

Attachment B to Resolution No. R4-2008-012

Revision of the TMDL for Chloride in the Upper Santa Clara River

Adopted by the California Regional Water Quality Control Board, Los Angeles Region on December 11, 2008.

Amendments

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Chapter 7. Total Maximum Daily Loads (TMDLs) Upper Santa Clara River TMDL

This TMDL was adopted by: The Regional Water Quality Control Board on October 24, 2002.
This TMDL was remanded by: The State Water Resources Control Board on February 19, 2003
This TMDL was adopted by: The Regional Water Quality Control Board on July 10, 2003.
This TMDL was revised and adopted by: The Regional Water Quality Control Board on May 6, 2004.

This TMDL was approved by: The State Water Resource Control Board on July 22, 2004
The Office of Administrative Law on November 15, 2004

The U.S. Environmental Protection Agency on April 28, 2005

This TMDL was revised and adopted by: The Regional Water Quality Control Board on August 3, 2006.

This TMDL was approved by: The State Water Resource Control Board on May 22, 2007.
The Office of Administrative Law on July 3, 2007.

This TMDL was revised and adopted by: The Regional Water Quality Control Board on December 11, 2008.

This TMDL was approved by: The State Water Resource Control Board on xxx xx, 200x.
The Office of Administrative Law on xxx xx, 200x.

Element	<p>Table 7-6.1. Upper Santa Clara River Chloride TMDL: Elements</p> <p style="text-align: center;">Santa Clara River Chloride</p>															
<p><i>Problem Statement</i></p>	<p>Elevated chloride concentrations are causing impairments of the water quality objective in Reach 5 (EPA 303(d) list Reach 7) and Reach 6 (EPA 303(d) list Reach 8) of the Santa Clara River (SCR). These reaches are on the 1998 and 2002 Clean Water Act (CWA) 303(d) lists of impaired water bodies as impaired due to chloride. The objectives for these reaches were set to protect all beneficial uses; agricultural beneficial uses have been determined to be most sensitive, and not currently attained at the downstream end of Reach 5 (EPA 303(d) list Reach 7) and Reach 6 (EPA 303(d) list Reach 8) in the Upper Santa Clara River (USCR). Irrigation of salt sensitive crops such as avocados, strawberries, and nursery crops with water containing elevated levels of chloride results in reduced crop yields. Chloride levels in groundwater in Piru Basin underlying the reach downstream of Reach 5 are also rising.</p>															
<p><i>Numeric Target (Interpretation of the numeric water quality objective, used to calculate the load allocations)</i></p>	<p>Numeric targets are equivalent to conditional site specific objectives (SSOs) that are based on technical studies regarding chloride levels which protect salt sensitive crops and endangered and threatened species, chloride source identification, and the magnitude of assimilative capacity in the upper reaches of the Santa Clara River and underlying groundwater basin. The TMDL special study, Literature Review Evaluation, shows that the most sensitive beneficial uses can be supported with rolling averaging periods as shown in the tables below:</p> <p>1. Conditional Surface Water SSOs</p> <p>The conditional SSOs for chloride in the surface water of Reaches 4B, 5, and 6 shall apply and supersede the existing water quality objectives of 100 mg/L only when chloride load reductions and/or chloride export projects are in operation by the SCVSD according to the implementation section in Table 7-6.1. Conditional surface water SSOs for Reaches 4B, 5, and 6 of the Santa Clara River are listed as follows:</p> <table border="1" data-bbox="532 1499 1406 1871"> <thead> <tr> <th>Reach</th> <th>Conditional SSO for Chloride (mg/L)</th> <th>Rolling Averaging Period</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>150</td> <td>12-month</td> </tr> <tr> <td>5</td> <td>150</td> <td>12-month</td> </tr> <tr> <td>4B</td> <td>117</td> <td>3-month</td> </tr> <tr> <td>4B Critical Conditions</td> <td>130^a</td> <td>3-month^b</td> </tr> </tbody> </table>	Reach	Conditional SSO for Chloride (mg/L)	Rolling Averaging Period	6	150	12-month	5	150	12-month	4B	117	3-month	4B Critical Conditions	130 ^a	3-month ^b
Reach	Conditional SSO for Chloride (mg/L)	Rolling Averaging Period														
6	150	12-month														
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4B	117	3-month														
4B Critical Conditions	130 ^a	3-month ^b														

Element	<p>Table 7-6.1. Upper Santa Clara River Chloride TMDL: Elements</p> <p style="text-align: center;">Santa Clara River Chloride</p>
	<p>a. The conditional SSO for chloride in Reach 4B under critical condition shall apply only if the following conditions and implementation requirements are met:</p> <ol style="list-style-type: none"> 1. Water supply chloride concentrations measured in Castaic Lake are ≥ 80 mg/L. 2. The Santa Clarita Valley Sanitation District (SCVSD) shall provide supplemental water to salt-sensitive agricultural uses that are irrigated with surface water during periods when Reach 4B surface water exceeds 117 mg/L. 3. By May 4, 2020, the 10-year cumulative net chloride loading above 117 mg/L ($CNCl_{117}$)¹ to Reach 4B of the SCR, calculated annually, from the SCVSD Water Reclamation Plants (WRPs) shall be zero or less. <p>$CNCl_{117} = Cl_{(Above\ 117)} - Cl_{(Below\ 117)} - Cl_{(Export\ Ews)}$</p> <p>Where:</p> <p>$Cl_{(Above\ 117)} = [WRP\ Cl\ Load^1 / Reach\ 4B\ Cl\ Load^2] * [Reach\ 4B\ Cl\ Load_{>117}^3]$</p> <p>$Cl_{(Below\ 117)} = [WRP\ Cl\ Load^1 / Reach\ 4B\ Cl\ Load^2] * [Reach\ 4B\ Cl\ Load_{\leq 117}^4]$</p> <p>$Cl_{(Export\ Ews)} = Cl\ Load\ Removed\ by\ Extraction\ Wells$</p> <p>¹ WRP Cl Load is determined as the monthly average Cl concentration multiplied by the monthly average flow measured at the Valencia WRP.</p> <p>² Reach 4B Cl Load is determined as the monthly average Cl concentration at SCVSD Receiving Water Station RF multiplied by the monthly average flow measured at USGS Gauging Station 11109000 (Las Brisas Bridge).</p> <p>³ Reach 4B Cl Load_{>117} means the calculated Cl load to Reach 4B when monthly average Cl concentration in Reach 4B is above 117 mg/L.</p> <p>⁴ Reach 4B Cl Load_{≤117} means the calculated Cl load to Reach 4B when monthly average Cl concentration in Reach 4B is below or equal to 117 mg/L.</p> <ol style="list-style-type: none"> 4. The chief engineer of the SCVSD signs under penalty of perjury and submits to the Los Angeles Regional Water Quality Control Board (Regional Board) a letter documenting the fulfillment of conditions 1, 2, and 3.

