Technical Memorandum

Sunnyslope County Water District

Subject: **2018 Annual Salt Management Report**

Prepared For: Regional Water Quality Control Board

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Date: January 16, 2019

The purpose of this Technical Memorandum (TM) is to meet the Annual Salt Management Report requirements of the Regional Water Quality Control Board (RWQCB) Waste Discharge Requirement (WDR) Order No. R3-2004-0065 (December 3, 2004). Annual Salt Management Reports must be submitted by January 30th every year commencing in 2006. The report shall include, at a minimum:

a. Calculations of annual salt mass discharged to the wastewater treatment system and disposal ponds with an accompanying analysis of contributing sources;

b. Analysis of wastewater evaporation/salt concentration effects;

c. Analysis of groundwater monitoring results related to salt constituents;

d. Analysis of potential impacts of salt loading on the groundwater basin;

e. A summary of existing salt reduction measures; and,

f. Recommendations and time schedules for implementation of any additional salt reduction measures.

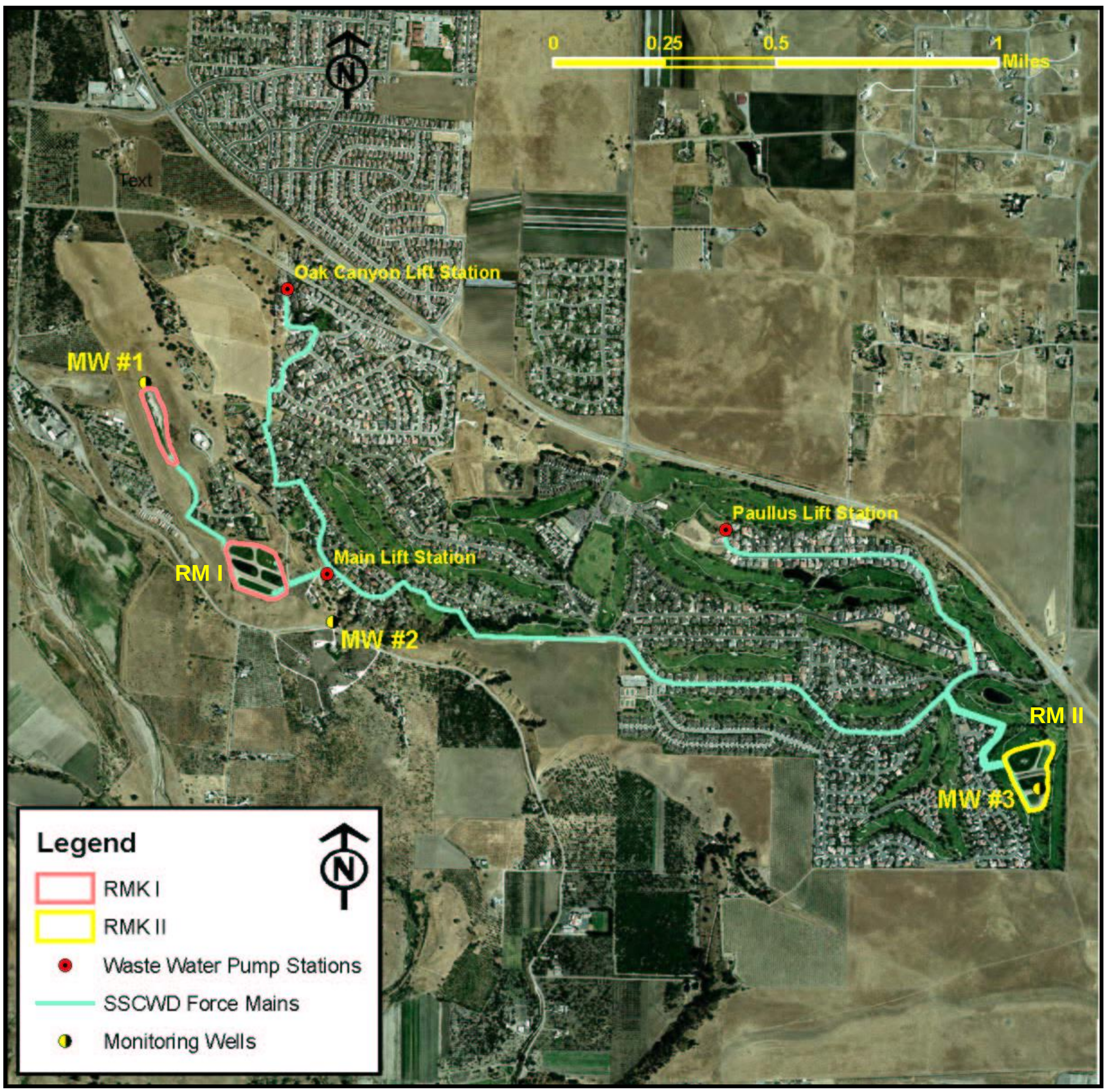
The TM is organized as follows:

1 Background

The Sunnyslope County Water District (SSCWD) in Hollister, California, operates one wastewater treatment plant (WWTP) (See Figure 1-1) that serve the residences and a few commercial businesses near the Ridgemark Golf Course. The facility is known as Ridgemark I WWTP (RM I). In prior years SSCWD operated a second facility known as Ridgemark II WWTP (RM II). The RM II facility was decommissioned in the third quarter of 2013 after completion of the new wastewater treatment facilities at RM I and was not in use in 2014 or following years.

