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CENTRAL VALLEY CLEAN WATER ASSOCIATION

DRAFT

Salinity Management Practices for POTWs

Prepared by

LARRY WALKER ASSOCIATES, INC

Table of Contents

List of Tables

List of Figures

1. Introduction

Elevated salinity and nitrate levels in surface water and groundwater are an increasing water quality concern throughout California, with salinity and nitrate impairments having been identified throughout the Central Valley. Therefore, in 2006, the Central Valley Regional Water Quality Control Board, the State Water Resources Control Board, and stakeholders began a joint effort to develop a workable plan to address salinity, including nitrates, throughout the region in a comprehensive, consistent and sustainable manner.. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity and nitrate management program. The CV-SALTS Management Practices Subcommittee is working to identify effective management practices (MPs) that will reduce salinity and nitrate discharges from a multitude of sectors, including drinking and irrigation water, stormwater, wetlands, municipal and industrial wastewater, food processing industries, agriculture, and dairies.

This document addresses sources of salinity in wastewater treatment plant discharges and management practices targeting salinity sources with the ultimate purpose of addressing potential compliance concerns for POTWs and addressing water quality concerns in Central Valley receiving waters.

Every municipality will have its unique characteristics that will have an impact on which salinity sources are the most significant and which MPs are most likely to be cost effective. The information in this document is intended to provide general guidelines and to provide examples of a systematic for identifying and prioritizing salinity sources and MPs.

As part of the effort to address salinity water quality concerns, in recent years, the Central Valley and other California Regional Water Boards have required municipal wastewater treatment entities to quantify sources of salinity in wastewater and identify reduction opportunities for the most significant sources. To support the goals of CV-SALTS, the Central Valley Clean Water Association (CVCWA) has compiled the information collected by wastewater treatment plants and has prepared this Salinity Management Practices Toolkit (Toolkit) to assist municipalities in the implementation of effective salinity MPs targeting wastewater salinity sources.

This Toolkit is intended to assist municipalities to identify common sources of salinity in their service areas, as well as providing example MPs that target these sources. The selection of appropriate MPs based on a source analysis can be used to develop and implement a plan to reduce salinity discharges to groundwater and surface water or may simply augment an existing salinity management program. This Toolkit is intended to be used as a reference document for assessing salinity management options affecting wastewater treatment plant discharges, and not as regulatory requirements, such as those found in specific Regional Water Board permits.

1.1 SALINITY MEASUREMENT

The term, salinity, is used to define the dissolved mineral or salt concentration of water or wastewater and, historically, the concentration measurement of total dissolved solids (TDS) and/or electrical conductivity (EC) has been used as an indicator of salinity. EC is typically measured and reported under the name specific conductivity. TDS and EC are constituents of interest for drinking water and other beneficial uses. The Central Valley Basin Plan contains water quality objective for TDS and EC in Tables III-3 and III-5 for different water bodies. In

addition it contains water quality objectives for some individual constituents that make up salinity including boron (Table III-1), and chloride Table III-5.

In addition to EC and TDS, fixed dissolved solids (FDS) is also used to measure salinity. TDS measurements can include organic, or non-mineral, components such as sugars that are treated and removed at treatment plants and can be measured using volatile and fixed solids analyses. Therefore, TDS may result in artificially high levels of salinity depending on the make-up of the waste stream. For example, process/rinse water often has high concentrations of non-ionized organics that are broken down in the treatment process or, upon application to land, in the upper soil layer to carbon dioxide and water. With adequate aeration, the carbon dioxide escapes to the atmosphere over time. Assuming essentially complete removal of organics, only the mineral salts in the process/rinse water are of interest with respect salinity. Therefore, the TDS test may not be appropriate for measuring salinity in process/rinse water because it measures both mineral and non-mineral dissolved solids. The best measure for salinity of process/rinse water on a routine or frequent basis may be fixed dissolved solids (FDS).

The measurement of EC is of wastewater is also subject to interference from non-mineral constituents, such as organic or fatty acids, particularly where anaerobic conditions exist or high rate treatment processes are used. However, since it has historically been considered a more direct quantification of the mineral (salt) content of the wastewater that reflects the form of salinity that is of current concern in the Central Valley, care should be taken to confirm that EC measurements of wastewater for salinity permit compliance are truly indicative of salinity and not unduly biased by other constituents. FDS may be the best measure of salinity since it will not be affected by sugars or organic acids that may be picked up in EC or TDS analyses. However, if TDS or EC data is the only data available, it may be adequate to conduct a representative analysis of salinity sources as long as the makeup of the sources is considered. For example, where there is a substantial contribution from industrial sources and/or anaerobic zones in the collection system or pretreatment systems that discharge to the sewers where non-mineral forms of TDS are more likely to be present confirmation of salinity levels through measurement of FDS may be something to consider.

Because salinity is typically regulated based on EC or TDS, these are the values that are discussed with respect to salinity in the remainder of this document.

Typical wastewater sources of (mineral-based) salts that contribute to wastewater salinity include water supply; water softeners and conditioners (ie reverse osmosis or microfiltration units; industrial process wastewater from food processors, industrial laundries, or industrial/commercial users that conduct water conditioning processes or use cooling and heating system chemicals; chemicals added to enhance wastewater treatment; and inflow and infiltration (I&I). Water conservation, evaporation, and water recycling will not necessarily add to salt mass loadings; but, unless there is a commensurate reduction in salt mass loading, such practices will result in increased salinity concentrations (i.e., salinity loading) in discharges

1.2 INFORMATION SOURCES

CVCWA has compiled information on source identification and MPs targeting these and other sources from the following California municipalities:

Central Valley

- City of Davis
- City of Dixon
- City of Live Oak
- City of Manteca
- City of Roseville
- City of Stockton
- City of Tracy
- City of Tulare
- City of Vacaville
- Sacramento Regional County Sanitation District

Other Areas of California

- Camarillo Sanitation District
- City of Lompoc
- Santa Clarita Valley Sanitation District
- Ventura County

While this is not a comprehensive list of all municipalities that have developed Salinity Management Plans, these municipalities represent a variety of community sizes, a range of source water quality and a range of composition of residential, commercial and industrial discharges.

This Toolkit is based on the approaches used by these municipalities and provides guidance within the following sections:

- Source Analysis (Section 2) provides guidance on basic data needs regarding salinity sources and how to use these data to identify the most significant sources in a Wastewater Treatment Plant (WWTP) service area.
- Management Practices (Section 3) provides information on salinity management strategies that target these sources and factors that will affect which strategies are best suited to the WWTP service area. The MPs are organized into several toolboxes.
- Creating a Salinity Management Plan (Section 4) provides an approach to prioritizing the identified strategies and creating and implementing a plan based on those priorities.

2. Source Analysis

This section is intended to assist municipalities who have not previously conducted a salinity source analysis. While many Central Valley municipalities have already conducted a source analysis, the information in this section is also useful for confirming or updating a previous analysis.

Salinity sources to wastewater influent may be generally categorized as follows:

- Water Supply
- Self-Regenerating Water Softeners (SRWS)
- Residential
- Commercial Facilities
- Industrial Facilities
- Inflow & Infiltration (I&I)
- Treatment Plant Processes

To evaluate salinity sources, evaluation of concentration data alone may not provide a comprehensive understanding of any trends in the contribution of salts attributed to various discharge sources to a treatment plant. Salt loadings and ion makeup should also be evaluated. For example, a discharge with extremely high EC or TDS may have such a small flow that no impact is observed at the treatment plant, because the overall load is insignificant. Conversely, a large industrial discharger with only slightly elevated TDS or EC above domestic background could contribute a large relative percent of the incoming salt load. In addition in many cases, individual ions making up the salinity may also be of concern (e.g., sodium, chloride, boron).

In communities with very hard water (typically from groundwater sources), the water supply and SRWS are often the most significant sources. Within the industrial sector, food processors may be significant salinity sources. Other industrial and commercial sources that should be considered include facilities using high volumes of cleaning soaps or cleansers, chemicals for pH or other adjustments, sanitizing and water conditioning processes and evaporative or evapotranspirative processes, particularly if water conservation measures are employed. These sources all contribute to influent salinity loadings. I&I may also contribute to influent salinity loadings, depending on the quality of perched groundwater and condition and extent of the collection system.

If influent sources do not account for most or all salinity loadings found in treatment plant effluent, then treatment processes and discharge practices should also be considered. Disinfection and other processes such as evaporative loss within the wastewater treatment plant may contribute to salinity loadings in the treatment plant effluent.

2.1. INFLUENT SOURCE ANALYSIS

A general approach to evaluating influent sources is shown in **Figure**. This approach is discussed below and includes the following steps:

1. Gather source data
2. Calculate preliminary source contributions
3. Evaluate sources
4. Determine additional data needs

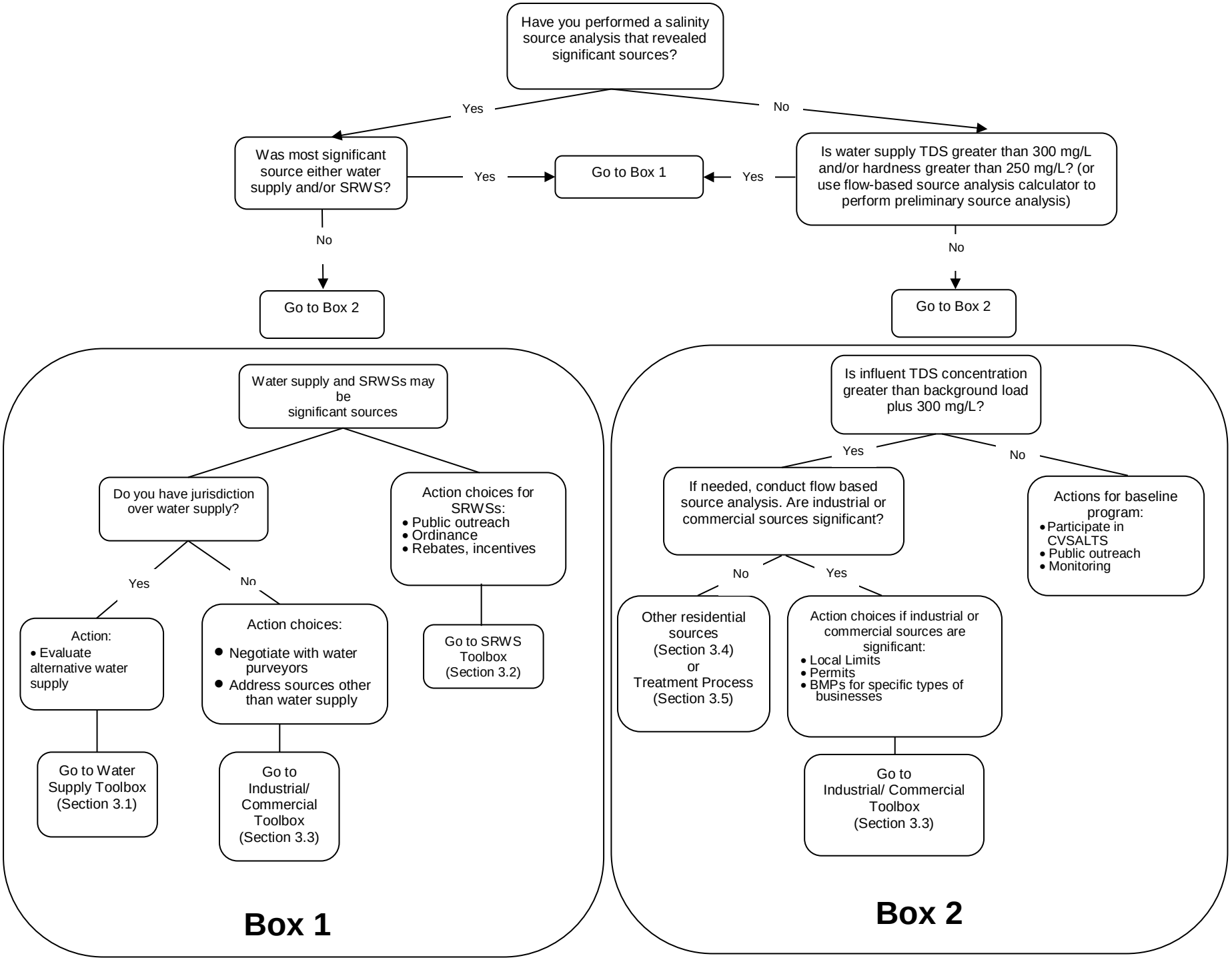

Figure 1. Evaluation of Influent Sources

2.1.1. Gather Key Data

Based on the experience of other communities, certain key data are useful in providing preliminary information on the most likely significant sources to influent in Wastewater Treatment Plant (WWTP) service area. At the most basic level, it may be possible to make decisions about the most significant salinity sources in a service area based on:

- Water supply hardness (mg/L)
- Water supply total dissolved solids (TDS, mg/L) and/or electrical conductivity (EC, µmhos/cm)
- List of permitted industries and their waste stream types

Gathering the following additional information will provide a clearer picture of salinity sources:

- Total influent flow
- Influent TDS and/or EC concentrations
- Residential flow. Approaches to estimating this value include the following:
  - Number of households multiplied by average daily water usage per household
  - Subtracting permitted industrial daily flow from total influent flow
- Residential TDS and EC concentrations, if available. If no sampling has been completed, consider collecting some representative samples from the collection system, using default values provided below, or using other agency data.
- Industrial discharge flow and corresponding TDS and/or EC concentrations
- Shallow groundwater salinity levels (if available)
- Inflow & Infiltration (I&I)

How each of the above types of data can be used to identify sources is discussed below. In some cases, a more comprehensive mass balance that quantifies individual sources may be needed to determine the most significant salinity sources in the service area.

2.1.2. Estimate Source Salinity Contributions

Depending on key data and the municipality's available resources, influent or upstream salinity sources can be evaluated either at a basic level or by using more quantitative approaches as described below. The Simple Analysis and Simple-Flow Based Analysis processes described below are also summarized in Figure 1.

2.1.2.1. Simple Analysis

As a first step to identifying sources, a municipality that has not previously evaluated salinity sources can look at water supply hardness and TDS or EC concentrations. Water supply data are compared to influent salinity load contributions for several California municipalities that have conducted detailed mass balances to estimate contributions from different salinity sources (**Table 1**). As hardness and TDS levels in water supply increase, the likely significance of water supply and SRWS as salinity sources also increases. For communities with lower hardness and TDS

levels in the water supply, other sources may become more significant.

Based on the experiences of other communities, as a rule of thumb, if the water supply has a TDS concentration exceeding 300 mg/L and a hardness exceeding 250 mg/L, the most significant sources of salinity will likely be the water supply and SRWS. In this scenario, a salinity management plan would initially focus on these sources. Additional source evaluation may not be necessary beyond evaluating any industrial dischargers for high salinity discharges. In particular, if a large food processing industry (i.e., an industry with a significant contribution to total influent flow or influent BOD) is located in the service area, its discharges should be evaluated. Throughout this document, a distinction is made between industrial and commercial discharges. If a discharge is referred to as industrial, it is typically considered to be a significant contributor of flow or strength (loading) to the POTW influent. If a discharge is referred to as commercial, it is typically considered to be a smaller flow for each individual discharge. However, in combination with other dischargers of the same type, its loading contribution could be significant (i.e., one commercial facility may have a negligible contribution but 30 with the same type of discharge may combine to be a significant source).

Table 1. Water Supply Quality Compared to Salinity Source Analyses Conducted by California Municipalities

Municipality	Tulare	Roseville	Roseville	Stockton, City of	Manteca	Tracy	Vacaville	Santa Clarita Valley SD	Camarillo SD	Davis	Fillmore	Ventura County	Lompoc
Water Supply Quality													
Hardness (mg/L)	26	33	33	111	117		258	320	356	409	450	482	700
Constituent	TDS	TDS	TDS	TDS	TDS	TDS	TDS	Cl	TDS	TDS	Cl	Cl	TDS
Concentration (mg/L)	176	60	60	141	179	146	237	71	570	610	38	62	703
Influent Load Contribution (b)													
Water supply	9%	17%	13%	20%	32%	14%	25%	41%	58%	55%	35%	39%	88%
SRWSs	0%	(a)	(a)	(a)	4%	7%	18%	37%	8%	35%	41%	18%	2%
Normal residential	19%	42%	29%	23%	43%	3%	22%	14%	16%	16%	14%	27%	0%
Industrial	70%	2%	29%	28%	1%	34%	24%	4%	9%		5%	10%	7%
Commercial	2%	38%	28%	6%	18%	31%	11%	3%	25%	4%	5%	1%	0%
Other				23%	2%	12%		1%			1%	15%	10%
Total	100%	99%	99%	100%	100%	101%	100%	100%	116%	110%	101%	110%	107%

Note:

a. The contribution from SRWSs is negligible.

b. Load percentages are all estimates

If water supply hardness and TDS levels are right around 300 mg/L or less than 300 mg/L, a flow-based analysis can provide additional characterization that may be useful in determining the most significant salinity sources. In addition, for municipalities with high hardness and TDS levels in the water supply, a flow-based analysis can provide confirmation of the Simple Analysis. Where a service area contains multiple water supply sources, a flow-based analysis is much more difficult. If water delivery volumes, hardness, and TDS data can be obtained for the multiple sources and a weighted average calculated, a flow-based analysis may still be helpful.

2.1.2.2. Simple Flow-Based Analysis

A spreadsheet calculator (shown in Appendix A and available electronically) takes basic information and calculates a simple mass balance. Two hypothetical examples for using the spreadsheet are shown in **Table 3**. The information needed is entered into an input spreadsheet, as shown in the example **Table 3**. Specifically, the following data are needed:

- Influent flow (MGD)
- Water supply hardness (mg/L)
- Water supply TDS (mg/L)
- Influent TDS (mg/l)
- Residential flow OR number of households and average flow per household
- Estimate of % of households with water softeners

Values for residential (non-water softener) TDS and SRWS efficiency are included as default values, but a new value can be entered, if available. The information is used to calculate a rough salinity mass balance for the treatment plant influent. The results for the example inputs shown in **Table 3** are shown in Figure 1.

Some notes on selecting values for some of the inputs include:

- A default value of 265 mg/L is used for residential (i.e., non-water softener) TDS. If residential monitoring has been conducted or there is other municipality specific information it can be used instead of the default value.[1]
- A default value of 3300 grains hardness/lb NaCl is used for water softener efficiency. Current California law requires water softeners to have an efficiency of 4000 grains hardness/lb NaCl. A value of 4000 grains hardness/lb NaCl can be substituted for service areas with a high proportion of newer homes that are more likely to have newer appliances.
- The best way to estimate the percentage of households with water softeners is to conduct a survey of residents. If this has not been done, information from other communities may be helpful. Factors that will affect how many households have water softeners include water supply hardness and general economic status of the community. The results of surveys conducted in some California communities indicating the percent of households

[1] Larry Walker Associates, 2008. Camarillo Sanitary District Pollution Prevention Plan. January 2008. 265 mg/L represents the average of residential samples (with water supply subtracted) in one community.

with SRWSs prior to implementation of any public outreach or restrictions on residential water softener use, along with the average water supply hardness, are presented in **Table 2**.

Table 2. Percent of Households with SRWSs in Representative California Communities[2]

Location of Community	Average Water Supply Hardness (mg/L)	% of Households with SRWS
Southern California	230	5%
Central Valley	58	10%
Southern California	450	15%
Southern California	500-800	20%
Central Valley	400	40%

It should be noted that the percent of households with self-regenerating water softeners in Southern California may be lower due to availability of portable tank exchange units that are collected by a vendor and regenerated elsewhere.

Based on these results, an estimate of 10% of households having water softeners may be appropriate for a service area with softer water, and an estimate of 25-30% of households having water softeners may be appropriate for a service area with harder water.

Another approach for a service area with multiple water supplies would be to estimate the percentage of water softeners based on the percent of the service area served by hard water supplies (i.e., hardness greater than 250 mg/L).

[2] Elzufon, Betsy, LWA, 2008. How to Address Challenging Salinity Limitations Without Going Broke: Source Control and Other Options. Presented at CVCWA Annual Conference, May 15, 2008.

Table 3. Hypothetical Examples of Data Inputs for Simple Flow-Based Analysis

Parameter	Notes	City A	City B
Influent flow (MGD)		3.1	9.8
Water supply hardness (mg/L)		300	24
Water supply TDS (mg/L)		743	60
Residential (not including water supply) TDS (mg/L)	265 is default	265	190
Influent TDS (mg/L)	Based on measured concentrations	1014	350
SRWS regenerative efficiency (grains hardness/lbs NaCl)	3300 is default	3300	3300
Population (optional)			
Number of households	**Enter these values or Residential Flow**		
Wastewater flow rate (gal/day per house)			
Using # households (gal/day)		n/a	n/a
Residential flow (MGD)		2.45	7.8
Estimated % of housing units with SRWS		19%	10%

Default value can be used if this information is not available

Value to be entered

Residential flow can be entered or will be calculated from # households & gal/day/household