Element	Table 7-6.1. Upper Santa Clara River Chloride TMDL: Elements Santa Clara River Chloride												
	<p>b. The averaging period for the critical condition SSO may be reconsidered based on results of chloride trend monitoring after the conditional WLAs of this TMDL are implemented.</p> <p>2. Conditional SSOs for Groundwater</p> <p>Conditional groundwater SSOs are listed as follows:</p> <table border="1" data-bbox="544 661 1372 1165"> <thead> <tr> <th data-bbox="544 661 836 829">Groundwater Basin</th> <th data-bbox="836 661 1079 829">Conditional Groundwater SSO for Chloride (mg/L)</th> <th data-bbox="1079 661 1372 829">Rolling Averaging Period</th> </tr> </thead> <tbody> <tr> <td data-bbox="544 829 836 997">Santa Clara-- Bouquet & San Francisquito Canyons</td> <td data-bbox="836 829 1079 997">150</td> <td data-bbox="1079 829 1372 997">12-month</td> </tr> <tr> <td data-bbox="544 997 836 1060">Castaic Valley</td> <td data-bbox="836 997 1079 1060">150</td> <td data-bbox="1079 997 1372 1060">12-month</td> </tr> <tr> <td data-bbox="544 1060 836 1165">Lower area east of Piru Creek ^a</td> <td data-bbox="836 1060 1079 1165">150</td> <td data-bbox="1079 1060 1372 1165">12-month</td> </tr> </tbody> </table> <p>^a This objective only applies to the San Pedro formation. Existing objective of 200 mg/L applies to shallow alluvium layer above San Pedro formation.</p> <p>The conditional SSOs for chloride in the groundwater in Santa Clara--Bouquet & San Francisquito Canyons, Castaic Valley and the lower area east of Piru Creek (San Pedro Formation) shall apply and supersede the existing groundwater quality objectives only when chloride load reductions and/or chloride export projects are in operation by the SCVSD according to the implementation section in Table 7-6.1.</p>	Groundwater Basin	Conditional Groundwater SSO for Chloride (mg/L)	Rolling Averaging Period	Santa Clara-- Bouquet & San Francisquito Canyons	150	12-month	Castaic Valley	150	12-month	Lower area east of Piru Creek ^a	150	12-month
Groundwater Basin	Conditional Groundwater SSO for Chloride (mg/L)	Rolling Averaging Period											
Santa Clara-- Bouquet & San Francisquito Canyons	150	12-month											
Castaic Valley	150	12-month											
Lower area east of Piru Creek ^a	150	12-month											
<i>Source Analysis</i>	<p>The principal source of chloride into Reaches 5 and 6 of the Santa Clara River is discharges from the Saugus WRP and Valencia WRP, which are estimated to contribute 70% of the chloride load in Reaches 5 and 6. These sources of chloride accumulate and degrade groundwater in the lower area east of Piru Creek in the basin.</p>												
<i>Linkage Analysis</i>	<p>A groundwater-surface water interaction (GSWI) model was developed to</p>												

