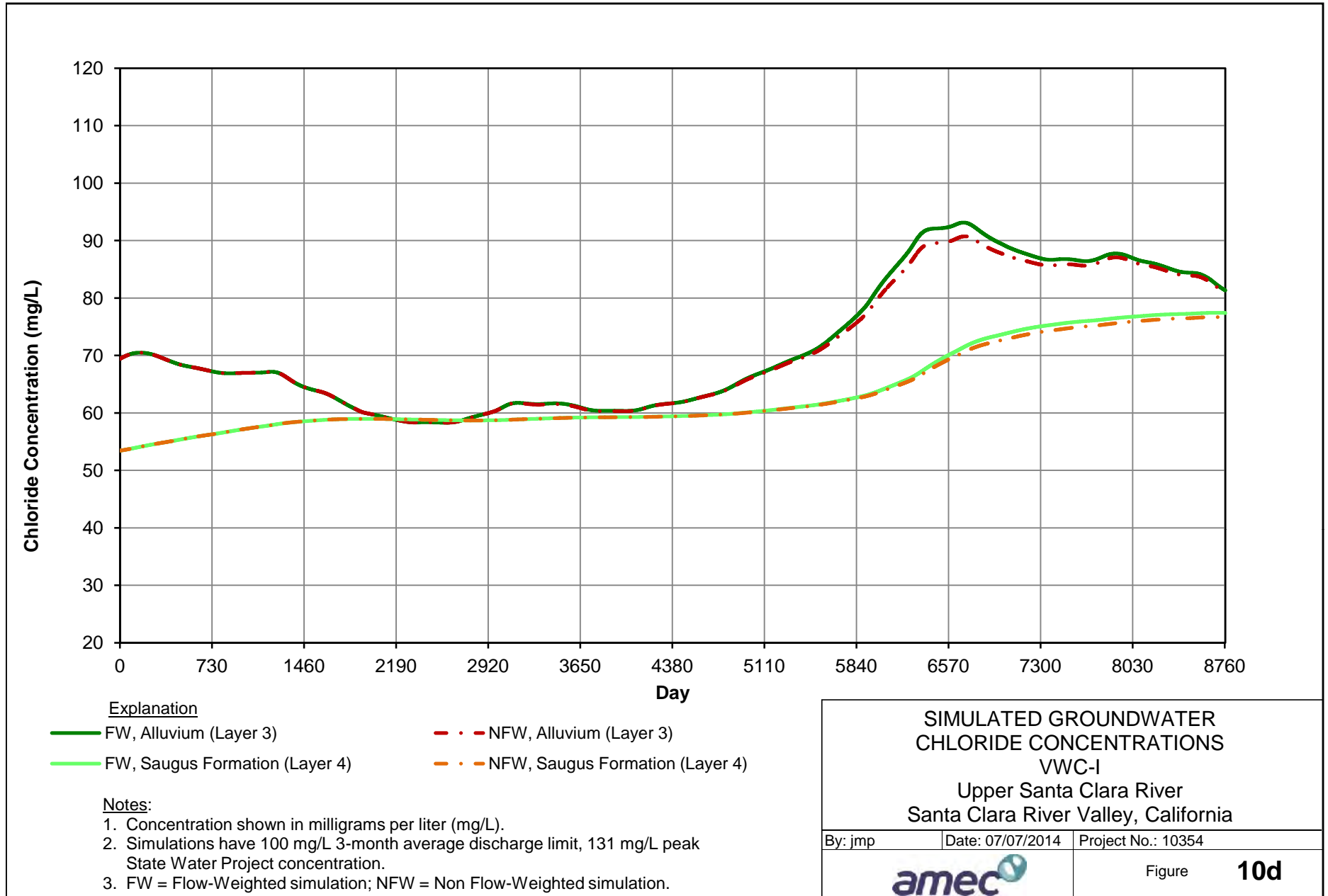
**Note:**  
Chloride concentration difference calculated as  
100 mg/L flow-weighted concentration minus  
100 mg/L non flow-weighted concentration.