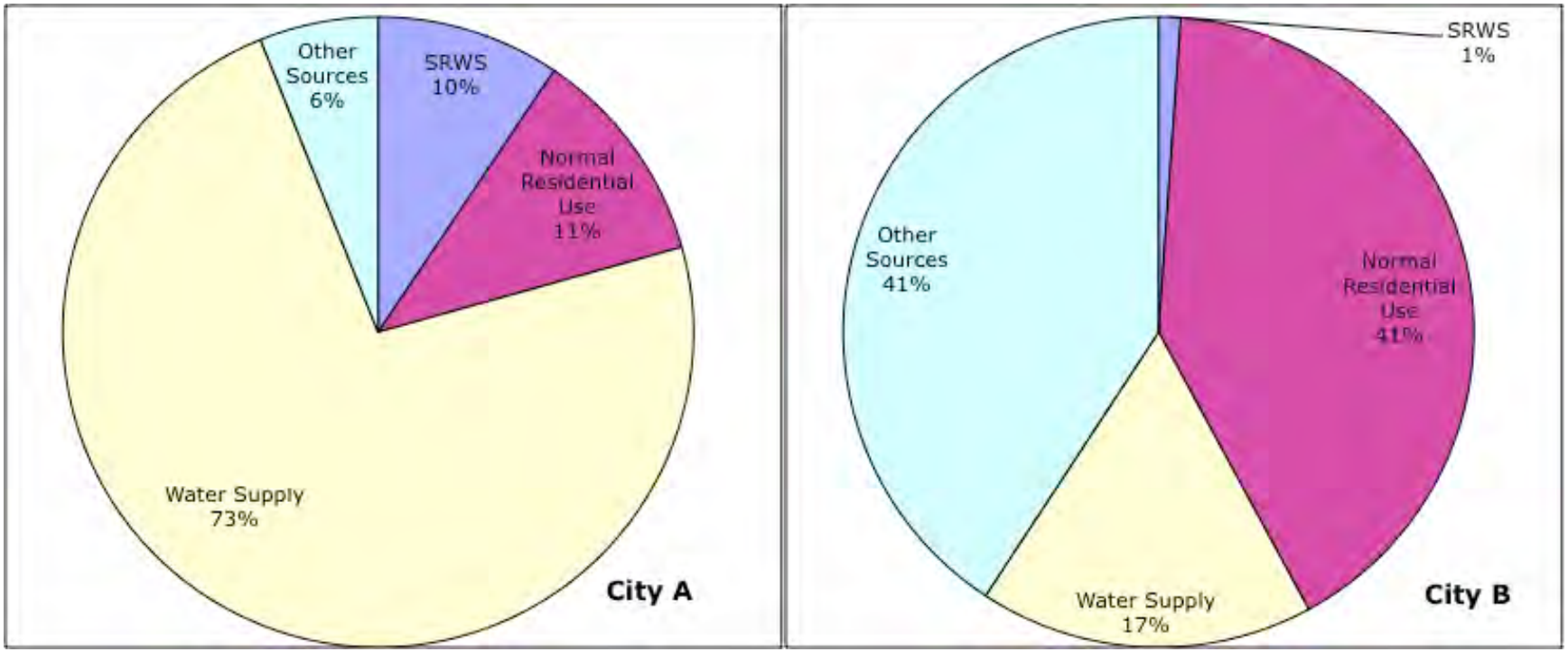

Figure 2. Example Outputs from Simple Flow-Based Analysis Calculator

The results of the flow-based analysis can be used to make planning level decisions regarding the most probable sources of salinity and allow the municipality to determine if source control strategies are likely to result in measurable reductions. The two pie charts show two possible scenarios. Clearly, water supply and water softeners are a more significant source for City A while Other Sources are more significant for City B. However, it should be noted that a source can account for a significant portion of influent salinity but still may not be a source that should be targeted. Other factors that should be considered:

- For water supply
  - Is the water supply TDS greater or less than 300 mg/L?
  - Is there a strategy that would result in a significant reduction in water supply salinity or hardness (e.g., the municipality may not have any jurisdiction over the water supply)?
- For all sources
  - How much reduction in salinity is needed to comply with permit limits or other salinity goals?
  - Is there a feasible strategy?

For City A, as shown in Figure 2, water supply would be the obvious source to target for reductions. However, if there are no feasible strategies or water supply is outside the municipality's jurisdiction, other sources may need to be considered.

For City B, the direction may be clearer in that Other Sources appear to be most significant. In this case, additional investigation into industrial and commercial sources and a more quantitative mass balance approach may be warranted. However, if there were a straightforward option available to modify the water supply and the salinity reduction needed was less than 17%, targeting the water supply may be the right approach.

2.1.2.3. Quantitative Source Analysis

If additional characterization of influent sources is needed, then a more quantitative approach can be used. This involves determining flow and salinity levels associated with commercial businesses and industrial facilities located in the service area. Collection system monitoring can be conducted in commercial areas and at specific businesses to collect this information. Alternatively, salinity levels can be estimated based on studies conducted by other municipalities. If this approach is used, it is important to take different water supply quality into account by examining monitoring data. Flows may be estimated based on billing or water use records if monitoring is not practical.

In addition, monitoring in the collection system for a residential area may yield useful information. If multiple water supplies are used in the WWTP service area, then a more comprehensive monitoring program for the water supply could also provide useful data for source analysis.

Salinity and flow data can be used to estimate loads from different influent sources and compared to total influent loadings to determine if the influent salinity is accounted for by the sources evaluated and, then, which of these sources is the most significant. Background water supply loading can be subtracted to identify whether there is a process source of salinity.

An additional step of value while monitoring any source is to analyze the cation and anion balance to verify the makeup of the salt, especially if there are specific ions that are of concern (e.g., boron, chloride). Additionally, both volatile and fixed solids are important analyses to determine what portion of the salt discharge is treatable or might pass through.

Evaluating TDS or EC concentration diurnal patterns in influent may also be helpful. If EC peaks are observed in the middle of the night, SRWSs maybe suspected because they often are programmed to self-regenerate at night.

Several California municipalities have conducted these more detailed studies, and examples are available through CVCWA.

2.1.2.4. Industrial Sources

Regardless of the approach used to evaluate influent sources, industrial facilities in the WWTP service area should typically be considered. Specifically, if a food processing industry discharges to the WWTP, its salinity loads should be evaluated. Other types of industries that may have significant salinity loads include hospitals, microbreweries, chemical manufacturing, large metal finishing operations, industrial laundries or garment-dying processes, and any facility that has cleaning soaps/cleansers, water conditioning, cooling tower chemicals (anti-scale and anti-corrosion), or large HVAC system blowdown (cooling tower or boiler) operations. Note that beverage making and/or bottling wastewater typically exhibits high TDS; however, the majority of the TDS is organic and removed at the plant.

Monitoring of TDS or EC in the wastewater discharge, along with estimating the daily flow from these facilities, is recommended.

2.1.2.5. Inflow and Infiltration (I&I)

If influent source analysis accounts for less than 90% of the influent salinity load, it may be due to uncertainties and estimates inherent in the source analysis process. However, it may also be due to I&I. This is particularly likely if salinity and flow values vary seasonally (i.e., with higher values during wet weather) or where groundwater tables are high. If this is the case, an I&I study to identify problem areas in the collection system may be warranted. It is important to note that I&I may act as a diluent resulting in influent salinity loadings that are less than the sum of the upstream sources or that collection system improvements may result in increases in salinity in the influent.. Chemicals applied to land, such as fertilizers, urban pollutants, and minerals from erosion picked up by stormwater runoff will increase the salinity. I&I remediation programs may already be in development due to capacity issues.

2.2. ANALYSIS OF TREATMENT PROCESSES

Influent salinity levels should be compared to effluent levels to determine if there may be non-influent sources that contribute significantly to salinity in discharges from the wastewater treatment plant. Salinity is not expected to be removed by either tertiary or secondary treatment processes, and influent and effluent levels should be almost the same. If effluent levels are consistently higher than influent levels, treatment processes and chemical additives should be evaluated. Small amounts of TDS are added to wastewater during routine treatment plant operations, especially if chlorine disinfection is used. Solutions added to wastewater as part of the treatment process that may impact salinity include sodium hypochlorite, sodium bisulfite,

and ferrous chloride. Alternative solutions may be available to reduce salt addition within the treatment process, however, these alternatives must be carefully evaluated so they do not cause unintended consequences impacting wastewater treatment or create significant cross media concerns.

2.3 DOWNSTREAM DISCHARGE PRACTICES

For a POTW discharging to surface waters, it may sometimes be appropriate to divert some or all of the POTW effluent to storage or to land disposal. Salinity discharges during wet weather, for example, may have less impact and it may be possible for a POTW to store some effluent during dry weather to be discharged at a time of year when its impact will be less. Depending on the quality of the groundwater and its designated beneficial uses, there may be less adverse impact associated with a land discharge for some portion of a POTW's effluent. While such practices may reduce salinity loading to surface water, the overall salinity load would not change so these practices should be considered only under a circumstance where a temporary reduction is beneficial of where an alternate receiving water may not be adversely impacted by additional salinity loadings.

3. Management Practices

For each salinity source, there are typically multiple MPs that can be implemented to reduce salinity discharges. The practice that will be most effective or applicable in a community will depend on a variety of factors. They are:

- *Significance of source* – If the source accounts for a large portion of the salinity discharged to the WWTP, then substantial reductions may be possible. A strategy that requires considerable resources (i.e., time, money) may be more acceptable if the projected reduction is significant. A source that accounts for a small portion of the total salinity load may still be addressed, but strategies that require fewer resources or resources that are commensurate with the projected outcome would be preferred.

- *Jurisdiction over source* – Municipalities will have different legal authorities. One example of this is the water supply. Cities may have more ability to manage their water supply than a special district whose only authority is over wastewater. Other sources may simply be considered to be uncontrollable (e.g., many residential activities). A municipality's legal authority will influence which MPs are feasible.

- *Resources/cost* – Some MPs will require substantial staff time to implement. An example would be adoption and enforcement of an ordinance. Other practices may require financial investment, including additional treatment, outreach, or a rebate program. The potential reduction achievable by the practice should be commensurate with the cost. For the MPs described below, specific cost information is shown where available. In addition, a relative cost factor is shown for each MP.

  $ - <$100,000 annual cost

  $$ - $100,000 - $1,000,000 annual cost

  $$$ - $1,000,000-$10,000,000 annual cost

  $$$$ - >$10,000,000 annual cost

- *Effectiveness* - The potential effectiveness of a MP can be estimated based on the anticipated participation by the target audience and the maximum load reduction that may be achieved by the strategy, as follows:

  *Effectiveness Rating = Participation Factor * Loading Factor*

  Where:
  Participation Factor = Percent of target audience that will adopt the behavior
  Loading Factor = Amount of pollutant load reduction from a source, assuming 100% participation of target audience

  Determining the maximum reduction achievable (i.e., loading factor), and the percentage of the target audience that actually change their behavior (i.e., participation factor) will provide an indication or estimate of the reduction expected.

- *Other factors* – Other factors that may influence selection of MPs can include regulatory drivers or public acceptance of an MP. Regulatory requirements may drive a strategy that might otherwise be considered too costly. Communities have experienced resistance to projects related to requiring water softener removal and/or alternative water supplies, often due to cost, but also for other reasons that may be harder to quantify. A treatment plant could also consider whether advanced treatment technology is a feasible option compared to source control, although typically this is not the case since salinity treatment (e.g., reverse osmosis) is expensive.

Overall, the projected benefit with respect to reducing salts discharges will have to be weighed against cost and other factors to select a suite of strategies that are most likely to be effective for each community.

Common MPs that target the source categories discussed in the previous section have been assembled into "toolboxes" to assist a municipality in selecting those MPs that are most applicable to each community's circumstances. Information is provided on cost, projected effectiveness, and the advantages and disadvantages for each MP. This information should be considered when selecting MPs from each toolbox.

3.1. WATER SUPPLY TOOLBOX

MPs that may result in reductions of salinity discharges associated with the water supply include:

- Treatment
- Modify the Water Supply

Wellhead treatment to reduce salinity would be accomplished by Reverse Osmosis. This MP is very expensive due to not only the cost of treatment but the cost to dispose of the RO brine for communities that are not near an ocean discharge point. Therefore, it is considered economically infeasible for most communities and not addressed in the document. However, in some cases, an alternative water supply may be feasible as described below. The MPs for addressing water supply modifications is described further below.