Wastewater effluent from RM I and RMII historically have contained high salinity levels. Salinity concentrations in the potable water supply from groundwater wells for the service area were already relatively high and increased through normal municipal use. Salinity was further increased by the widespread use of residential water softeners in the service area which are used to reduce hardness in the water. Salt buildup in the groundwater basin is a concern and salinity management measures are necessary and being implemented to preserve the long-term beneficial use of groundwater in the region.

Figure 1-1: Ridgemark WWTP and Facilities



The new WDR permit, adopted in December 2004, includes a phased regulatory schedule to meet salinity water quality regulations. Beginning in January 2008, TDS, sodium, and chloride concentrations in the WWTP effluent were subject to WDR limits shown in Table 1-1. Stricter limits were phased in two years later to require the final concentration limits by January 30, 2010.

Table 1-1: Salinity Waste Discharge Requirements in 2008 and 2010

	30-Day Average Limitations (mg/L)		
Effective Date	Interim	January 30, 2008	January 30, 2010
TDS	No Limit	1,500	1,200
Sodium	No Limit	300	200
Chloride	No Limit	300	200

The 2018 average influent and effluent wastewater quality (See Table 1-2) meets the limits for TDS and sodium but still exceeds the January 2010 limit for chloride. Therefore, salinity management measures must continue to be implemented to meet WDR limits. This report will summarize the salt sources contributing to salinity in the wastewater effluent and will present salt management and reduction measures to address high salinity concentrations. Influent test results for November and December 2018 were not included in the annual average influent TDS, sodium, and chloride as District staff does not believe them to be accurate. Those reads are inconsistent with observed trends in influent salinity and also inconsistent in the relation between influent and effluent salinity. Such extreme deviation from historic trends lends suspicion to their accuracy.

Table 1-2: Existing 2018 Average Wastewater Quality

Parameter	RM I SBR Influent	RM I SBR Effluent
TDS (mg/L)	806	729
Sodium (mg/L)	211	199
Chloride (mg/L)	311	290

Data consists of 12 monthly sampling events from January 2018 through December 2018.

2 Salinity

The effluent from RM I has high concentrations of TDS, sodium, and chloride relative to the local potable water supply. This section highlights the sources of these salt constituents and summarizes the results of a mass balance analysis that was performed on the system.

2.1 Sources of Salt

High effluent salinity concentrations stem from three primary factors. The first is the base salinity in the potable supply. The second is normal municipal and industrial (M&I) contributions as water is used. And the third is operation of residential self-regenerating water softeners. The salinity concentration in the WWTP percolation ponds increases ever so slightly due to evaporation during warm weather periods, but this does not increase salt loading in the wastewater effluent. The contributions of each of these sources to concentrations observed in RM I effluent are documented below.

2.1.1 Water Supply

Groundwater from wells and surface water from the Lessalt surface water treatment plant are the source of potable water supply for the sanitary sewer service area served by RM I. Groundwater contains relatively high concentrations of salts and hardness, while treated surface water has lower concentrations of salts and hardness. Table 2.1 shows the average TDS, sodium, chloride, and hardness concentrations for groundwater. Since Treated wastewater ultimately percolates back into the groundwater basin, the groundwater salinity mass load passes through the water and wastewater systems and returns to the basin. Therefore, groundwater salinity does not contribute additional salt load to the basin, but simply cycles it. Surface water from the Lessalt WTP however does contribute to the salt loading as the water and salinity dissolved in it are imported from outside the basin.

Table 2-1: Existing 2018 Potable Water Quality

Constituent	Groundwater Concentration (mg/L)	Lessalt Surface Water Concentration (mg/L)	Proportional Mix Concentration (mg/L)
TDS	775	240	266
Total Hardness, $CaCO_3$	395	102	116
Sodium	132.5	50	54
Chloride	117.5	71	74

Source: 2018 SSCWD Water Quality Report using Wells for Groundwater & LESSALT WTP for Surface Water

2.1.2 Municipal Use and Water Softeners

A large amount of salt is added through customer use. Normal municipal use can add from 150-300 mg/l of TDS. Because of the high hardness of the groundwater supply, which had been the only supply before the 2014 Lessalt Upgrade and pipeline, there is still widespread utilization of residential water softeners, which act as a significant source of salt.