Element	<p>Table 7-6.1. Upper Santa Clara River Chloride TMDL: Elements</p> <p style="text-align: center;">Santa Clara River Chloride</p>						
	<p>assess the linkage between chloride sources and in-stream water quality and to quantify the assimilative capacity of Reaches 4A, 4B, 5, and 6 and the groundwater basins underlying those reaches. GSWI was then used to predict the effects of WRP discharges on chloride loading to surface water and groundwater under a variety of future hydrology, land use, and water use assumptions including future discharges from the Newhall Ranch WRP in order to determine appropriate wasteload allocations (WLAs) and load allocations (LAs).</p> <p>The linkage analysis demonstrates that beneficial uses can be protected through a combination of SSOs for surface water and groundwater and reduction of chloride levels from the Valencia WRP effluent through advanced treatment.</p>						
<p><i>Waste Load Allocations (for point sources)</i></p>	<p>The conditional WLAs for chloride for all point sources shall apply only when chloride load reductions and/or chloride export projects are in operation by the SCVSD according to the implementation section in Table 7-6.1. If these conditions are not met, WLAs shall be based on existing water quality objectives for chloride of 100 mg/L.</p> <p>Conditional WLAs for chloride for discharges to Reach 4B by the Saugus and Valencia WRPs are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Reach</th> <th style="text-align: center;">Concentration-based Conditional WLA for Chloride (mg/L)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">4B</td> <td style="text-align: center;">117 (3-month Average), 230 (Daily Maximum)</td> </tr> <tr> <td style="text-align: center;">4B Critical Conditions</td> <td style="text-align: center;">130^a (3-month Average^b), 230 (Daily Maximum)</td> </tr> </tbody> </table> <p>a. The Conditional WLA under critical conditions shall apply only if the following conditions and implementation requirements are met:</p> <ol style="list-style-type: none"> 1. Water supply chloride concentrations measured in Castaic Lake are ≥ 80 mg/L. 	Reach	Concentration-based Conditional WLA for Chloride (mg/L)	4B	117 (3-month Average), 230 (Daily Maximum)	4B Critical Conditions	130 ^a (3-month Average ^b), 230 (Daily Maximum)
Reach	Concentration-based Conditional WLA for Chloride (mg/L)						
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Element	<p>Table 7-6.1. Upper Santa Clara River Chloride TMDL Elements</p> <p style="text-align: center;">Santa Clara River Chloride</p>
	<p>2. SCVSD shall provide supplemental water to salt-sensitive agricultural uses that are irrigated with surface water during periods when Reach 4B surface water exceeds 117 mg/L.</p> <p>3. By May 4, 2020, the 10-year cumulative net chloride loading above 117 mg/L (CNCl₁₁₇)ⁱ to Reach 4B of the SCR, calculated annually, from the Saugus and Valencia WRPs shall be zero or less.</p> <p>ⁱ CNCl₁₁₇ = Cl_(Above 117) - Cl_(Below 117) - Cl_(Export Ews)</p> <p>Where:</p> <p>Cl_(Above 117) = [WRP Cl Load¹/Reach 4B Cl Load²] * [Reach 4B Cl Load_{>117}³]</p> <p>Cl_(Below 117) = [WRP Cl Load¹/Reach 4B Cl Load²] * [Reach 4B Cl Load_{≤117}⁴]</p> <p>Cl_(Export EWs) = Cl Load Removed by Extraction Wells</p> <p>¹ WRP Cl Load is determined as the monthly average Cl concentration multiplied by the monthly average flow measured at the Valencia WRP.</p> <p>² Reach 4B Cl Load is determined as the monthly average Cl concentration at SCVSD Receiving Water Station RF multiplied by the monthly average flow measured at USGS Gauging Station 11109000 (Las Brisas Bridge).</p> <p>³ Reach 4B Cl Load_{>117} means the calculated Cl load to Reach 4B when monthly average Cl concentration in Reach 4B is above 117 mg/L.</p> <p>⁴ Reach 4B Cl Load_{≤117} means the calculated Cl load to Reach 4B when monthly average Cl concentration in Reach 4B is below or equal to 117 mg/L.</p> <p>4. The chief engineer of the SCVSD signs under penalty of perjury and submits to the Regional Board a letter documenting the fulfillment of conditions 1, 2, and 3.</p> <p>b. The averaging period for the critical condition WLA may be reconsidered based on results of chloride trend monitoring after the conditional WLAs of this TMDL are implemented.</p>

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	<p>Discharges to Reaches 5 and 6 by the Saugus and Valencia WRPs will have final concentration-based and mass-based conditional WLAs for chloride based on conditional SSOs as follows:</p> <table border="1" data-bbox="487 546 1472 966"> <thead> <tr> <th data-bbox="487 546 682 735">WRP</th> <th data-bbox="682 546 1071 735">Concentration-based Conditional WLA for Chloride (mg/L)</th> <th data-bbox="1071 546 1472 735">Mass-based Conditional WLA for Chloride (pounds/day)</th> </tr> </thead> <tbody> <tr> <td data-bbox="487 735 682 819">Saugus</td> <td data-bbox="682 735 1071 819">150 (12-month Average), 230 (Daily Maximum)</td> <td data-bbox="1071 735 1472 819">$Q_{Design} * 150 \text{ mg/L} * 8.34$ (12-month Average)</td> </tr> <tr> <td data-bbox="487 819 682 966">Valencia</td> <td data-bbox="682 819 1071 966">150 (12-month Average), 230 (Daily Maximum)</td> <td data-bbox="1071 819 1472 966">$Q_{Design} * 150 \text{ mg/L} * 8.34 - AF_{RO}$ (12-month Average)</td> </tr> </tbody> </table> <p>Where Q_{design} is the design capacity of WRPs in units of million gallons per day (MGD), AF_{RO} is the chloride mass loading adjustment factor for operation of reverse osmosis (RO) facilities, where:</p> <p>If RO facilities are operated at $\geq 50\%$ Capacity Factor^a in preceding 12 months</p> $AF_{RO} = 0$ <p>If RO facilities are operated at $< 50\%$ Capacity Factor^b in preceding 12 months</p> $AF_{RO} = (50\% \text{ Capacity Factor} - \%RO \text{ Capacity}) * ChlorideLoadRO^c$ <p>^a Capacity Factor is based on 3 MGD of recycled water treated with RO, 90% of the time.</p> <p>^b If operation of RO facilities at $< 50\%$ rated capacity is the result of conditions that are outside the control of SCVSD, then under the discretion of the Executive Officer of the Regional Board, the AF_{RO} may be set to 0.</p> <p>^c Chloride load reduction is based on operation of a RO treatment plant treating 3 MGD of recycled water with chloride concentration of 50 mg/L + Water Supply Chloride. Assumes operational capacity factor of 90% and RO membrane chloride</p>		WRP	Concentration-based Conditional WLA for Chloride (mg/L)	Mass-based Conditional WLA for Chloride (pounds/day)	Saugus	150 (12-month Average), 230 (Daily Maximum)	$Q_{Design} * 150 \text{ mg/L} * 8.34$ (12-month Average)	Valencia	150 (12-month Average), 230 (Daily Maximum)	$Q_{Design} * 150 \text{ mg/L} * 8.34 - AF_{RO}$ (12-month Average)
WRP	Concentration-based Conditional WLA for Chloride (mg/L)	Mass-based Conditional WLA for Chloride (pounds/day)									
Saugus	150 (12-month Average), 230 (Daily Maximum)	$Q_{Design} * 150 \text{ mg/L} * 8.34$ (12-month Average)									
Valencia	150 (12-month Average), 230 (Daily Maximum)	$Q_{Design} * 150 \text{ mg/L} * 8.34 - AF_{RO}$ (12-month Average)									