3.1.1. Treatment

This MP practice involves treating the water supply to either soften the water support or remove TDS. Softening or removing calcium and magnesium ions from the water is accomplished through ion exchange, pellet softening, lime softening or membrane processes. Ion exchange processes produce a high salinity waste stream when the ion exchange resin is regenerated which would need to be disposed of. Pellet softening results in crystallization of calcium carbonate which adheres to the pellets in a pellet reactor but it does not remove magnesium very efficiently. Lime softening results in the precipitation of both magnesium and calcium ions but pH adjustment to 11 or greater is required and readjustment to neutral pH before sending the water to the distribution system. Membrane processes that can be used include reverse osmosis and nanofiltration. A high salinity waste stream is also generated from membrane processes.

Advantages	Disadvantages
• Reduces chloride/EC/TDS levels discharged to sewer system • Lower TDS/hardness water supply will have other benefits in addition to reducing salinity discharges (e.g., improved taste and aesthetics, reduced corrosion of plumbing, reduced use of soaps and detergents). • Will also reduce water softener usage and salinity loads from water softeners	• Special Districts may not have direct control over water supply (unlike Cities). • Requires construction of a water treatment plant and conveyances from wells to one centralized plant. • High salinity waste stream may be generated that requires disposal. • Costly to implement • Public resistance based on cost

Applicability

This MP will be most effective in communities that have direct control over their water supply and the ability to construct a centralized water treatment facility.

The Cities of Fillmore[3] and Dixon evaluated water supply treatment as one option to reducing salinity discharges but ultimately decided it was not cost effective.

Practice Costs ($$$)

Installation Cost:	City of Fillmore, Lime Softening - $9.6 million to treat 4 MGD City of Fillmore, Nanofiltration - $9.8 million to treat 4 MGD. City of Dixon, Reverse Osmosis – $9 million to treat 1.3 MGD
Annual Operation and Maintenance Cost:	City of Fillmore, Lime Softening - $1.1 million to treat 4 MGD City of Fillmore, Nanofiltration - $0.95 million to treat 4 MGD. City of Dixon, Reverse Osmosis – $0.35 million to treat 1.3 MGD

Effectiveness/Salinity Reduction

Effectiveness in reducing salinity loads will depend on the efficiency of the treatment process. This MP has the potential to result in substantial reduction in salinity discharges.

Effectiveness for this MP would be measured by comparing salinity concentrations in effluent before and after a change to the water supply. Effectiveness could also be measured by the change in salinity measured in the water supply itself.

The City of Fillmore estimated that lime softening would reduce the water supply TDS levels by 30% from 650 mg/L to 460 mg/L. TDS levels would be reduced by 70% from 650 mg/L to 185 mg/L using nanofiltration. Lime softening would not soften the water enough to result in significant voluntary removal of water softeners but nanofiltration probably would result in reduced use of residential water softeners.

Salinity Reduction Level	Salinity Reduction Range
High	**51-90%**
Medium	**25-50%**
Low	10-24%
Marginal	<10%

[3] Boyle Engineering Corporation, 2005. Water Treatment Alternatives Report. Prepared for the City of Fillmore. July 2005.

3.1.2 Modify Water Supply

This MP practice involves identifying an alternative water supply that has lower hardness and TDS levels. Most often this would mean replacing groundwater with surface water but it may also be possible to identify groundwater wells that are lower hardness and TDS. A key element to a successful use of this MP is having direct control over the water supply. Another key element is the availability of an alternative water supply either through a water purveyor or through water rights. This MP may take years to implement including identifying the water supply, obtaining funding and public approval and building the necessary infrastructure. As discussed further below for Tracy/Manteca/Lathrop, even in the best of circumstances, it is likely to take at least 10 years to fully implement this MP.

Advantages	Disadvantages
• Reduces chloride/EC/TDS levels discharged to sewer system • Lower TDS/hardness water supply will have other benefits in addition to reducing salinity discharges (e.g., improved taste and aesthetics, reduced corrosion of plumbing, reduced use of soaps and detergents). • Will also reduce water softener usage and salinity loads from water softeners	• Time and resource intensive to gain access to water supply • Special Districts may not have direct control over water supply (unlike Cities). • May not be broadly applicable or sustainable. • Costly to implement and to centralize water distribution system when moving from wells to surface water. • Public resistance based on cost

Applicability

This MP will be most effective in communities that have direct control over their water supply and access to surface water on a year round basis. Because of the cost and complexity of this MP, opportunities to partner with other communities will be more likely to make this approach more cost effective and successful.

Central Valley communities that have pursued this approach include Tracy, Stockton, Manteca, Fresno, and Davis and Woodland. In each of these cases, the surface water supply supplements groundwater supplies.

Manteca and Tracy in conjunction with Lathrop and Escalon embarked on a joint project to purchase surface water from the South San Joaquin Irrigation District (SSJID).[4] The project was initiated in 1995 and included the construction of a drinking water treatment plant and approximately 40 miles of pipeline. SSJID began providing domestic water services in 2005 to Lathrop, Manteca and Tracy. Prior to 2005, Manteca's water supply was 100% groundwater. Between 2005 and 2009, Manteca's water supply was transitioned to its current make-up of 50% groundwater and 50% surface water. Tracy gets surface water from both the SSJID and the Delta Mendota Canal.

[4] http://www.ssjid.com/index.htm

Woodland and Davis are working together to exercise water rights to divert water from the Sacramento River and, in 2009, formed the Woodland Davis Clean Water Agency, a joint powers authority to implement and oversee the regional water project which will include a drinking water treatment plant and pipeline to serve both cities and UC Davis.[5] The project partners filed the water rights application in 1994 and water rights permits were approved in March 2011. The Regional Water Supply Project (Project) is currently in the permitting and design phase. In 2012, project costs to implement the Project are estimated to be $245,000,000. The goal is to deliver the Project by 2016. The estimated annual operations and maintenance costs of the Project are between $6,000,000 and $7,000,000. Currently, the City of Davis is working through objections from the public regarding the cost of the project.

Practice Costs ($$$$)

Process to obtain water rights	Woodland-Davis Project: As of 2008, spent $3 million to resolved 9 of 11 protests.
Installation Cost:	Woodland- Davis project - $245 million to divert up to 45,000 acre-feet/year
	SSJID project: Total - $150 million. Manteca's share - $60 million; Tracy's share - $50 million.
Annual Operation and Maintenance Cost:	Woodland-Davis Project: $6-7 million
	SSJID project: $6.6 million (2012)

Effectiveness/Salinity Reduction

Effectiveness in reducing salinity loads will depend on the relative difference of salinity concentrations and hardness of the water supply and the proportion of the water supply than can be replaced. This MP has the potential to result in substantial reduction in salinity discharges.

Effectiveness for this MP would be measured by comparing salinity concentrations in effluent before and after a change to the water supply. Effectiveness could also be measured by the change in salinity measured in the water supply itself.

For Manteca, the conversion of the water supply from 100% groundwater to 50% groundwater/50% surface water resulted in change in TDS levels in the water supply from an average of 302 mg/L in 2005 to an average of 179 mg/L in 2009. Effluent EC levels went from 1100 µmhos/cm to 800µmhos/cm over the same time period for an approximate salinity reduction of 27%. It should be noted that some of the effluent reduction may be due to implementation of tertiary treatment and UV disinfection in 2009 and separation of food processor wastes from the effluent, also in 2009.

By implementing changes to water supply and industrial source control practices, the City of Tracy has achieved a 25% reduction in WWTP effluent EC, from average monthly levels of 1580 µmhos/cm prior to 2007, to 1191 µmhos/cm in more recent years (March 2009 – April 2011).

[5] www.wdcwa.com

Salinity Reduction Level	Salinity Reduction Range
High	**51-90%**
Medium	**25-50%**
Low	10-24%
Marginal	<10%

3.2. RESIDENTIAL SELF-REGENERATING WATER SOFTENER TOOLBOX

MPs that may result in reductions of salinity discharges associated with the self-regenerating water softeners include:

- Public Outreach Targeting SRWSs
- Ordinance Restricting Residential Water Softener Use
- Incentive Programs

These MPs are described further below.

3.2.1. Public Outreach

This MP involves public education and outreach regarding SRWSs, providing accessible information, resources, and/or materials aimed at educating residents about the detriments of SRWSs and any other automatic/salt-discharging water softeners which use and discharge high levels of rock salt (sodium chloride) or potassium chloride to the sewer system. Public outreach is a voluntary practice. Such outreach may be provided in any of the following formats:

- Fact sheet/pamphlet/leaflet
- Press release/ newspaper articles
- Telephone hotline
- Local media ads/announcements (e.g., television, newspaper, newsletter, radio broadcast)
- Other educational campaigns
- Door hangers
- Information sheets distributed at community events and pollution prevention workshops
- Mail-in household SRWS surveys
- Mailings to new homeowners
- Posting salinity information (e.g., an interactive tool for selecting salt-free conditioning alternatives, press releases, links to ordinances, rebate information) on public agency websites
- Presentations targeting community groups and/or high school science classes
- Street banners and flags
- Water bill inserts

The purpose of such outreach is to encourage homeowners to stop using SRWSs and/or to switch to non-automatic/salt discharging alternatives; to encourage prospective SRWS buyers to opt for the non-salt containing water conditioning alternatives to SRWS; and in general, to promote awareness regarding the water quality impacts of salinity. Element of this outreach is to explain what water conditioning devices may be available that may not strictly soften water but may

address a concern such as scaling in plumbing or aesthetics. Example public outreach messages/language and materials developed by various public agencies and the CV-SALTS Outreach and Education Committee are included as **Attachment A**.

To maximize effectiveness, public outreach may be paired with other MPs including a rebate/incentive program, and/or an ordinance banning SRWSs. Public outreach and education may involve use of a targeted approach, focusing on a specific audience instead of the general public, and may be expanded to provide education and outreach to industrial and commercial sectors.

Advantages

- Reduces chloride/EC/TDS levels discharged to sewer system
- Does not require litigation
- May be less costly than other practices (source control vs. advanced treatment)
- Can begin implementing practice relatively quickly (compared with efforts to put an ordinance in effect)
- Increases public awareness of salinity water quality impacts and contribution of water softeners, as well as other salt discharges
- Prepares public and commercial/industrial facilities to accept that salinity water quality impacts must be dealt with, particularly if an ordinance/ban may be implemented in the future
- Assists with long-term goal of changing behavior and practices that affect salinity/water quality
- Garners support for local regulation of salinity sources as part of an overall plan for achieving compliance with future water quality objectives

Disadvantages

- Requires time to develop materials and conduct outreach
- May encounter resistance from water softener manufacturers
- Outreach alone may have limited effectiveness
- Public outreach may encourage the use of portable tank exchange units. Depending on the service area location and disposal mechanism, the use of portable tank exchange units may not result in a real reduction in salinity. The load may be transferred locally or to another area, not minimized.

Applicability

Public outreach is an integral component of any strategy to address the use of residential SRWSs. If a significant reduction in salinity is required, public outreach will likely need to be used in conjunction with additional, more stringent MPs. Once the message(s) for public outreach targeting SRWSs have been established, multiple mechanisms may be implemented for an effective public outreach strategy.