In 2018, the total TDS contribution from municipal use was approximately 551 mg/l based on the difference between source water quality data (255 mg/l from calculated Proportional Flow) and the influent water quality entering the WWTP (806 mg/l). This is above the normal salt contribution for standard domestic use and is reflective of the significant salinity impact of water softeners in the WWTP service area.

Water softeners remove the calcium and magnesium ions that are responsible for hardness. The water softener resin must be regenerated periodically through washing with a concentrated brine solution of sodium chloride or potassium chloride. This brine water is then discharged into the sewer system during regeneration cycles and adds a significant amount of salinity to the wastewater stream. Estimates of the amount of salinity added by water softener use can vary based on the hardness of the water, amount of water used, and the extent of water softener use in the area. The type of softener, its efficiency, and operational settings can also impact the regeneration frequency and result in higher salt loads to the WWTP.

Older water softeners generally have their regeneration cycles based off of a timer, in which the user sets a number of days between cycles regardless of the volume of water softened. This can significantly impact the efficiency of the softener as it may regenerate before it is necessary or too late allowing for harder water if there is a period of reduced or increased water use. Timer-based softeners can have efficiencies as low as 1,500 grains of hardness removed per pound of salt (1 grain = 17.1 mg/l hardness) for this reason. The newer Demand Initiated Regeneration (DIR) softeners are tied to actual water use and have efficiencies ranging from 2,000-3,350 grains of hardness removed per pound of salt.

However for both versions to operate efficiently, the source water hardness must remain the same as when the softener operational settings were programmed. The source water hardness for customers within the RM I service area has dropped substantially due to the Lessalt Upgrade and pipeline constructed in 2014 to provide primarily higher quality surface water to the area. Because many customer water softeners were set based off the groundwater hardness rather than the hardness of the surface water currently being provided, they are now operating at lowered efficiencies and regenerating more often than is necessary. An average water softener efficiency of 1,900 grains removed per pound of salt was estimated for Water Softener Analysis as it brought the final salinity calculation within reasonable range of observed testing. Simply reprogramming the water softener settings for the improved source water quality could significantly increase the efficiency and reduce salt loading.

To determine an estimate for the water softener component of added salinity, an analysis was performed using assumed values for the parameters listed in Table 2-2.

Table 2-2: Assumptions in the Water Softener Analysis

Parameter	Value
Potable Water Hardness [a]	116 mg/l as $CaCO_3$
Total % of households using water softeners [b]	75%
% of households using NaCl water softeners [b]	62%
% of household using KCl water softeners [b]	10%
% of households using off site regeneration [b]	3%
Household Indoor Use [c]	130 gpd
Average Water Softener Efficiency [d]	1,900 grains removed / lb. salt

a) Potable water hardness based on Proportional Mix from Table 2-1

b) Based on previous Annual Salt Management Reports and water softener removal rebates.

c) 159,291gpd (average daily wastewater flows plus 5% for indoor water use not discharged to the sewer) divided by 1230 accounts = 130gpd indoor use per day per account

d) Average water softener efficiency was adjusted so that calculated influent TDS would equal the actual influent TDS recorded.

According to the analysis, the estimated contribution to TDS from water softeners for the RM I service area is approximately 310 mg/l for 2018. **Error! Reference source not found.**3 reflects the relative c ontributions of sodium and chloride to the overall TDS addition with the proportional groundwater and surface water supply.

Table 2-3: Estimated Municipal Use Contributions for Salt Constituents and Comparison to Actual WWTP Influent When Using Groundwater as the Potable Water Supply

Parameter	Potable Water Concentrations (1) Footnote (a)	Est. Water Softener Contribution (2) Footnote (b)	Est. Normal M&I Use Contribution (3) Footnote (c)	Est. Wastewater Concentrations (1)+(2)+(3)	Actual 2018 RM I Average Influent Footnote (d)
TDS (mg/L)	266	310	230	806	806
Sodium (mg/L)	54	106	51	211	211
Chloride (mg/L)	74	182	55	311	311

a) Potable water quality data based on SSCWD biannual monitoring in 2018 of Wells 5 & 8 and Lessalt WTP.

b) Water softener contribution based upon assumptions in Table 2-2.

c) TDS, sodium, and chloride additions from normal M&I use was estimated to be 230mg/l, 51mg/l and 55mg/l respectively for Ridgemark I wastewater distribution area. Generally accepted TDS additions for normal M&I use range from 150 to 300mg/l so these estimates are reasonable.