Element	Table 7-6.1. Upper Santa Clara River Chloride TMDL: Elements Santa Clara River Chloride								
	<p>rejection rate of 95%. Determination of chloride load based on the following:</p> $ChlorideLoad_{RO} = 90\% \times [(Q_{RO} \times C_{WRP} \times 8.34) \times r] \times \left(\frac{30 \text{ Days}}{\text{Month}} \right)$ <p>Where: Q_{RO} = 3 MGD of recycled water treated with RO C_{WRP} = Chloride concentration in water supply + 50 mg/L r = % Reverse Osmosis chloride rejection (95% or 0.95) 8.34 = Conversion factor (ppd/(mg/L*MGD))</p> <p>The final WLAs for TDS and sulfate are equal to existing surface water and groundwater quality objectives for TDS and sulfate in Tables 3-8 and 3-10 of the Basin Plan. The Regional Board may revise the final WLAs based on review of trend monitoring data as detailed in the monitoring section of this Basin Plan amendment.</p> <p>Other minor NPDES discharges (as defined in Table 4-1 of the Basin Plan) receive conditional WLAs. The conditional WLA for these point sources is as follows:</p> <table border="1" data-bbox="646 1108 1274 1640"> <thead> <tr> <th>Reach</th> <th>Concentration-based Conditional WLA for Chloride (mg/L)</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>150 (12-month Average), 230 (Daily Maximum)</td> </tr> <tr> <td>5</td> <td>150 (12-month Average), 230 (Daily Maximum)</td> </tr> <tr> <td>4B</td> <td>117 (3-month Average), 230 (Daily Maximum)</td> </tr> </tbody> </table> <p>Other major NPDES discharges (as defined in Table 4-1 of the Basin Plan) receive WLAs equal to 100 mg/L. The Regional Board may consider assigning conditional WLAs to other major dischargers based on an analysis of the downstream increase in net chloride loading to surface water and groundwater as a result of implementation of conditional WLAs.</p>	Reach	Concentration-based Conditional WLA for Chloride (mg/L)	6	150 (12-month Average), 230 (Daily Maximum)	5	150 (12-month Average), 230 (Daily Maximum)	4B	117 (3-month Average), 230 (Daily Maximum)
Reach	Concentration-based Conditional WLA for Chloride (mg/L)								
6	150 (12-month Average), 230 (Daily Maximum)								
5	150 (12-month Average), 230 (Daily Maximum)								
4B	117 (3-month Average), 230 (Daily Maximum)								
Load Allocation	The source analysis indicates nonpoint sources are not a major source of								

Element	Table 7-6.1. Upper Santa Clara River Chloride TMDL: Elements Santa Clara River Chloride								
<i>(for non point sources)</i>	<p>chloride. The conditional LAs for these nonpoint sources are as below:</p> <table border="1" data-bbox="625 430 1339 919"> <thead> <tr> <th data-bbox="625 430 787 525">Reach</th> <th data-bbox="787 430 1339 525">Concentration-based Conditional LA for Chloride (mg/L)</th> </tr> </thead> <tbody> <tr> <td data-bbox="625 525 787 661">6</td> <td data-bbox="787 525 1339 661">150 (12-month Average), 230 (Daily Maximum)</td> </tr> <tr> <td data-bbox="625 661 787 798">5</td> <td data-bbox="787 661 1339 798">150 (12-month Average), 230 (Daily Maximum)</td> </tr> <tr> <td data-bbox="625 798 787 919">4B</td> <td data-bbox="787 798 1339 919">117 (3-month Average), 230 (Daily Maximum)</td> </tr> </tbody> </table> <p>The conditional LAs shall apply only when chloride load reductions and/or chloride export projects are in operation by the SCVSD according to the implementation section in Table 7-6.1. If these conditions are not met, LAs are based on existing water quality objectives of 100 mg/L.</p>	Reach	Concentration-based Conditional LA for Chloride (mg/L)	6	150 (12-month Average), 230 (Daily Maximum)	5	150 (12-month Average), 230 (Daily Maximum)	4B	117 (3-month Average), 230 (Daily Maximum)
Reach	Concentration-based Conditional LA for Chloride (mg/L)								
6	150 (12-month Average), 230 (Daily Maximum)								
5	150 (12-month Average), 230 (Daily Maximum)								
4B	117 (3-month Average), 230 (Daily Maximum)								

Implementation

Refer to Table 7-6.2.

Implementation of Upper Santa Clara River Conditional Site Specific Objectives for Chloride

In accordance with Regional Board resolution 97-002, the Regional Board and stakeholders have developed an integrated watershed plan to address chloride impairments and protect beneficial uses of surface waters and groundwater basins underlying Reaches 4B, 5, and 6 of the Santa Clara River. The plan involves: 1) Reducing chloride loads and/or increasing chloride exports from the USCR watershed through implementation of advanced treatment (RO) of a portion of the effluent from the Valencia WRP. The advanced treated effluent will be discharged into Reach 4B or blended with extracted groundwater from the Piru Basin underlying Reach 4B and discharged into Reach 4A. The resultant brine from the advanced treatment process will be disposed in a legal and environmentally sound manner. 2) Implementing the conditional SSOs for chloride in surface waters and underlying groundwater basins of the USCR watershed provided in Chapter 3.