Practice Costs ($)

Development Cost:	Staff time – Developing, printing and distributing outreach materials/resources
Annual Operation and Maintenance Cost:	Printing and producing outreach materials/resources; Staff time - conducting outreach, attending events, evaluating effectiveness of program

The public outreach MP is likely to be the least costly of all the MPs suggested for the reduction of salinity discharges associated with SRWSs. Costs will vary based on the size of the target audience and the types of outreach approaches selected. For single topic outreach like encouraging residents to stop using an SRWS, costs will range from $50,000-$100,000 for a small to medium size community (50,000 to 100,000 residents) to several hundred thousand annually for a larger metropolitan area.[3]

Effectiveness/Salinity Reduction

This MP may be only slightly effective at reducing residential salinity discharges to the sewer if implemented as a stand-alone practice but is an essential element of any program targeting a residential activity.

Effectiveness of this MP would be based on conducting surveys to assess recall of outreach programs and materials, increases in awareness of salinity sources and impacts to water bodies and to determine reported behavior change resulting from outreach.

Salinity Reduction Level	Salinity Reduction Range
High	51-90%
Medium	25-50%
Low	**10-24%**
Marginal	<10%

The success of a voluntary program aimed at reducing salinity discharges from water softeners requires shifting what is considered "acceptable" behavior of society at large. The highest reduction achievable in the salinity load associated with SRWSs would occur if everyone with a SRWS opted to remove their SRWS (100% behavior change for that target group). Success of outreach programs targeting changing behavior is difficult to quantify, but likely requires intensive community outreach and long-term timeframes. Under such circumstances, the percentage of the targeted community that would be expected to change their behavior may be between 1% and 15%.[6] As an example, assuming that 15% of brine-discharging SRWS users

[6] Water Environment Research Foundation, 2000. Tools to Measure Source Control Program Effectiveness. Water Environment Research Foundation Project. 98-WSM-2.

switched to a non automatic or non-salt discharging alternative, the TDS discharges from brine discharging SRWSs to a particular wastewater treatment plant would subsequently be reduced by 15%.

3.2.2. Ordinance Banning/Restricting Residential Water Softener Use

This MP involves enactment of an ordinance banning self-regenerating water softeners (SRWSs). The ordinance is used to ban the installation of residential SRWSs and any other automatic/salt-discharging water softeners which use and discharge high levels of sodium chloride (rock salt) or potassium chloride to the sewer system. It may also call for the removal and/or disposal of existing SRWS units connected to the sewer system. In general, the ban would not apply to SRWSs in locations served by septic tanks instead of sewers. To maximize effectiveness, this practice may be paired with an enforcement program and/or penalties and/or other practices (e.g., public outreach, rebate/incentive program, etc.). The ordinance may also require a permit for the disposal of brine from legal SRWSs. The ordinance may also be expanded to ban installation and/or require removal of existing SRWSs in commercial and industrial facilities. Examples of ordinances are shown in Attachment B.

Advantages

- Reduces chloride/EC/TDS levels discharged to sewer system
- Likely to result in high compliance rates (non-voluntary practice)
- May be less costly than other practices (source control vs. advanced treatment)
- Alternative technologies are available, including portable tank exchange, magnetic/ electronic/ catalytic water conditioners, packaged water softener chemicals, filtration, reverse osmosis, and distillation

Disadvantages

- Requires time to conduct discharge studies (CA Health and Safety Code, §116786)
- Requires time to hold a public hearing on the matter and for Regional Board approval (CA Water Code, §13148)
- May not be well-received by residents
- May encounter resistance from water softener manufacturers or stores that sell SRWSs
- Challenging to inventory and account for SRWSs in large communities
- Challenging to enforce (e.g., via inspections)
- Resource-intensive
- Public outreach may encourage the use of portable tank exchange units. Depending on the service area location and disposal mechanism, the load may be transferred locally or to another area, not minimized.

Applicability

A few communities in California have successfully adopted ordinances banning or restricting the use of residential SRWS. Legislation was enacted in 2009 to make it easier to meet the requirements to allow an ordinance. California State AB 1366 pertaining to residential self-regenerating water softeners was signed into law on October 11, 2009, and authorizes local agencies to enact an ordinance or resolution for the control of water softeners provided that specific conditions are met. The Legislative Counsel's Digest states:

> This bill would authorize any local agency that owns or operates a community sewer system or water recycling facility, within specified areas of the state, to

take action, by ordinance or resolution, after a public hearing on the matter, to control salinity inputs from residential self-regenerating water softeners to protect the quality of the waters of the state, if the appropriate regional board makes a finding[7] that the control of residential salinity input will contribute to the achievement of water quality objectives.[8]

Practice Costs ($$)

Development Cost:	Staff time – Establishing the program, obtaining various agency approvals (e.g., municipal management, legal counsel, Agency Board/Councils, Regional Water Quality Control Board), gaining public acceptance and getting the ordinance adopted
Annual Operation and Maintenance Cost:	Staff time – conducting residential inspections (e.g., for reported violations); conducting outreach to make public aware of regulations, and conducting additional monitoring to evaluate effectiveness of program

Effectiveness/Salinity Reduction

Because a regulatory approach is often more effective than a voluntary approach, an ordinance along with public outreach is likely to be more effective than an outreach program. As an example, the Santa Clarita Valley Sanitation District reported an approximately 47% decline in residential SRWS chloride contribution from 66 mg/L to 35 mg/L between 2004 and 2007 after adoption of an ordinance banning installation of new residential SRWS. The ordinance banning new water softeners was adopted in 2003. Between 2003 and 2005 residents owning SRWS dropped from 1 in 7 to 1 in 11 resident.[9] This corresponds to approximately one-third of SRWS owners removing there unit. In 2005, an initial rebate program was offered that led to more SRWS being removed. As discussed below in section 3.2.3. an ordinance adopted in 2009 banning all residential SRWS resulted in substantially more reductions.

Effectiveness of this MP would be determined based on the number of SRWS removed after a ban has been implemented. Effectiveness could also be measured based on changes in salinity concentration in treatment plant influent or effluent.

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[7] e.g., A total maximum daily load (TMDL) that addresses salinity-related pollutants in a water segment; a salt and nutrient management plan for a groundwater basin or subbasin; waste discharge requirements for a local agency; master reclamation permit for a supplier or distributor of recycled water; water recycling requirements for a supplier or distributor of recycled water; or cease and desist order directed to a local agency.

[8] ftp://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_1351-1400/ab_1366_bill_20091011_chaptered.html

[9] Upper Santa Clara River Chloride TMDL Reconsideration and Conditional Site Specific Objectives, Staff Report, California Regional Water Quality Control Board – Los Angeles Region (2008)

Salinity Reduction Level	Salinity Reduction Range
High	51-90%
Medium	**25-50%**
Low	10-24%
Marginal	<10%

3.2.3. Rebate/Incentive Programs

This MP involves the implementation of rebate/incentive program for SRWSs. Such a program is aimed at motivating residential SRWS owners to remove, dispose of, and/or exchange their units for alternatives that are not automatic/salt-discharging by offering a cash rebate. An incentive program may include providing any combination of the following:

- An incentive for those removing their SRWS (e.g., partial or full rebate for reasonable value of the unit, or replacement alternative unit)
- Professional assistance (e.g., removal and/or disposal of an SRWS, along with verification)
- An incentive for prospective water softener owners (e.g., subsidy/discount available for purchase of an alternative unit)
- A disincentive (e.g., implied or actual raising of sewer fees)

Generally speaking, such programs can include a ban (via ordinance) of installation of all new SRWSs, along with a corresponding rebate program to respond to citizens' concerns about losing the capital investment in their original SRWS. Programs typically reimburse SRWS owners for the reasonable value of the unit based on age, purchase price, and model retail rates. A successful incentive program will conducted in conjunction with public outreach (see Section 3.2.1, Public Outreach).

Advantages	Disadvantages
• Reduces chloride/EC/TDS levels discharged to sewer system • May be less costly than other practices (source control vs. advanced treatment) • If rebate is comparable to the perceived value of an SRWS, increased likelihood of participation	• May encounter resistance from water softener manufacturers or stores • Costly to implement depending on the number of people requesting rebates. May be difficult to find funding for this program. • Public outreach may encourage the use of portable tank exchange units. Depending on the service area location and disposal mechanism, the load may be transferred locally or to another area, not minimized.

Applicability

This MP would be most applicable to communities for which SRWS are a significant source of salinity and large reductions in salinity discharges are needed. Rebate/incentive programs have been used in the Santa Clarita Valley and the City of Fillmore, as well as other areas. Please refer to **Attachment C**, which includes example rebate forms, for further details. In addition, Santa Clarita's rebate program is described on their website (http://www.lacsd.org/wastewater/automatic_water_softeners/softenerrebate.asp).

Practice Costs ($$ - $$$)

Development Cost:	City of Dixon, rebates for 300 water softeners, outreach and ordinance adoption - $420,000
Annual Operation and Maintenance Cost:	Rebates for water softeners will be the primary cost. For a community of 100,000 people or about 30,000 households, 20% of households having water softeners would correspond to 6000 water softeners that would potentially be removed. At a rebate of $300 per water softener, the cost for rebates alone would be $1,800,000. Other costs include inspections, plumbers to remove water softeners and outreach to publicize and explain the program. Total costs could range from $2 million – $2.5 million. City of Dixon - $160,000

Effectiveness/Salinity Reduction

In combination with outreach and an ordinance, an incentive program can be very effective in reducing salinity loadings to a wastewater treatment plant. Effectiveness of the MP would be measured based on the number of rebates issued and/or based on the number of SRWS removed. The number of residential SRWS in the service area should be estimated prior to implementation of an incentive program. Effectiveness can also be measured based on changes in salinity concentrations in wastewater treatment plant influent or effluent.

The Santa Clarita Valley Sanitation District has conducted a multi-phase rebate program along with extensive outreach and the enactment of ordinances banning installation of new SRWS in 2003 and requiring removal of all residential SRWS in 2009. Phase 1 of their rebate program was initiated in 2005 and offered rebates of $100-$150. As a result over 400 SRWS were removed between December 2005 and April 2007. In May 2007, Phase 2 of the rebate program was initiated along with increased outreach efforts. Rebates of $350-$2000 (SRWS reasonable value) were offered resulting in 2400 SRWS being removed between May 2007 and December 2008. Removal of all water softeners was required by the ordinance adopted in 2009 resulting in the removal of an additional 4,200 SRWS. Over 7000 SRWS were removed and it is estimated that 500 to 1000 SRWS are still in operation in the service area. Therefore, the combined program of outreach, rebates and ordinances resulted in the removal of 88%-94% of the SRWS in the service area. Between 2003 and 2010, chloride levels in the effluent decreased from ~96 mg/L to ~44 mg/L for an overall reduction of >50%. Effluent chloride concentrations attributed to SRWS decreased by 70% between 2004 and 2010.[10]

[10] County Sanitation Districts of Los Angeles County. *SCSC Final Report. Automatic Water Softener Rebate Program –Phase II: Public Outreach Report.* Prepared for the Southern California Salinity Coalition. December 2010.