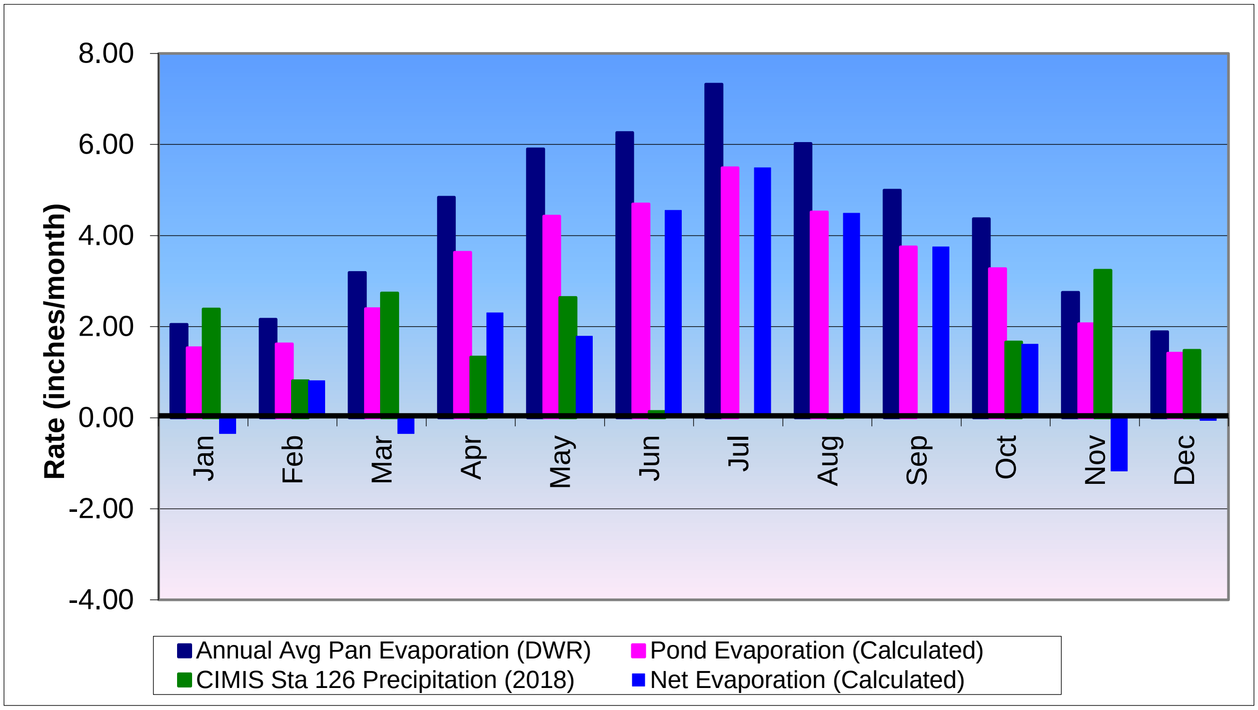
d) Actual 2018 WWTP average influent quality based upon RM I influent testing.

By providing a primarily surface water supply combined with customers' significant reductions in the use of brine discharging water softeners, the District has drastically improved wastewater effluent salinity. Wastewater effluent is now below the limit for both TDS and sodium. Concentrations of all salinity parameters have been reduced by over 50% since 2014 and continue trending downward. This leaves chloride as the only regulated effluent parameter not currently under the limit. However, in order to come into compliance with the 200 mg/l effluent limit for chloride the contributions from water softeners must still be reduced by nearly an additional 50%. It is likely that it will take time for the District's exerted education campaign to influence enough customers to adjust or discontinue using their self-regenerating water softeners. Nevertheless, if the current trend persists through the continued educational and outreach efforts, chlorides should come into compliance with the RWQCB requirements in 2021.

2.1.3 Evaporation Effects through Wastewater Treatment

Evaporation is a process that slightly increases salt concentrations of the wastewater effluent but it does not impact the salt load. The wastewater treatment basins and effluent percolation ponds for RM I are open to the atmosphere allowing evaporation to occur and potentially raising salinity levels through a concentrating effect. The effect of evaporation is dependent on climate and surface area of the open water body. Historic pan evaporation rates, estimated pond evaporation rates, precipitation rates, and net evaporation are shown in Figure 2-1. Pond evaporation is assumed at 75% if the pan evaporation rates.

Figure 2-1: Evaporation and Precipitation Data



Sources: Pan Evaporation Data from DWR Bulletin 73-79 for the Hollister Costa Station 1962-1966
2018 Precipitation Data from CIMIS Station #126 at SBCWD Office in Hollister, CA

Table 2-3 summarizes the monthly TDS concentrations for the influent to and effluent from the wastewater treatment plant at RM I. Correlating influent and effluent TDS concentrations measured for a given month does not provide a meaningful comparison due to the variations in influent wastewater TDS and the hydraulic detention times of the treatment basins.