The watershed chloride reduction plan will be implemented through NPDES permits for the Valencia WRP and a new NPDES permit for discharge into Reach 4A. The conditional SSOs for chloride in the USCR watershed shall apply and supersede the regional water quality objectives only when chloride load reductions and/or chloride export projects are in operation and reduce chloride loading in accordance with the following table:

Water Supply Chloride ¹	Chloride Load Reductions ²
40 mg/L	58,000 lbs per month
50 mg/L	64,000 lbs per month
60 mg/L	71,000 lbs per month
70 mg/L	77,000 lbs per month
80 mg/L	83,000 lbs per month
90 mg/L	90,000 lbs per month
100 mg/L	96,000 lbs per month

¹ Based on measured chloride of the State Water Project (SWP) water stored in Castaic Lake.

² Chloride load reduction is based on operation of a RO treatment plant treating 3 MGD of recycled water with chloride concentration of 50 mg/L + Water Supply Chloride. Assumes operational capacity factor of 90% and RO membrane chloride rejection rate of 95%. Determination of

chloride load based on the following:

$$\text{ChlorideLoad} = 90\% \times [(Q_{RO} \times C_{WRP} \times 8.34) \times r] \times \left(\frac{30 \text{ Days}}{\text{Month}} \right)$$

where r = % chloride rejection (95%)

Q_{RO} = 3 MGD of recycled water treated

with RO

C_{WRP} = SWP Cl + 50 mg/L

Conditional WLAs

Conditional WLAs for the Saugus and Valencia WRPs will be implemented through effluent limits, receiving water limits and monitoring requirements in NPDES permits. Conditional WLAs for Reach 4B will be implemented as receiving water limits. Conditional WLAs for Reaches 5 and 6 will be implemented as effluent limits.

The implementation plan proposes that during the period of TMDL implementation, compliance for the WRPs' effluent limits will be evaluated in accordance with interim WLAs.

Saugus WRP:

The interim WLA for chloride is equal to the interim limit for chloride specified in order No. R4-04-004. The interim WLA for TDS is 1000 mg/L as an annual average. The interim WLA for sulfate is 450 mg/L as an annual average. These interim WLAs shall apply as interim end-of-pipe effluent limits, interim groundwater limits, and interim limits in the Non-NPDES WDR for recycled water uses from the Saugus WRP instead of existing water quality objectives.

Valencia WRP:

The interim WLA for chloride is equal to the interim limit for chloride specified in order No. R4-04-004. The interim WLA for TDS is 1000 mg/L as an annual average. The interim WLA for sulfate is 450 mg/L as an annual average. These interim WLAs shall apply as interim end-of-pipe effluent limits, interim groundwater limits, and interim limits in the Non-NPDES WDR for recycled water uses from the Valencia WRP instead of existing water quality objectives.

Other Major NPDES Permits (including Newhall Ranch WRP):

The Regional Board may consider assigning conditional WLAs for other major NPDES permits, including the Newhall Ranch WRP, pending implementation of a chloride mass removal quantity that is proportional to

	<p>mass based chloride removal required for the Valencia WRP.</p> <p><u>Supplemental Water released to Reach 6 of Santa Clara River:</u></p> <p>In order to accommodate the discharge of supplemental water to Reach 6, interim WLAs are provided for sulfate of 450 mg/L and TDS of 1000 mg/L as annual averages. The final WLAs are equal to the existing water quality objectives for sulfate and TDS in Table 3-8 of the Basin Plan. The Regional Board may revise the final WLA based on review of trend monitoring data as detailed in the monitoring section of this Basin Plan amendment.</p>
<p><i>Monitoring</i></p>	<p>NPDES monitoring: NPDES Permittees will conduct chloride, TDS, and sulfate monitoring to ensure that water quality objectives are being met.</p> <p>Trend monitoring: The SCVSD will submit a monitoring plan to conduct chloride, TDS, and sulfate trend monitoring to ensure that the goal of chloride export in the watershed is being achieved, water quality objectives are being met, and downstream groundwater and surface water quality is not degraded due to implementation of compliance measures. The SCVSD monitoring plan shall include plans to monitor chloride, TDS, and sulfate in groundwater and identify representative wells to be approved by the Regional Board Executive Officer in the following locations: (a) Shallow alluvium layer in east Piru Basin, (b) San Pedro Formation in east Piru Basin, and (c) groundwater basins under Reaches 5 and 6, which shall be equivalent or greater than existing groundwater monitoring required by NPDES permits for Saugus and Valencia WRPs. The monitoring plan shall also include a plan for chloride, TDS, and sulfate trend monitoring for surface water for Reaches 4B, 5 and 6. The monitoring plan shall include plans to monitor chloride, TDS, and sulfate at a minimum of once per quarter for groundwater and at a minimum of once per month for surface water. The plan should propose a monitoring schedule that extends beyond the completion date of this TMDL to evaluate impacts of compliance measures to downstream groundwater and surface water quality. This TMDL shall be reconsidered if chloride, TDS, and sulfate trend monitoring indicates degradation of groundwater or surface water due to implementation of compliance measures.</p> <p>Trend monitoring: The Reach 4A Permittee will submit a monitoring plan to conduct chloride, TDS, and sulfate trend monitoring to ensure that the goal of chloride export in the watershed is being achieved, water quality objectives are being met, and downstream groundwater and surface water quality is not degraded due to implementation of compliance measures. The Reach 4A permittee monitoring plan shall include plans to monitor chloride, TDS, and sulfate in groundwater and identify representative wells to be approved by the Regional Board Executive Officer in the</p>