Taking advantage of AB1366, the City of Dixon instituted an SRWS ban and incentive program to remove residential SRWS in 2009.[11] In addition, the City conducted public outreach that included billing flyers and 2 Water Conditioner Fairs. Prior to these source control efforts, it was estimated that there were 1000 residential SRWS in the service area. The City has documented that 500 or half of the water softeners have been removed. Effectiveness was also measured with respect to reductions in softener salt sales in the City. A 54% reduction in softener salt sales occurred in Dixon between 2007 and 2011. Effluent levels of chloride have been estimated to also be reduced by 50% over the same time period.

Salinity Reduction Level	Salinity Reduction Range
High	**51-90%**
Medium	**25-50%**
Low	10-24%
Marginal	<10%

[11] Stantec, 2012. City of Dixon Source Control Effectiveness Report. January 2012.

3.3. RESIDENTIAL TOOLBOX

MPs that may result in reductions of salinity discharges associated with residential activities include:

- Public Outreach Targeting Residential Activities

This MP is described further below.

3.3.1. Public Outreach Targeting Residential Activities

This MP involves public education and outreach regarding residential activities, providing accessible information, resources, and/or materials aimed at educating residents about the effects of specific residential activities that may result in the discharge of high levels salts to the sewer system. Public outreach is a voluntary practice. Such outreach may focus on the following:

- Food and product disposal
- Soap and laundry detergent choices
- Salt water pools

Examples of outreach developed targeting residential activities is found in Attachment A.

Advantages	Disadvantages
• Less costly than other practices • Can begin implementing practice relatively quickly • Increases public awareness of salinity water quality impacts • Assists with long-term goal of changing behavior and practices that affect salinity/water quality	• Requires time to develop materials and conduct outreach • Unlikely to target significant salinity sources or achieve large reductions

Applicability

Public outreach is an integral component of any salinity management program, including strategies to reduce salinity discharges associated with residential activities. If a significant reduction in salinity is required, public outreach will likely need to be used in conjunction with additional, more stringent MPs. Once the message(s) for public outreach targeting residential activities have been established, multiple mechanisms may be implemented for an effective public outreach strategy.

Practice Costs ($)

The costs for the Public Outreach Targeting Residential Activities MP are likely to be similar in scope to the Public Outreach Targeting SRWSs MP. The amount required will depend largely on the size of the audience being targeted.

Effectiveness/Salinity Reduction

The residential activities targeted by general outreach such as laundry practices, food disposal and salt water pools are expected to account for a small portion of a POTWs salinity loadings. In addition, public outreach alone is estimated to result in 10% or less of the target audience changing its behavior. Therefore, this strategy is expected to have a marginal impact on salinity reductions.

Effectiveness of this MP would be based on conducting surveys to assess recall of outreach programs and materials, increases in awareness of salinity sources and impacts to water bodies and to determine reported behavior change resulting from outreach.

Salinity Reduction Level	Salinity Reduction Range
High	51-90%
Medium	25-50%
Low	10-24%
Marginal	**<10%**

3.4. INDUSTRIAL/COMMERCIAL TOOLBOX

MPs that may result in reductions of salinity discharges associated with the water supply include:

- General industrial/commercial activities
- Food processors

Salinity from industrial/commercial sources is often associated with cleaning soaps/cleansers, water conditioning, cooling tower chemicals (anti-scale and anti-corrosion), or large HVAC system blowdown (cooling tower or boiler) operations. Food processing discharges are often very high in TDS and may require special attention.

3.4.1. Industrial/Commercial Activities

Industries that may have significant salinity loads include hospitals, microbreweries, chemical manufacturing, large metal finishing operations, industrial laundries or garment-dying processes. Key processes to evaluate at any industrial or commercial facility are water softening and evaporative cooling. In addition, other processes that may contribute to salinity discharges include cleaning soaps/cleansers, water conditioning, cooling tower chemicals (anti-scale and anti-corrosion), or large HVAC system blowdown (cooling tower or boiler) operations.

Note that beverage making and/or bottling wastewater typically exhibits high TDS; however, the majority of the TDS is organic and removed at the wastewater treatment plant. In general, for industrial and commercial activities in particularly, the constituents that contribute to salinity should be evaluated to ensure that the focus of the MPs is to remove inorganic/mineral salts rather than organic constituents.

The significance of loads from these sources will often depend on the size of the operation and process flows from the facility.

Management Practices for Industrial and Commercial Activities will most likely fall into one of the following categories:

- General outreach and education regarding the impact of a facility's activities on salinity levels at the treatment plant and/or in the receiving water.
- Product substitution – changes in raw materials, cooling tower chemicals or cleaning products
- Reduce quantity of raw materials used – use the smallest amount needed
- Modify equipment, practices, or processes - elimination of salt based water softeners, maximization of reverse osmosis efficiency, change type of softener to on-demand or to a higher efficiency, minimize pH adjustments and ensure that pH adjustment is necessary (e.g., to meet a local discharge limit), boiler blowdown, cleaning methods
- Redirect wastestream (recycle, use gray water, irrigate)
- Pretreatment – may be cost effective to treat the industry's wastewater rather than trying to remove it at the municipal treatment plant.

The most significant salt reductions may result from a combination of multiple MPs, at least for some industries. If an extremely large discharger contributes a large salinity load due to volume but otherwise has close to background levels of TDS and EC, and the water supply is the source of most of their salinity, focusing on changing water supply at a single large discharger could be effective.

There are also multiple ways to address salinity for industrial and commercial customers:

- voluntary implementation of salinity reduction measures
- mandatory BMPs for certain categories or processes
- numerical local limits.

Advantages	Disadvantages

Advantages	Disadvantages
• Discharger may already be regulated through pretreatment program • Regulatory authority is readily available to enforce requirements • Potential for cost savings by discharger depending on reduction strategy • Some changes are simple for the industry • Higher pH levels may improve local sewer collection systems, reduce H2S formation • Agency may be able to help fund pretreatment, which may be less expensive than advanced treatment at the plant	• May not result in significant salinity reductions depending on relative strength and flow of discharge • May be costly for discharger if treatment is required. Disposal of brine discharges could also be costly. • May require testing to identify product substitutes

Applicability

This MP will apply to municipalities where industries account for a significant portion of the industrial flow or influent flow or a significant portion of the industrial loading. It may also be applicable if there are a large number of commercial businesses that as a group account for a significant portion of the salinity loading to the treatment plant.

Practice Costs ($ for agencies; $$ for dischargers)

Cost to municipality	Inspection and enforcement costs. Establishment of local limits and/or updating sewer use ordinance.
Cost to discharger	Cost of treatment

Costs to implement an MP targeting industrial or commercial dischargers may be covered by existing Industrial Pretreatment Program or Source Control Program budgets.

Effectiveness/Salinity Reduction

Effectiveness in reducing salinity loads will depend on the portion of the salinity load represented by the discharger and portion of the industrial load that can be eliminated. For example, a treatment process will be unlikely to remove 100% of the load but a product substitution that eliminates use of a salt could eliminate 100% of the load from that source. If the discharge is redirected away from the treatment plant headworks (e.g., land applied, separate discharge), 100% of the load could be eliminated.

Typically regulatory approaches (i.e., permitting, inspections) will be more effective than voluntary approaches.

Effectiveness would be measured based on changes in salinity concentrations or loads measured at the facility and in the POTW influent.

For municipalities that have estimated industrial/commercial activities to be a significant portion of the salinity loading, measurable reductions may be achieved through MPs targeting these activities. Referring back to Table 1, communities with lower hardness and water supply salinity, estimate loading contributions from industrial and commercial activities to be 20-70%. Therefore, if half of that load could be reduced, then a 10-35% reduction in the total load could be achieved.

Salinity Reduction Level	Salinity Reduction Range
High	**51-90%**
Medium	**25-50%**
Low	10-24%
Marginal	<10%

3.4.2. Food Processing Waste

Industrial food processors are likely to have high salinity discharges. If such a facility exists in the POTW's service area, it is recommended that they are referred to the CV-SALTS Salinity MPs for Food Processors which is a separate document.[12]

[12] Citation for this document

3.5. TREATMENT PLANT PROCESS TOOLBOX

Salinity reduction within the treatment plant involves identifying processes where salts may be added and determining if there is a way to reduce the use of the chemical or substitute something else for it. For example, disinfection uses chlorine-containing compounds which contribute to salinity. In some cases, it may be cost effective to use Ultra Violet Light (UV) for disinfection. There are other chemicals used at wastewater treatment processes that may also add to salinity. In some cases, those chemicals may be necessary to ensure the effectiveness of a treatment process (e.g., nitrification) or as part of a process required to meet requirements of other regulatory programs (e.g., scrubbers for air pollution control).

Overall, chemicals used at the treatment plant and possibly within the collection system should be evaluated for their contribution to salinity loadings and, where possible, product substitution should be considered. The disinfection operation is specifically addressed in the MP described below.

3.5.1. Disinfection

Sodium hypochlorite or chlorine gas are typically used for disinfection at wastewater treatment plants to meet effluent limits for pathogens. Disinfection using UV is also used. Increasingly, wastewater treatment plants are evaluating switching from chlorine to UV disinfection to reduce discharges of trihalomethanes.

Advantages	Disadvantages
• Reduces salinity in effluent • May also address other compliance issues (i.e., effluent limits for trihalomethanes) • Eliminates use of a hazardous chemical so may reduce safety issues	• Expensive to implement • No chlorine residual • Turbidity levels may need to be reduced • Higher energy costs

Applicability

Overall reduction may be small compared to other sources but if a plant upgrade is under consideration or there are other constituents of concern that could be addressed, UV disinfection may be worth evaluating. UV disinfection requires tertiary treatment to ensure low turbidity. Therefore, this MP may not be applicable or would be far more costly for a facility that is currently a secondary treatment facility.

Practice Costs ($$$)

Cost of this MP will be dependent on the size of the treatment plant. Some example planning level cost estimates for UV Disinfection are shown below for different sized facilities.

Installation Cost:	
18 MGD WWTP[13]	$30,000,000
218 MGD WWTP[14]	$140,000,000
Annual Operation and Maintenance Cost:	
18 MGD WWTP	$423,000
218 MGD WWTP	$3,000,000
Total Annual Cost:	
18 MGD WWTP	$2,380,000
218 MGD WWTP	$14,000,000

Effectiveness/Salinity Reduction

Eliminating chlorine disinfection would be 100% effective with respect to reducing salinity from that source. However, salinity loads from the treatment process are typically no more than 10% of the total effluent salinity loading. Effectiveness for this MP would be measured based on reductions in effluent salinity concentrations. Effectiveness could also be measured based on the reduction in the quantity chlorine or salt containing compounds used at the wastewater treatment plant.

The City of Stockton and the City of Manteca each reduced the use of chemicals contributing to salinity in their treatment processes which did not result in measurable reductions in salinity loadings or concentrations.

Salinity Reduction Level	Salinity Reduction Range
High	51-90%
Medium	25-50%
Low	**10-24%**
Marginal	<10%

The City of Stockton has replaced alum with polyaluminum chloride at the RWCF as a means to reduce the need for caustic during the treatment process. Some caustic is still used on occasion to optimize performance of nitrifying biotowers. These adjustments have lead to an overall slight reduction in effluent EC levels, as described by the City of Stockton RWCF Chief Plant Operator[15].