Historically, evaporation was mistakenly thought to be a major contributor to the high salinity concentrations of the wastewater effluent. Since February 2005, RM I influent TDS has been measured using a composite sampler. TDS was generally measured in the range of 710-930 mg/l for 2018. The variation in historic influent TDS levels compared to 2018 measurements by composite sampling is representative of the understanding that water softener regeneration occurs at night (grab samples during the day did not capture water softener discharges). Additionally, the relatively small surface areas of the open water bodies in the percolation ponds do not allow for enough water to be evaporated to have any effect on effluent salinity concentrations. According to the District's *2018 Annual Engineering Technical Report* of the 170 acre feet of wastewater treated in 2018, less than 0.8 acre feet evaporated from the percolation ponds.

The 2018 influent and effluent TDS data in Table 2-3 shows that with the new treatment plant, evaporation is not a contributor to the effluent TDS. The 2018 average influent TDS was 806 mg/liter, as shown in Table 2-3, for a final disposal salinity of approximately 729 mg/liter. This is a 77 mg/liter decrease of from the Ridgemark influent to the pond disposal effluent, whereas if evaporation played a significant role the TDS concentration should increase.

Table 2-3: 2018 Average Influent and Effluent TDS Concentrations

Month	RM I SBR Influent TDS (mg/L)	RM I SBR Effluent TDS (mg/L)
Jan-18	930	790
Feb-18	750	720
Mar-18	710	670
Apr-18	840	760
May-18	770	740
Jun-18	860	780
Jul-18	800	740
Aug-18	790	730
Sep-18	860	730
Oct-18	750	710
Nov-18	540*	690
Dec-18	540*	690
Average	**806**	**729**

*Staff does not believe Nov. & Dec. 2018 influent readings are accurate and were not included in average

2.1.4 Summary of Salinity Contributions to RM I Final Effluent

TDS concentrations are high in the potable ground water supply for the service area at approximately 775 mg/l. Lessalt Surface water TDS concentration is approximately 240 mg/l. The 2018 influent flow was 4.9% groundwater and 95.1% surface water. As this water is utilized in the service area, salinity concentrations increase through normal M&I use and through the regeneration of water softeners. After use, the water is discharged to the sewer collection system. Influent wastewater to RM I has TDS concentrations of 710-930 mg/l. Evaporation is a miniscule element of the salinity concentration issue and does not increase salt mass load percolated into the basin.

2.2 Salt Mass Balance

Salt concentrations from Table 1-2 in conjunction with 2018 average flows from RM I (4.9% groundwater and 95.1% surface water) were used to estimate salinity mass loads. The existing groundwater salinity contributes to a baseline salt load in the wastewater effluent of about 8.7 tons per year which represents salt that passes through from potable water extraction, use and percolation. It therefore does not add salinity to the groundwater basin as this salinity was already present there. Approximately 52.8 tons of salt were added to the basin as a result of the imported surface water salinity. In 2018, assumed typical M&I use added 53.2 tons of salt to the basin, while water softeners, added an additional 71.7 tons of salt to the basin. Through the wastewater treatment process, 17.8 tons of salt were removed between the influent and effluent water, and thus not percolated into the basin. It is assumed that this salt was removed with the sludge disposal as the SBR treatment process is not designed for salt removal. The total salt added to the basin from imported surface water salinity, municipal and industrial use, and water softeners is 159.9 tons of salt in 2018. Evaporation at the treatment ponds did not show an increase to the final TDS concentration and does not increase the mass salt load to the basin.

Table 2-4: 2018 Annual Salt Mass Loads

	RM I
Annual Average Influent Flow Total (gpd)	151,706
Average Effluent TDS Concentration (mg/L)	729
Total Annual Salt to Disposal Ponds (tons)	168.6
Annual Salt from Potable Groundwater [a] (tons)	8.7
Annual Salt Load from Surface Water (tons)	52.8
Annual Salt Load from Normal M&I Use (tons)	53.2
Annual Salt Load from Water Softeners (tons)	71.7
Annual Salt Load Removed During Treatment (tons)	17.8
Total Salt Added to Basin in 2018 (tons)	159.9

Footnotes:

a) Salt associated with the groundwater supply is a pass through. Salt in groundwater is returned to groundwater basin.

Notes:

1) Mass Load = Daily Flow * TDS Concentration * (days/year) * (L/gal) * (ton/mg)
2) 365 days/year, 3.79 L/gal, 1.102 x 10^{-9} ton/mg
3) Groundwater Daily Flow = 151,706gpd * 0.049 as groundwater was only 4.9% of total supply water. Groundwater TDS Concentration = 775mg/L based on biannual testing at Well #5 & #8
4) Surface Water Daily Flow = 155,854gpd * 0.947 as surface water was 94.7% of total supply water. Surface water TDS Concentration = 235mg/L based on biannual testing at Lessalt WTP.
5) Normal M&I Use TDS Concentration = 230mg/L based on Water Softener Analysis assumptions and salt balance.
6) Water Softener TDS Concentration = 364mg/L based on Water Softener Analysis.
7) Salt Removed by Treatment TDS Concentration = 729mg/L effluent concentration – 806mg/L influent concentration. This results in a negative annual salt load reflecting that this amount of salt is removed in the treatment process.