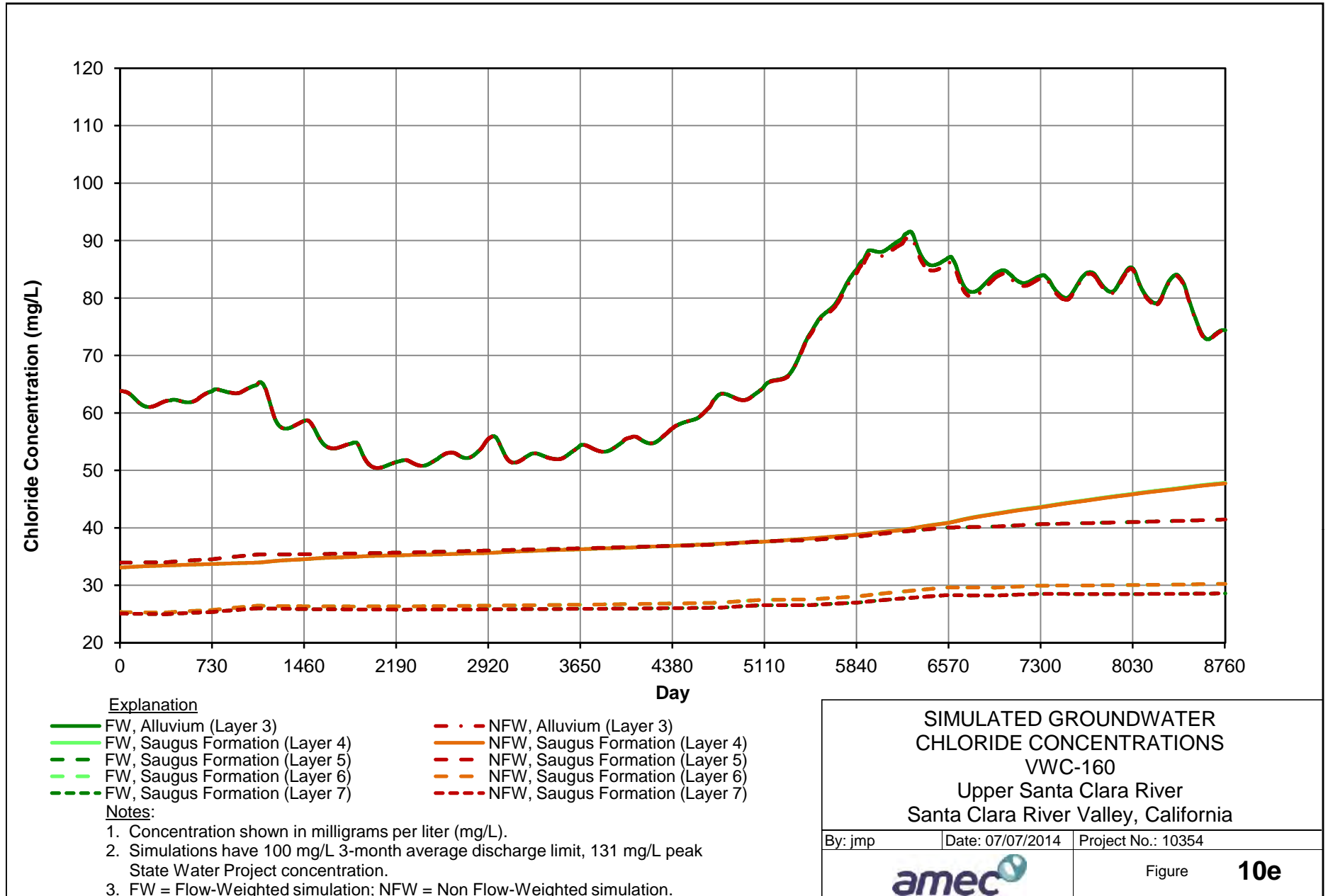


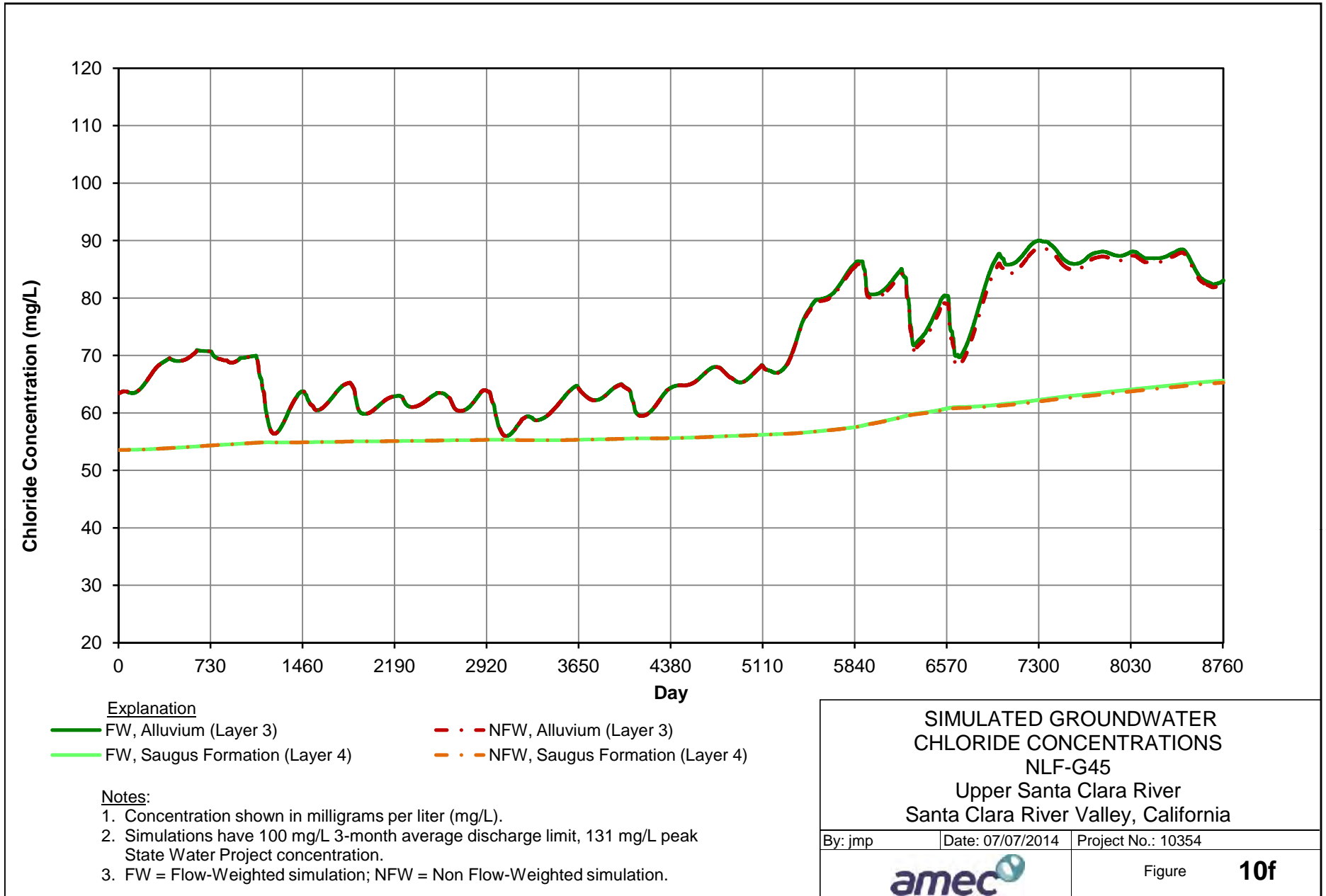




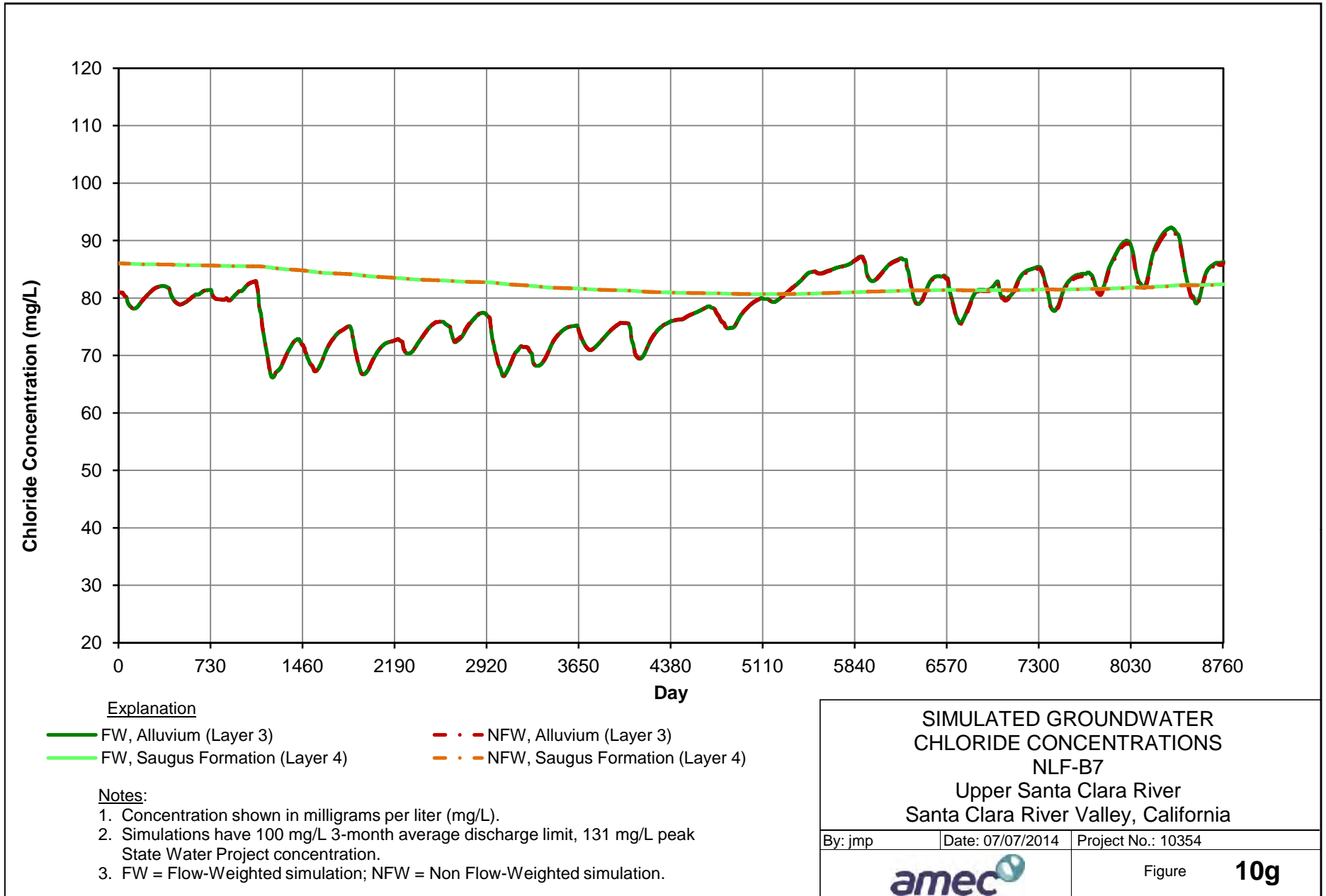


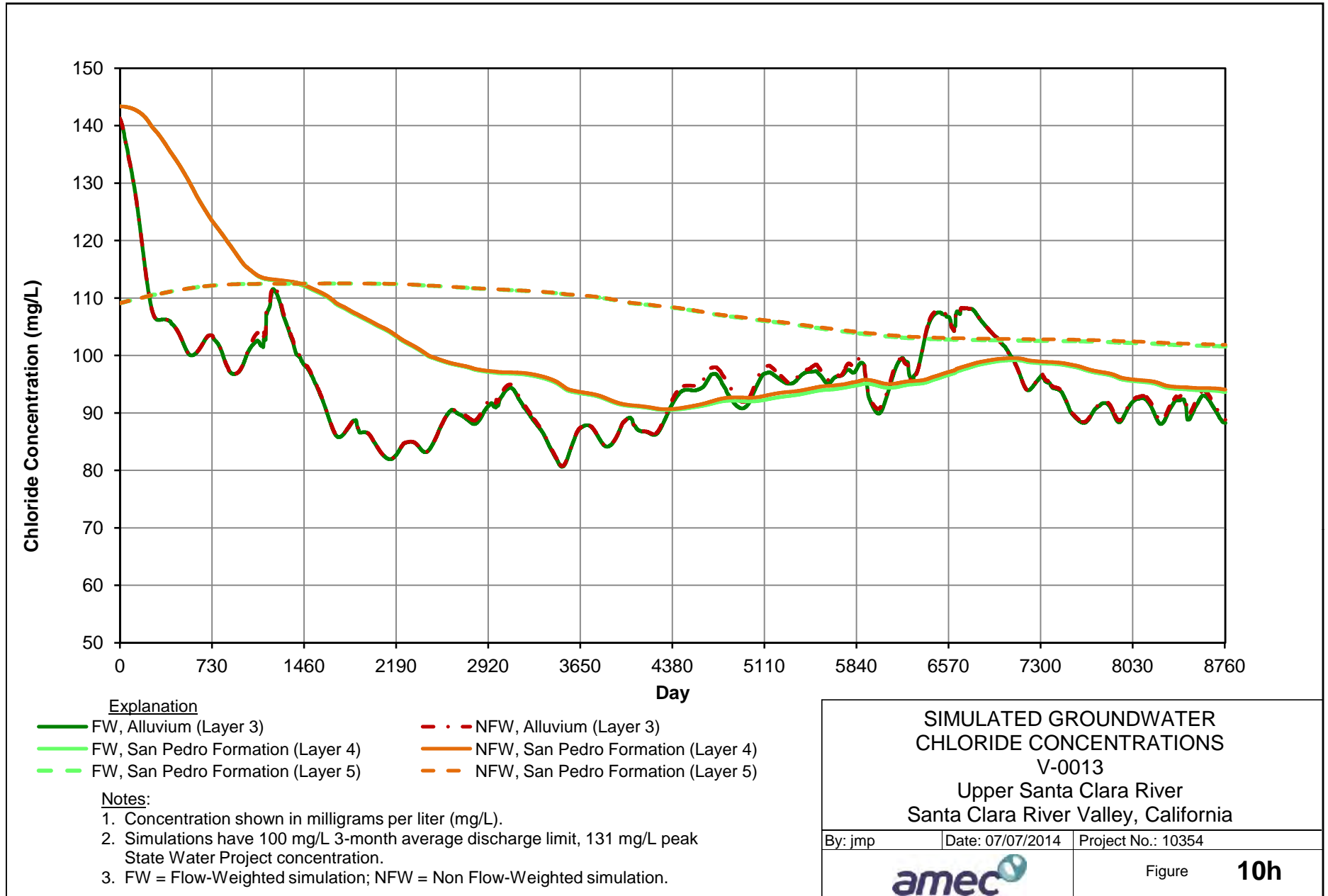












## APPENDIX A

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Seepage Velocity Calculation for Groundwater Flow from the  
Saugus WRP to Blue Cut

## APPENDIX A

### SEEPAGE VELOCITY AND TRAVEL TIME ESTIMATE CALCULATION

The method outlined below provides a simple estimate of the seepage velocity of groundwater flow between the Saugus WRP and Blue Cut within the USCR watershed. The equation and assumptions used in the calculation are summarized below.

#### EQUATION

Seepage velocity (Fetter, 1994)

$$V_x = -\frac{Kdh}{n_e dl}$$

where

$V_x$  = horizontal seepage velocity (feet/day)

$n_e$  = effective porosity of porous medium (unitless)