[13] Larry Walker Associates, 2011. Victor Valley Wastewater Reclamation Authority Cumulative Impact Analysis. February 2011. (2009 Dollars, ENR CCI = 8641)

[14] Carollo Engineers, 2009. Technical Memorandum. Advanced Treatment Alternatives for the Sacramento Regional Waste Water Treatment Plant. March 2009. (2009 Dollars, ENR CCI = 9138)

[15] Fermin Garcia, City of Stockton Chief Plant Operator Wastewater, email communication with Mike Trouchon, Larry Walker Associates, on July 25, 2012.

The City of Manteca replaced the WQCF's existing chlorine contact tank with tertiary filtration and UV disinfection, which appeared to contribute to a slight reduction in effluent EC levels; however, this reduction was not considered significant, nor was it distinguishable from the normal variability observed in the concentrations of this parameter in the City's effluent[16].

[16] City of Manteca. (2009b). *Infeasibility Analysis and Compliance Schedule Justification in Support of a Time Schedule Order for the City of Manteca Wastewater Quality Control Facility*. Manteca: Draft letter to Mr. Jim Marshall of the CVRWQCB from Phil Govea, P.E., Deputy Director of Public Works

3.6. INFLOW AND INFILTRATION TOOLBOX

Depending on the quality of nearby groundwater and receiving waters, inflow and infiltration into the collection system may increase the salinity of the influent to a WWTP. However, if the I&I is mostly due to rainwater, reductions in I&I have the potential to increase salinity concentrations (although loads should stay fairly constant). An MP that may result in reductions of salinity discharges associated with inflow and infiltration (I&I) includes:

- Evaluation of I&I Reduction Opportunities

This MP is described further below.

3.6.1. Evaluation of I&I Reduction Opportunities

Water entering the collection system through inflow and infiltration (I&I) may add salinity to the collection system if the I&I is associated with saltwater intrusion or high salinity groundwater. If most of the I&I is associated with freshwater or rainfall, then this may not be a source of salinity. If I&I is found to be a significant salinity source, an I&I assessment can be conducted. The I&I assessment would include flow monitoring in the collection system to compare flow during rainstorms to baseline flow during dry weather to identify areas of the collection system that are 'leakier' than other sections. Rainfall monitoring is also conducted to determine the amount of I&I directly associated with rainfall. For areas of the collection system that are identified as having higher I&I than is considered normal (i.e., > 1-3%), closed circuit televising (CCTV) of lines is conducted in an effort to identify structural defects in the collection system that are entry points for infiltration. Smoke testing may also be conducted to identify sources of I&I to the collection system. Repair of key defects may reduce I&I, which would, in turn, reduce salinity from this source.

Advantages	Disadvantages
• May reduce influent flow and may increase hydraulic capacity of collection system •	• Resource intensive to find structural defects that contribute to I&I. • Depending on water quality, I&I reduction may not reduce salinity

Applicability

This MP will be applicable for service areas with older collection systems with know I&I concerns and where I&I is likely to be high in salinity (e.g., near a saltwater receiving water, shallow groundwater).

Practice Costs ($$$)

Planning level cost estimates for a very small collection system are shown below.

I&I Assessment	Cost for flow and rainfall monitoring, CCTV and smoke testing for a very small collection system (~12 miles of sewers)- $320,000

I&I repair and rehabilitation	Repairs to reduce I&I by 70% in a very small collection system estimated to cost $850,000 – $2,400,000[17]

Effectiveness/Salinity Reduction

For this MP to result in significant salinity reductions, I&I would have to be a significant portion of the influent flow and have a relatively high salinity. In that situation, comprehensive rehabilitation of the collection system to reduce I&I may result in measurable reductions.

Effectiveness for this MP would be measured based on salinity reductions measured in the influent or effluent and perhaps based on flow reductions measured for the influent.

The City of Dixon evaluated I&I as a salinity source.[18] Prior to 2004 average effluent chloride concentrations were approximately 221 mg/L during irrigation season. In April 2004, the City isolated and repaired an especially leaky section of a trunk line located between the City and the Wastewater Treatment Plant. Shallow groundwater infiltrating into this section of sewer was thought to be influenced by agricultural irrigation and land use along the trunk line route. Remediation of this line resulted in a substantial reduction in I&I flow of 0.17 MGD and a reduction in effluent chloride concentrations to 169 mg/L during irrigation season. It was estimated that I&I contributed approximately 18 pounds per day to the total chloride load in 2008 or approximately 1.2% of the salinity load.

The City of Gustine estimated that I&I may contribute 9-12% of the salinity loading to its treatment plant due to shallow groundwater with high EC levels. I&I flow is estimate to account for approximate 15% of the total flow to the City's wastewater treatment plant. Reduction in I&I flows may result in some reduction in salinity loadings.[19]

Salinity Reduction Level	Salinity Reduction Range
High	51-90%
Medium	25-50%
Low	10-24%
Marginal	**<10%**

[17] Larry Walker Associates, 2011. Lake Berryessa Resort Improvement District Inflow/Infiltration Capacity Evaluation Report and Wastewater Facilities Improvement Plan. September 2011.

[18] Ecologic, 2008. City of Dixon Wastewater Salinity Characterization and Regulatory Compliance. October 7, 2008.

[19] Larry Walker Associates, 2011. Updated Salinity Source Control Program Report. Prepared for the City of Gustine. September 2011.

4. Creating a POTW Salinity Management Plan

Once significant sources have been identified and applicable MPs have been selected, a plan for implementation of these MPs should be developed. The content of a Salinity Management Plan will also depend on overall salinity discharges and whether a plan has previously been developed. Language in the dischargers permit should be considered, for example, directions to simply prevent increases up to requirements to achieve specific reductions to meet a new limit. The Salinity Management Plan developed from the MPs described in this toolbox is intended to only target salinity reductions from a wastewater treatment plant. Other non-point source salinity sources in a community would be addressed by a separate plan. Both plans would be elements of a comprehensive salinity management plan developed under CV-SALTS to address all salinity sources in a watershed.

4.1. BASELINE PROGRAM

For municipalities with relatively low salinity discharges, there may still be a regulatory requirement to develop a Salinity Management Plan. In these cases, a baseline program focused on public outreach, monitoring and participation in regional efforts is recommended.

Public Outreach would focus on educating residents regarding the impacts of salts on water quality (i.e., for crops, drinking water, aquatic life), what they can do to help (see toolbox), and encouraging voluntary removal of water softeners.

Monitoring of effluent would be conducted on a regular basis to ensure that salinity levels do not increase significantly, and a plan would be in place to implement specific MPs if salinity discharges increase beyond a certain amount or other trigger.

4.2. AUGMENTING AN EXISTING PLAN

Based on the source analysis and MPs described above, a municipality may be able to identify practices that could result in added reductions to those achieved through an existing plan.

4.3. DEVELOPMENT OF A SALINITY MANAGEMENT PLAN

For municipalities that have not previously addressed salinity discharges, the MPs should be prioritized based on resources available and ease of implementing the practice. Prioritization will also be based on regulatory compliance schedules and the significance of the source that is addressed by the MP. Significance of reductions cannot be determined solely by a formula or cost; a wholistic approach should be taken. It may be possible to implement source control on a widespread less salty source that might provide an equal or larger salt reduction overall than a large point source where the remedial cost is high or practices infeasible.

Attachment A. Example Outreach Materials

TOO MUCH SALT ! ! !

Salt Is Serious Because…….

- The California Regional Water Quality Control Board has determined Dixon's wastewater contains too much salt.
- High salinity (salt content) can be harmful to the environment, making groundwater unsafe to drink or irrigate crops, and soil unable to grow food.

How can Salt be less serious?

- The City can treat the salt problem "at the end of the pipe", which will be at the City's wastewater treatment plant (WWTP). However this will be very expensive and will result in much higher sewer bills for everyone.
- A better way to treat the salt problem is "at the beginning of the pipe" by eliminating or greatly reducing the amount of salt each and every one of us puts into the City's sewer system.

How can I help?

- If you have a salt discharging water softener, disconnect it. If necessary you can then use a water softener that does not discharge salt. Salt discharging water softeners are a major contributor to salt in our City's wastewater.
- Choose liquid soap for laundry and dishwashers. Powdered soaps have higher salt content.
- Buy and use dryer sheets instead of liquid softeners. Liquid softeners have high salt content.
- Use mopping pads instead of a traditional mop and bucket of water.
- Put kitchen food waste in the trash instead of the in-sink garbage disposal. Food waste is high in salt.
- Live by example. Teach others and your children about putting less salt down the drain.
- Educate others about pollution prevention and the City's salt problem.

How can I get more information?

- Contact the City's Engineering Department at 707-678-7030.
- Visit the City of Dixon website at www.ci.dixon.ca.us

Lo Que ya Esta Haciendo la Ciudad

- Ordenanza 04-777 adoptada. Esta ordenanza prohíbe aplicaciones para utilizar suavizadores que desechan sal en zonas no residenciales y prohíbe nuevas instalaciones en residencias. Todos los suavizadores que existen en zonas no residenciales tendrán que ser removidos a más tardar Octubre 9 del año 2004. Se les dará una advertencia a los negocios y si no cumplen será una violación. Violaciones de la Ordenanza son penados con una multa que no exceda los $1,000 dólares, encarcelamiento que no exceda los 30 días o las dos cosas.
- Los inspectores de edificios ahora están examinando los suavizadores comerciales durante su inspección anual de licencias para edificios.
- Nuestro personal tiene instrucciones de pedirle a los comerciantes que no vendan bolsas de sal de piedra más grandes de una libra. Los comerciantes tendrán que poner un rotulo que indique "LA SAL DE PIEDRA YA NO SE VENDERA MAS PORQUE ESTA CONTAMINANDO EL RIO Y LA PROPORCION DE AGUA."
- Una nueva alcantarilla será construida para cumplir otros mejoramientos en la calidad del agua que el estado requiere. El costo de la alcantarilla será incrementado a $70 dólares por mes para pagar este inmenso gasto capital.

Lo Que Usted Puede Hacer Para ayudar

- ✦ Si tiene un suavizador de sal desconéctelo hoy mismo.
- ✦ Utilice un suavizador que requiere cambiar el tanque.
- ✦ Lea el material educativo que le estará proporcionando la Ciudad y asista al taller de suavizadores de agua el 9 de Diciembre a las 6:30 de la tarde en City Hall, 250 Central Avenue. Si no puede asistir, vealo por televisión en el canal 10.
- ✦ Conteste el cuestionario que recibirá de la Ciudad a principios del año 2005, indicando sus preferencias acerca de posibles soluciones de término largo.
- ✦ Utilice detergentes y limpiadores que no dañen el ambiente los cuales están disponibles en cualquier tienda de comestibles.
- ✦ Llame a Bert Rapp, Ingeniero de la Ciudad al 524-1500 extensión 231 si tiene preguntas.

3 Soluciones de Término Largo

✦ *Suavizar el agua potable de la ciudad.*

Boyle Engineering, quien esta terminado un estudio sobre el tratamiento del agua de la Ciudad, ha determinado que costaría $24 dólares por mes en el cobro de su vivienda para suavizar el agua potable. Una planta para suavizar el agua dirigida por la ciudad suavizaría el agua de "muy fuerte" a "moderadamente suave" al remover el 75 porciento de los minerales fuertes. El costo por vivienda por mes en el año 2008 seria de $18 dólares en gastos capitales y $6 dólares gastos de operación. Debido a que este es un proyecto para reducir la sal, la Ciudad tendrá éxito en obtener concesiones las cuales ayudaran en rebajar el costo mensual.