2.3 Groundwater Impacts

SSCWD has six monitoring wells located around the disposal ponds to monitor groundwater conditions. Details on groundwater monitoring well installation and evaluation of groundwater conditions are described in the *Groundwater Monitoring Well Installation Report* by Todd Engineers. A summary of the data collected from these wells in 2018 is included in Table 2-5. Groundwater wells 1, 3, 4, and 5 were dry and were not able to be sampled. Monitoring wells 2 and 6 appear to be monitoring mostly background groundwater.

Table 2-5: 2018 Wastewater Monitoring Well (MW) Average Water Quality

	MW 1 (Pond 6)	MW 2 (RM I)	MW 3 (RM II)	MW 4 (Pond 6)	MW 5 (RM I)	MW 6 (RM II)
TDS (mg/L)	ND	703	ND	ND	ND	1300
Chloride (mg/L)	ND	113	ND	ND	ND	545
Sodium (mg/L)	ND	85	ND	ND	ND	223
pH	ND	7.23	ND	ND	ND	7.55
Total Nitrogen (mg/L)	ND	2.5	ND	ND	ND	2.9
Notes	Dry for all 4 sampling rounds	-	Dry for all 4 sampling rounds	Dry for all 4 sampling rounds	Dry for all 4 sampling rounds	-

Notes: Average for 2018 quarterly data.

3 Salinity Reduction Measures

SSCWD is involved in a variety of programs and efforts to reduce salt loading to the groundwater basin. These programs include water softener education activities, a water softener rebate program, and implementation of additional water supply alternatives such as future potential groundwater desalination or increased Central Valley Project (CVP) water treatment. Additionally, there are many regional efforts being conducted by the SSCWD, SBCWD, City of Hollister, and San Benito County that have a goal of reducing salinity throughout the entire groundwater basin. These cooperative efforts are critical towards developing efficient salt management solutions for all water purveyors and users in the region.

3.1 Water Softeners

A major component of SSCWD's program is to reduce the amount of salts added through the use of water softeners in its service area. Sunnyslope, San Benito County Water District, and the City of Hollister have cooperated through the Water Resources Association to develop programs to enhance customer knowledge and change customer behavior regarding water softeners. The program consists of a water softener rebate program, an education program, and local ordinances banning the installation or replacement of all salt discharging water softeners.

Water Softener Rebate Program

Residential customers of SSCWD can participate in a water softener rebate program that is administered by the Water Resources Association of San Benito County (WRA). This program was modified in 2014 to provide rebates for replacing a water softener that discharges to the sewer system with one that requires a replaceable cartridge that utilizes offsite regeneration. The program offers a $250 rebate for replacement of self-regenerating water softeners with offsite regeneration water softeners and requires a minimum one year contract with an offsite regeneration service. Customers who fully remove or demolished their water softeners are eligible for a $300 rebate. There were 30 SSCWD sewer customers who participated in the water softener rebate program in 2018 and at least 216 sewer customers, representing approximately 17.5% of all sewer customers, removed water softeners and received the rebates through this program since the Lessalt Upgrade in December 2014. It is unknown how many SSCWD customers have removed or quit using their water softeners without applying for the rebates although the Water Softener Analysis suggests that more softeners have been removed than rebates have been given.

Water Softener Education Programs

SSCWD is conducting an educational campaign to inform its customers on the impact of water softeners on wastewater quality through website posts, distributing door hanger, and in the annual Drinking Water Quality Report. Educational literature also provides information on how to operate and adjust water softeners to minimize salt loading as many softeners are no longer operating efficiently due to the improved source water quality. The WRA also promotes public education, distributes informational literature, and take surveys on water softener use at local events such as the San Benito County Fair and Farmers' Market.

Water Softener Ordinance

The Regional Water Quality Control Board took action to allow Sunnyslope County Water District and other local agencies to restrict the salinity discharge to the wastewater system from brine discharging water softeners. In February, 2015, SSCWD adopted a new District Code prohibiting the replacement of salt discharging water softeners or the installation of new salt discharging water softeners. The District also participates in a coordinated program with the City of Hollister and San Benito County Water District to limit the salinity discharge from water softeners. This water softener program is being coordinated with the introduction of higher quality potable water to water/wastewater customers both within the City of Hollister and SSCWD sewer service areas.