	<p>following locations (a) Fillmore Basin, and (b) Santa Paula Basin. The monitoring plan shall also include a plan for chloride, TDS, and sulfate trend monitoring for surface water for Reaches 3 and 4A. The monitoring plan should include plans to monitor chloride, TDS, and sulfate at a minimum of once per quarter for groundwater and at a minimum of once per month for surface water. The plan should propose a monitoring schedule that shall extend beyond the completion date of this TMDL to evaluate impacts of compliance measures to downstream groundwater and surface water quality. This TMDL shall be reconsidered if chloride, TDS, and sulfate trend monitoring indicates degradation of groundwater or surface water due to implementation of compliance measures.</p>
<p><i>Margin of Safety</i></p>	<p>An implicit margin of safety is incorporated through conservative model assumptions and chloride mass balance analysis. The model is an integrated groundwater surface water model which shows that chloride discharged from the WRPs accumulates in the east Piru Basin. Further mass balance analysis shows that the chloride mass removed from the Piru Basin exceeds the chloride loaded into the Piru Basin from implementation of the conditional SSOs.</p>
<p><i>Seasonal Variations and Critical Conditions</i></p>	<p>During dry weather conditions, less surface flow is available to dilute effluent discharge, groundwater pumping rates for agricultural purposes are higher, groundwater discharge is lower, poorer quality groundwater may be drawn into the aquifer, and evapotranspiration effects are greater than in wet weather conditions. During drought, reduced surface flow and increased groundwater extraction continues through several seasons with greater impacts on groundwater resources and discharges. Dry and critically dry periods affecting the Sacramento and San Joaquin River Valleys reduce fresh-water flow into the Sacramento-San Joaquin Delta and result in higher than normal chloride concentrations in the State Water Project supply within the California aqueduct system. These increased chloride levels are transferred to the upper Santa Clara River. This critical condition is defined as when water supply concentrations measured in Castaic Lake are ≥ 80 mg/L.</p> <p>These critical conditions were included in the GSWI model to determine appropriate allocations and implementation scenarios for the TMDL.</p>

<p>Table 7-6.2. Upper Santa Clara River Chloride TMDL Implementation</p> <p>Implementation Tasks</p>	<p>Completion Date</p>
<p>1. Alternate Water Supply</p> <p>a) Should (1) the in-river concentration at Blue Cut, the Reach 4B boundary, exceed the conditional SSO of 117 mg/L, measured for the purposes of this TMDL as a rolling three-month average, (2) each agricultural diverter provide records of the diversion dates and amounts to the Regional Board and Santa Clarita Valley County Sanitation Districts of Los Angeles County (SCVSD) for at least 2 years after the effective date of the TMDL and (3) each agricultural diverter provides photographic evidence that diverted water is applied to avocado, strawberry or other chloride sensitive crop and evidence of a water right to divert, then the SCVSD will be responsible for providing an alternative water supply, negotiating the delivery of alternative water by a third party, or providing fiscal remediation to be quantified in negotiations between the SCVSD and the agricultural diverter at the direction of the Regional Water Quality Control Board until such time as the in-river chloride concentrations do not exceed the conditional SSO.</p> <p>b) Should the instream concentration exceed 230 mg/L more than two times in the three year period, the discharger identified by the Regional Board Executive Officer shall be required to submit, within ninety days of a request by the Regional Board Executive Officer, a workplan for an accelerated schedule to reduce chloride discharges.</p>	<p>Effective Date of TMDL (05/04/2005)</p>
<p>2. Progress reports will be submitted by the SCVSD to Regional Board staff on a semiannual basis from the effective date of the TMDL for tasks 4, 6, and 7, and on an annual basis for Tasks 5 and 11.</p> <p>Progress reports will be submitted by the Reach 4A Permittee to Regional Board staff on an annual basis for Task 12.</p>	<p>Semiannually and annually</p>
<p>3. Chloride Source Identification/Reduction, Pollution Prevention and Public Outreach Plan: Six months after the effective date of the TMDL, the SCVSD will submit a plan to the Regional Board that addresses measures taken and planned to be taken to quantify and control sources of chloride, including, but not limited to: execute community-wide outreach programs, which were developed based on the pilot outreach efforts conducted by the SCVSD, assess potential incentive/disincentive programs for residential self-regenerating water softeners, and other measures that may be effective in</p>	<p>6 months after Effective Date of TMDL (11/04/2005)</p>

Table 7-6.2. Upper Santa Clara River Chloride TMDL Implementation	Completion Date
Implementation Tasks	
<p>controlling chloride. The SCVSD shall develop and implement the source reduction/pollution prevention and public outreach program, and report results annually thereafter to the Regional Board. Chloride sources from imported water supplies will be assessed. The assessment will include conditions of drought and low rainfall, and will analyze the alternatives for reducing this source.</p>	
<p>4. The SCVSD will convene a technical advisory committee or committees (TAC(s)) in cooperation with the Regional Board to review literature develop a methodology for assessment, and provide recommendations with detailed timelines and task descriptions to support any needed changes to the time schedule for evaluation of appropriate chloride threshold for Task 6. The Regional Board, at a public hearing will re-evaluate the schedule for Task 6 and subsequent linked tasks based on input from the TAC(s), along with Regional Board staff analysis and assessment consistent with state and federal law, as to the types of studies needed and the time needed to conduct the necessary scientific studies to determine the appropriate chloride threshold for the protection of salt sensitive agricultural uses, and will take action to amend the schedule if there is sufficient technical justification.</p>	<p>12 months after Effective Date (05/04/2006)</p>
<p>5. Groundwater/Surface Water Interaction Model: The SCVSD will solicit proposals, collect data, develop a model in cooperation with the Regional Board, obtain peer review, and report results. The impact of source waters and reclaimed water plans on achieving the water quality objective and protecting beneficial uses, including impacts on underlying groundwater quality, will also be assessed and specific recommendations for management developed for Regional Board consideration. The purpose of the modeling and sampling effort is to determine the interaction between surface water and groundwater as it may affect the loading of chloride from groundwater and its linkage to surface water quality.</p>	<p>2.5 years after Effective Date of TMDL (11/20/2007)</p>
<p>6. Evaluation of Appropriate Chloride Threshold for the Protection of Sensitive Agricultural Supply Use and Endangered Species Protection: The SCVSD will prepare and submit a report on endangered species protection thresholds. The SCVSD will also prepare and submit a report presenting the results of the evaluation of chloride thresholds for salt sensitive agricultural uses, which shall consider the impact of drought and low rainfall conditions and the associated increase in imported water concentrations on downstream crops utilizing the result of Task 5.</p>	<p>2.5 years after Effective Date of TMDL (11/20/2007)</p>