$K$  = bulk horizontal hydraulic conductivity of porous media (feet/day)

$\frac{dh}{dl}$  = hydraulic gradient through porous media (unitless)

#### ASSUMPTIONS

The simplifying assumptions in this seepage velocity estimate include:

- The hydraulic gradient used in the simplified calculation is constant over time and based on hydraulic heads simulated at the Saugus WRP and Blue Cut for the peak drought (Day 5844). In this calculation, the hydraulic head at the Saugus WRP is 1109.73 feet above mean sea level (msl) and the hydraulic head at Blue Cut is 811.50 feet above msl. The distance along the estimated flow path through the Santa Clara River alluvium was measured at approximately 57,000 feet (about 10.8 miles). The resulting average hydraulic gradient is 0.005.
- The effective porosity of the alluvial aquifer materials between the Saugus WRP and Blue Cut is uniform and can be represented by an average of the alluvium effective porosity values between the Saugus WRP and Blue Cut. The effective porosity value used in this calculation is based on effective porosity values assigned to model cells representing alluvial deposits along the Santa Clara River, which range from 0.13 to 0.16 and average 0.14.

- The hydraulic conductivity of the alluvial aquifer materials between the Saugus WRP and Blue Cut is uniform and can be represented by an average of the alluvium hydraulic conductivity values between the Saugus WRP and Blue Cut. The hydraulic conductivity value used in this calculation is based on hydraulic conductivity values assigned to model cells representing alluvial deposits along the Santa Clara River, which range from 300 feet/day to 1000 feet/day and average 645 feet/day.

## **CALCULATION**

Based on the assumptions outlined above, the calculated average seepage velocity from the Saugus WRP to Blue Cut is 23 feet/day. The travel time from the Saugus WRP to Blue Cut, through alluvium along the Santa Clara River is approximately 2,474 days, or approximately 7 years.

## **REFERENCES**

CH2M HILL and HydroGeoLogic (CH2M HILL-HGL), 2008, Task 2B -1 Numerical Model Development and Scenario Results East and Piru Subbasins. Upper Santa Clara River Chloride TMDL Collaborative Process. Draft Report. Prepared for the Groundwater/Surface-water Interaction (GSWI) Technical Working Group. February.

Fetter, C.W. (1994). Applied Hydrogeology: Third Edition. New York: Macmillan College Publishing Company.