3.2 LESSALT Water Treatment Plant & West Hills Water Treatment Plant

SSCWD, in a joint effort with the City of Hollister, and San Bento County Water District treats and delivers Central Valley Project (CVP) water from the San Felipe Project to customers to lower the hardness in the potable drinking water. CVP water has lower salinity levels than local groundwater and has considerably lower hardness as shown in Table 3-1. The higher quality supply reduces the need for water softening, which results in a reduction of salt to the groundwater basin. Historically, less than one third of SSCWD's customers received an intermittent supply of CVP water and none of the customers in the area served by RM I receive this treated surface water.

Table 3-1: LESSALT WTP vs. Groundwater Water Quality

	Average TDS (mg/l)	Sodium (mg/L)	Chloride (mg/L)	Average Hardness, $CaCO_3$ (mg/l)
Surface Water Quality	240	50	71	102
Groundwater Quality	775	125	125	395

As part of the Hollister Urban Area Coordinated Water Supply and Treatment Plan, the Lessalt Water Treatment Plant was upgraded and went into operation in December, 2014. This upgrade included a pump station and associated pipeline from the Lessalt WTP to the Ridgemark area and is now supplying SSCWD's wastewater customers with approximately 95% surface water. As part of the Hollister Urban Area Coordinated Water Supply and Treatment Plan, a second treatment plant called the West Hills Water Treatment Plant with a capacity of 4.5 million gallons per day was constructed and began operation in 2017. The combination of these two surface water treatment plants will increase the delivery of high quality drinking water to SSCWD and City of Hollister water customers and will result in reduced TDS, chlorides, and sodium being discharged from the two agencies' wastewater treatment plants.

In the spring of 2015 Sunnyslope began an extensive education and outreach program for all the residents of Ridgemark area to diminish the salinity discharge from water softeners. SSCWD has continued these efforts through 2018 to significant affect. The reduction and/or elimination of the water softeners has resulted in significantly reduced salinity in the wastewater discharge levels. The District is now in compliance with TDS and sodium. Chloride levels remain over the limit but have decreased by 50% over the four years since the Lessalt WTP Upgrade in December 2014. This shows significant progress toward achieving compliance for the final wastewater salinity parameter that Sunnyslope is not currently meeting. The District will continue its salinity management campaign efforts to make further reductions in sodium, chloride and TDS concentrations. Based on the current trend in effluent salinity from 2014 to 2018 the District expects to be in compliance with regulatory limit for chloride in 2021.

3.3 Groundwater Desalination & Lime Softening

Groundwater treatment is a potential salt management solution in the distant future after 2024. Sunnyslope may pursue groundwater treatment to lower both hardness and salinity depending on water demands and the costs of expanding surface water use. Groundwater treatment is appealing from a long-term point of view as salt can be removed permanently from the San Benito County groundwater basin.

3.4 Hollister Urban Area Water and Wastewater Master Plan

In 2004, the City of Hollister, SBCWD, and San Benito County signed a Memorandum of Understanding (MOU) to develop the Hollister Urban Area Water and Wastewater Master Plan (HUAWWMP). In December 2007 the Board of SSCWD adopted the MOU Amendment, and formally joined the Governance Committee in 2009. The HUAWWMP ensures that stringent standards for wastewater management will be maintained to protect groundwater resources in the basin. The HUAWWMP study encompasses the SSCWD service area and developed a comprehensive plan for water supply and wastewater treatment and disposal for the Hollister urban area. An update on HUAWWMP was completed in January 2010 with the publication of the implementation plan. The HUAWWMP master plan identified programs and projects to achieve the stated objectives of having drinking water with less than 500 mg/l TDS and between 120 to 150 mg/l hardness. Targeted recycled water objectives would provide a reclaimed water supply with less than 500 mg/l TDS with a maximum of 700 TDS if such water quality objectives can be achieved at a reasonable cost. The development of the HUAWWMP commenced in November 2005 and is ongoing. In January 2010, the Hollister Urban Area Coordinated Water Supply and Treatment Plan were completed. In January 2012 the Programmatic EIR for the entire Hollister Urban Area Coordinated Water Supply and Treatment Plan was certified. The Hollister Urban Area Coordinated Water Supply and Treatment Plan was accepted by SSCWD, the City of Hollister, San Benito County Water District, and San Benito County. An update to the HUAWWMP was presented and accepted by these agencies in 2017.

Sunnyslope County Water District, the City of Hollister, and San Benito County Water District have executed a Water Supply and Treatment Agreement to implement the Hollister Urban Area Water and Wastewater Master Plan and Coordinated Water Supply and Treatment Plan. The three major water supply and treatment components for the Coordinated Water Supply and Treatment Plan were to upgrade the Lessalt Surface Water Treatment Plant to 2.5 mgd, construct of a new 4.5 mgd West Hills Surface Water Treatment Plant, and build a North (San Benito) County Groundwater Bank to supply these two surface water treatment plants in time of drought.