Table 7-6.2: Upper Santa Clara River Chloride TMDL Implementation Implementation Tasks	Completion Date
<p>7. Develop SSO for Chloride for Sensitive Agriculture: The SCVSD will solicit proposals and develop technical analyses upon which the Regional Board may base a Basin Plan amendment.</p> <p>8. Develop Anti-Degradation Analysis for Revision of Chloride Objective by SSO: The SCVSD will solicit proposals and develop draft anti-degradation analysis for Regional Board consideration.</p> <p>9. Develop a pre-planning report on conceptual compliance measures to meet different hypothetical final conditional wasteload allocations. The SCVSD shall solicit proposals and develop and submit a report to the Regional Board that identifies potential chloride control measures and costs based on different hypothetical scenarios for chloride SSOs and final conditional wasteload allocations.</p>	<p>2.8 years after Effective Date of TMDL (02/20/2008)</p>
<p>10. a) Preparation and Consideration of a Basin Plan Amendment (BPA) to revise the chloride objective by the Regional Board.</p> <p>b) Evaluation of Alternative Water Supplies for Agricultural Beneficial Uses: The SCVSD will quantify water needs, identify alternative water supplies, evaluate necessary facilities, and report results, including the long-term application of this remedy.</p> <p>c) Analysis of Feasible Compliance Measures to Meet Final Conditional Wasteload Allocations for Proposed Chloride Objective. The SCVSD will assess and report on feasible implementation actions to meet the chloride objective established pursuant to Task 10a).</p> <p>d) Reconsideration of and action taken on the Chloride TMDL and Final Conditional Wasteload Allocations for the Upper Santa Clara River by the Regional Board.</p>	<p>3.5 years after Effective Date of TMDL (12/11/2008)</p>
<p>11. Trend monitoring: The SCVSD will submit a monitoring plan to conduct chloride, TDS, and sulfate trend monitoring to ensure that the goal of chloride export in the watershed is being achieved, water quality objectives are being met, and downstream groundwater and surface water quality is not degraded due to implementation of compliance measures. The SCVSD monitoring plan shall include plans to monitor chloride, TDS, and sulfate in groundwater and identify representative wells to be approved by the Regional Board Executive Officer, in the following locations: (a) Shallow alluvium layer in east Piru Basin, (b) San Pedro Formation in east Piru Basin,</p>	<p>4 years after Effective Date of TMDL (05/04/2009)</p>

Table 7-6.2. Upper Santa Clara River Chloride TMDL Implementation Implementation Tasks	Completion Date
<p>and (c) groundwater basins under Reaches 5 and 6, which shall be equivalent or greater than existing groundwater monitoring required by NPDES permits for Saugus and Valencia WRPs. The monitoring plan shall also include a plan for chloride, TDS, and sulfate trend monitoring for surface water for Reaches 4B, 5 and 6. The monitoring plan shall include plans to monitor chloride, TDS, and sulfate at a minimum of once per quarter for groundwater and at a minimum of once per month for surface water. The plan should propose a monitoring schedule that extends beyond the completion date of this TMDL to evaluate impacts of compliance measures to downstream groundwater and surface water quality. This TMDL shall be reconsidered if chloride, TDS, and sulfate trend monitoring indicates degradation of groundwater or surface water due to implementation of compliance measures.</p>	
<p>12. Trend monitoring: The Reach 4A Permittee will submit a monitoring plan to conduct chloride, TDS, and sulfate trend monitoring to ensure that the goal of chloride export in the watershed is being achieved, water quality objectives are being met, and downstream groundwater and surface water quality is not degraded due to implementation of compliance measures. The Reach 4A permittee monitoring plan shall include plans to monitor chloride, TDS, and sulfate in groundwater and identify representative wells to be approved by the Regional Board Executive Officer in the following locations (a) Fillmore Basin, and (b) Santa Paula Basin. The monitoring plan shall also include a plan for chloride, TDS, and sulfate trend monitoring for surface water for Reaches 3 and 4A. The monitoring plan should include plans to monitor chloride, TDS, and sulfate at a minimum of once per quarter for groundwater and at a minimum of once per month for surface water. The plan should propose a monitoring schedule that shall extend beyond the completion date of this TMDL to evaluate impacts of compliance measures to downstream groundwater and surface water quality. This TMDL shall be reconsidered if chloride, TDS, and sulfate trend monitoring indicates degradation of groundwater or surface water due to implementation of compliance measures.</p>	Submitted with permit application
<p>13. Begin monitoring per approved SVCSD monitoring plan completed in Task 11.</p>	One year after Executive Officer approval of Task 11 monitoring plan for SCVSD

<p>Table 7-6.2. Upper Santa Clara River Chloride TMDL Implementation</p> <p>Implementation Tasks</p>	<p>Completion Date</p>
<p>14. Begin monitoring per approved Reach 4A Permittee monitoring plan.</p>	<p>One year after Executive Officer approval of Task 12 monitoring plan for Reach 4A Permittee</p>
<p>15. a) Implementation of Compliance Measures, Planning: The SCVSD shall submit a report of planning activities which include but are not limited to: (1) identifying lead state/federal agencies; (2) administering a competitive bid process for the selection of EIR/EIS and Engineering Consultants; (3) Development of Preliminary Planning and Feasibility Analyses; (4) Submittal of Project Notice of Preparation/Notice of Intent; (5) Preparation of Draft Wastewater Facilities Plan and Programmatic EIR; (6) Administration of Public Review and Comment Periods; (7) Development of Final Wastewater Facilities Plan and Programmatic EIR and incorporation and response to comments; (8) Administration of final public review and certification process; and (9) Filing a Notice of Determination and Record of Decision.</p> <p>b) Implementation of Compliance Measures, Planning: The SCVSD shall provide a schedule of related tasks and subtasks related to Task 15a), and provide semi-annual progress reports on progress of planning activities, thereafter, until completion of Final Wastewater Facilities Plan and Programmatic EIR.</p>	<p>5 years after Effective Date of TMDL (05/04/2010)</p> <p>5 years after Effective Date of TMDL (05/04/2010)</p>
<p>16. The Regional Board staff will re-evaluate the schedule to implement control measures needed to meet final conditional WLAs adopted pursuant to Task 10 d) and the schedule for Task 17. The Regional Board, at a public meeting will consider extending the completion date of Task 17 and reconsider the schedule to implement control measures to meet final conditional WLAs adopted pursuant to Task 10 d). The SCVSD will provide the justification for the need for an extension to the Regional Board Executive Officer at least 6 months in advance of the deadline for this task.</p>	<p>6 years after Effective Date of TMDL (05/04/2011)</p>
<p>17. a) Implementation of Compliance Measures, Complete Environmental Impact Report: The SCVSD shall complete a Wastewater Facilities Plan and Programmatic Environmental Impact Report for facilities to comply with final effluent permit limits for chloride.</p> <p>b) Implementation of Compliance Measures, Engineering Design:</p>	<p>6 years after Effective Date of TMDL (05/04/2011)</p> <p>6 years after</p>

Table 7-6.2. Upper Santa Clara River Chloride TMDL Implementation	Completion Date
Implementation Tasks	
<p>The SCVSD will begin the engineering design of the recommended project wastewater facilities.</p> <p>c) Implementation of Compliance Measures, Engineering Design: The SCVSD will provide a design schedule of related tasks and sub-tasks, and provide semi-annual progress reports on progress of design activities, thereafter, until completion of Final Design. In addition the SCVSD will provide a construction schedule of related tasks and sub-tasks, and provide semi-annual progress reports on progress of construction activities, thereafter, until completion of recommended project wastewater facilities.</p> <p>d) Implementation of Compliance Measures, Construction: The SCVSD shall have applied and received all appropriate permits and have completed construction of the recommended project wastewater facilities.</p> <p>e) Implementation of Compliance Measures, Start-Up: The SCVSD shall have completed start-up, testing and certification of the recommended project wastewater facilities.</p>	<p>Effective Date of TMDL (05/04/2011)</p> <p>7 years after Effective Date of TMDL (05/04/2012)</p> <p>9.5 years after Effective Date of TMDL (11/04/2014)</p> <p>10 years after Effective Date of TMDL (05/04/2015)</p>
<p>18. The Regional Board Executive Officer may consider conditional SSOs for TDS and sulfate for Reaches 4B, 5, and 6 based on results of groundwater-surface water interaction studies on accumulation of TDS and sulfate in groundwater, potential impacts to beneficial uses, and an anti-degradation analysis.</p>	<p>7 years after Effective Date of TMDL (05/04/2012)</p>
<p>19. The Regional Board staff will re-evaluate the schedule to implement control measures needed to meet final conditional WLAs adopted pursuant to Task 10 d) and the schedule for Task 17. The Regional Board, at a public meeting will consider extending the completion of Task 17 and reconsider the schedule to implement control measures to meet final conditional WLAs adopted for chloride pursuant to Task 10 d). The SCVSD will provide the justification for the need for an extension to the Regional Board Executive Officer at least 6 months in advance of the deadline for this task. The Regional Board will also consider conditional SSOs and final conditional WLAs for TDS and sulfate based on results of Task 18.</p>	<p>9.5 years after Effective Date of TMDL (11/04/2014)</p>
<p>20. The interim WLAs for chloride shall remain in effect for no more</p>	<p>10 years after</p>

Table 7-6.2. Upper Santa Clara River Chloride TMDL Implementation Implementation Tasks	Completion Date
<p>than 10 years after the effective date of the TMDL. Conditional SSO for chloride in the USCR shall be achieved. Final conditional WLAs for chloride in Reaches 4B, 5, and 6 shall apply by May 5, 2015. The Regional Board may consider extending the completion date of this task as necessary to account for events beyond the control of the SCVSD.</p>	<p>Effective Date of TMDL (05/04/2015)</p>
<p>21. The interim WLAs for TDS and sulfate contained in this BPA (Resolution No. R4-2008-012) shall be implemented no sooner than the effective date of this BPA, and shall remain in effect until May 4, 2015. Final WLAs shall apply by May 5, 2015 unless conditional SSOs and final conditional WLAs for TDS and sulfate are adopted as described in Task 19.</p>	<p>10 years after Effective Date of TMDL (05/04/2015)</p>