The City of Hollister and Sunnyslope County Water District have both adopted increases in water rates to fund the water supply projects identified in the Water Supply and Treatment Agreement.

In September 2013, San Benito County Water District executed a contract for the construction of the upgrade to Lessalt Surface Water Treatment Plant. The Lessalt Water Treatment Plant including a pipeline and pump station to deliver treated surface water to the SSCWD wastewater customers was completed put into service in December, 2014. The construction of the West Hills Water Treatment Plant was completed in September of 2017 and is now in operation, delivering treated water primarily to the City of Hollister.

3.5 Water Resources Association Groundwater Management Plan

WRA has developed a comprehensive Groundwater Management Plan (GMP) Update that addresses a number of groundwater quality and quantity issues. The GMP Update integrates salinity management into the broader basin plan and identifies a number of recommended programs for addressing salinity on a region wide basis. These programs are summarized in Table 3-2.

Table 3-2: Salinity Management Programs in the Groundwater Management Plan

Program	Description
Salinity Education Program	Salinity education of both agricultural and M&I users.
Water Softener Ordinance	Public education on the impact of water softeners, retrofit ordinance and water softener conversion rebate programs.
Industrial Salt Control	Cooperative reduction efforts with food processors and other industrial dischargers whose operations contribute elevated salt levels
Surface Water Importation and Treatment	Construction of surface water treatment delivery and storage facilities to supply a total of 6 to 9 mgd in a phased program.
Groundwater Treatment and Concentrate Disposal	Construction of demineralization facilities could reduce salt loads up to 2,270 tons per year for the basin. Concentrate disposal options are considered

SSCWD, SBCWD, City of Hollister, and San Benito County are continuing to work toward implementation of these programs and projects. In 2010, the HUAWWMP described in Section 3.4 further evaluated reclaimed wastewater and interim locations for utilizing reclaimed wastewater from the City of Hollister's expanded wastewater treatment plant. A field demonstration project to utilize recycled wastewater on a variety of projects was performed in 2010. The field demonstration project was very successful. SBCWD has constructed a recycled water pipeline that delivers treated wastewater from the City of Hollister's wastewater treatment plant to farmers north of the City of Hollister. Additional recycled water projects are being contemplated and planned for future years.

The WRA also initiated development of a water softener ordinance that has been adopted by the City of Hollister and SSCWD. In 2012 the Regional Water Quality Control Board granted SSCWD and other local agencies the authority to regulate salinity discharge into its sewerage system. Continued implementation of these salinity control efforts is envisioned in 2019 and beyond.

3.6 Summary of Salt Reduction Options

The salt reduction options available to SSCWD include education programs, water softener ordinances and rebates, and potable water supply improvements. Currently, the most immediate method to reduce wastewater salinity is to promote the removal or reprogramming of water softeners in the RM I service area. Elimination of all water softener use or replacement of all brine discharging water softeners with cartridge type softeners, which use off-site softener regeneration services, has the potential of removing 310 mg/L TDS from wastewater effluent and achieving compliance with the chloride limit.

As discussed in Section 3.4, The Lessalt Water Treatment Plant is now complete and was put into service in December, 2014 along with a pipeline and pump station to deliver treated surface water to the Sunnyslope wastewater customers. This project reducing the need for water softeners which discharge salinity into the SSCWD wastewater system. In 2017 the West Hills Water Treatment Plant was also completed, which increases the surface water delivered to the Hollister Urban Area further reducing the need for water softeners in the City of Hollister and Sunnyslope County Water District's service areas. In conjunction with the additional surface water treatment facilities, an expanded education program will be continued in order to convince Ridgemark customers to remove salt discharging water softeners, or at minimum reprogram their softener settings to operate efficiently for the improved water quality.

4 Next Steps

Sunnyslope County Water District intends to begin meeting the requirements for chloride in 2021 assuming that current trends continue. This will be achieved by continuing to educate its wastewater customers about the improved water quality and reprogramming or eliminating the customers' brine discharging water softeners. Beginning in early 2015 and continuing throughout 2018, SSCWD conducted targeted effort to inform its wastewater customers of the improved water quality they began receiving in December, 2014 to convince customers to bypass or quit adding salt to their water softeners. Additional efforts include offering rebates for the permanent removal of softeners or replacement with cartridge type softeners that are regenerated off site also continued. These have been successful at reducing wastewater TDS, sodium, and chloride concentrations by over 50% since 2014. This emphasis on these salt reduction programs will continue in 2019 and is expected to bring wastewater effluent chloride into regulatory compliance in 2021.

SSCWD intends to continue efforts in partnership with the City of Hollister and San Benito County Water District to increase the use of surface water to reduce the need for salt discharging water softeners and to increase public outreach efforts to educate customers and reduce and/or eliminate the use of water softeners in the Hollister Urban Area.

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