✦ *Quitarle la sal al agua en la planta de tratamiento para la alcantarilla.*

El costo estimado para remover la sal en la planta de tratamiento es de $37 dólares por mes en el cobro de cada residente. Esta opción requiere la instalación de un sistema de osmosis invertido en la planta de reciclar el agua e instalar líneas de filtración a Santa Paula y eventualmente al mar. Esta alternativa ofrecería excelente calidad de agua a los peces pero no ayudaría en nada a los clientes de la Ciudad. El costo mensual por residente en el año 2008 seria de $29 dólares en gastos capitales y $8 dólares en gastos de operación.

✦ *Monitorear a los residentes que tiren demasiada sal y mandarles un cobro por removerla.*

El costo por vivienda de Fillmore para monitorear seria de $2.50 por mes. Monitorear incluiría lo siguiente:

- Implementar un programa agresivo para informar y recomendar a los clientes que utilizan suavizadores de sal que ya no los utilicen y que ya no instalen suavizadores nuevos.
- Adoptar una ordenanza que requiera que los inspectores de la Ciudad identifiquen los suavizadores de sal cuando una propiedad es vendida.
- Establecer una multa de $1,000 dólares a todos los dueños de casa que hayan comprado un suavizador de sal ilegal (aquellos instalados después del 12 de Junio del año 2004 o aquellos sin permisos).
- Transferir el costo de educar al publico y monitorear los deschos de sal a los que la utilizan 100 miligramos por litro o mas (viviendas que no utilizan suavizadores de sal derraman 80mg/L). Este costo es de aproximadamente $220 dólares por mes por violador. Agregar $600 dólares para remover y utilizar cloro al cobro mensual. Si el cliente firma una nota que indica que no gasta mas de 100 mg/L de cloro (como ejemplo: no tienen un suavizador de sal) y esta dispuesto a permitirle al inspector que revise la casa con un anticipo apropiado, estará libre de cargos extras en su cobro mensual. Implementar un programa que tome muestras de la alcantarilla para saber si tienen un suavizador de sal si es necesario.

Para Más Información

Si usted necesita más información sobre esta causa tan importante que afecta a todos los ciudadanos de Fillmore, por favor de llamar al Ingeniero de la Ciudad al 524-1500 extensión 231.

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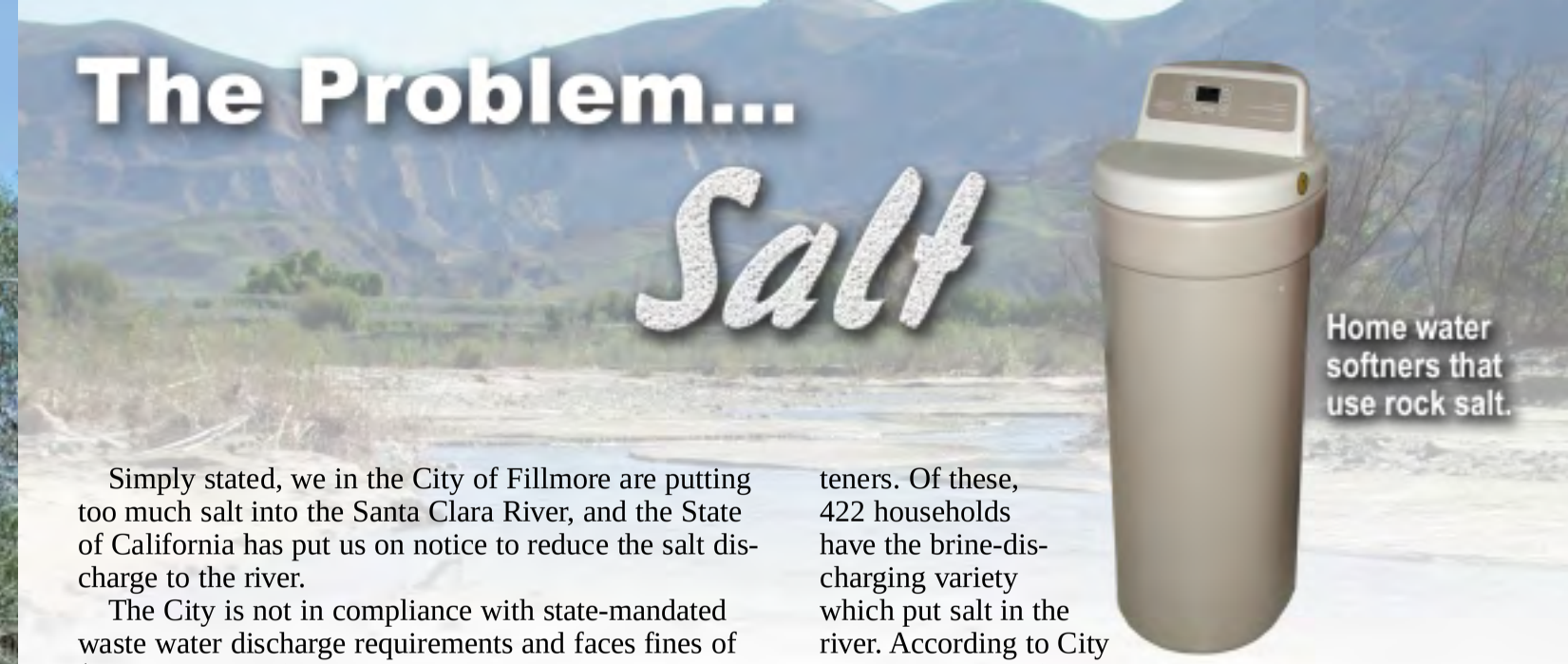


Simply stated, we in the City of Fillmore are putting too much salt into the Santa Clara River, and the State of California has put us on notice to reduce the salt discharge to the river.

The City is not in compliance with state-mandated waste water discharge requirements and faces fines of $3,000 per day if it does not come into compliance by Sept. 10, 2008.

Three-thousand dollars per day is a lot of money.

Currently, the concentration of salt being discharged by the City into the river is one and a half times the acceptable level established by the state.

The City has determined that, under interim limits, we will be facing fines of $15,000 to $30,000 per year. Beginning in 2008, the city would face fines of up to $1.1 million per year!

We can all agree that there are more important things to do with your hard-earned tax dollars than pay fines.

The Causes…

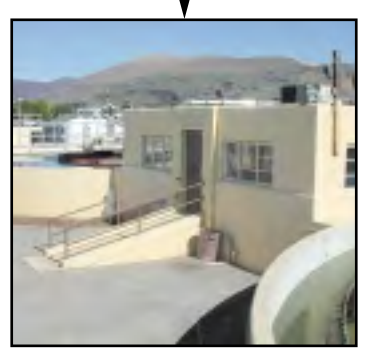
Salt ends up in the Santa Clara River through the city's waste-water treatment system. Here's how it gets there:

- After water is used for washing dishes, showering, laundering, flushing toilets and other uses, the wastewater goes to the sewer.
- From there it flows to the waste-water treatment plant.
- After treatment the discharge water is percolated into the ground and the Santa Clara River. The treatment plant removes many impurities and polluting substances from waste-water, but it is not designed to remove salt.

Home water softeners that use rock salt are the biggest source of salt. About 466 pounds of salt per day are put into the sewer by brine discharging water softeners in Fillmore.

Of the 4,220 households in Fillmore, approximately 39 percent have water softeners. Of these, 422 households have the brine-discharging variety which put salt in the river. According to City records only 48 of these households have valid City permits for such water softeners.

Waste Water Travels from Homes…



To the Waste Water Treatment Plant…

Then to the Santa Clara River.

City Council Will Solicit Ideas to Resolve Dilemma

So what can we do?

The City first will undertake a communication program to explain to residents the problem, the causes and what is being done to resolve it. This brochure is the first step in that process.

The next step will be a public workshop on the water softener issue on Thursday, Dec. 9, at 6:30 p.m., at City Hall, 250 Central Avenue. The workshop will be televised live over cable channel 10. We want to hear from you about how we might resolve this costly issue.

In early spring of next year, you will be sent a questionnaire asking your opinion on options the City might pursue.

After your input is received, the Council will prepare a plan of action in May or June. Implementation of the Chloride Pollution Plan would begin in September 2005.

Please Attend Public Workshop

Thursday, Dec. 9, 2004 • 6:30 p.m.

Fillmore City Hall

250 Central Avenue.

Or watch live on Cable Channel 10

What the City Already Is Doing

Fillmore waste water treatment plant along the Santa Clara River. A new sewer plant will be constructed to meet other water quality improvements required by the state.

- Ordinance 04-777 adopted. This ordinance prohibits brine-discharging water softener appliances in non-residential applications and prohibits any new installations in residences. All existing brine-discharging water softeners in non-residential buildings were to be removed by October 9, 2004. Businesses will be given one warning, then will be in violation. Violations of the Ordinance are misdemeanors punishable by a fine not to exceed $1,000, imprisonment not to exceed 30 days, or both.
- Building inspectors are now checking for commercial softeners during their annual building license inspections.
- Staff has been directed to send out a request that Fillmore merchants not sell any bags of rock salt larger than one pound. Merchants are to be requested to put up signs stating that "ROCK SALT NO LONGER SOLD BECAUSE IT IS POLLUTING THE RIVER AND WATER SUPPLY."
- A new sewer plant will be constructed to meet other water quality improvements required by the state. Sewer rates will need to be increased about $70 per month to pay for this major capital expenditure.

What You Can Do to Help

- ✦ If you have a brine-discharging water softener, unplug it today.
- ✦ Use a water softening service that provides an exchange tank.
- ✦ Read the education materials that will be provided to you by the City and attend the water softener workshop on ***December 9 at 6:30 p.m.*** at City Hall, 250 Central Avenue. If you can't attend, watch it live on cable channel 10.
- ✦ Respond to the questionnaire that you will receive from the City in early 2005, expressing your preference on possible long-term solutions.
- ✦ Use environmentally-friendly detergents and cleaners, available at most grocery stores.
- ✦ Call Bert Rapp, City Engineer at 524-1500 x 231 if you have any questions.

Three Long-term Solutions…

✦ *Soften the city's drinking water.*

Boyle Engineering, which is completing a soft water treatment study for the City, has determined that it would cost $24 per month on a household water bill to soften the city's tap water. A city-operated water softening plant could soften the water from "very hard" to "moderately soft" by removing 75 percent of the hard minerals. The monthly per residence cost in 2008 dollars would be $18 for capital expenditures and $6 for operating costs. Because this is a salt reduction project, the City should be successful in obtaining grants, which would help lower the monthly cost.

✦ *Desalt the sewer water at the sewage treatment plant.*

The estimated cost to remove salt at the waste water treatment plant would be $37 per month on each residence's sewer bill. This option involves installing reverse osmosis at the water recycling plant and installing a brine line to Santa Paula and eventually to the ocean. This alternate would provide excellent quality water to the fish but it would do nothing for the City's water customers. The monthly per residence cost in 2008 dollars would be $29 for capital expenditures and $8 for operating costs.

✦ *Police residents who discharge excess chloride and bill them for the cost of removal.*

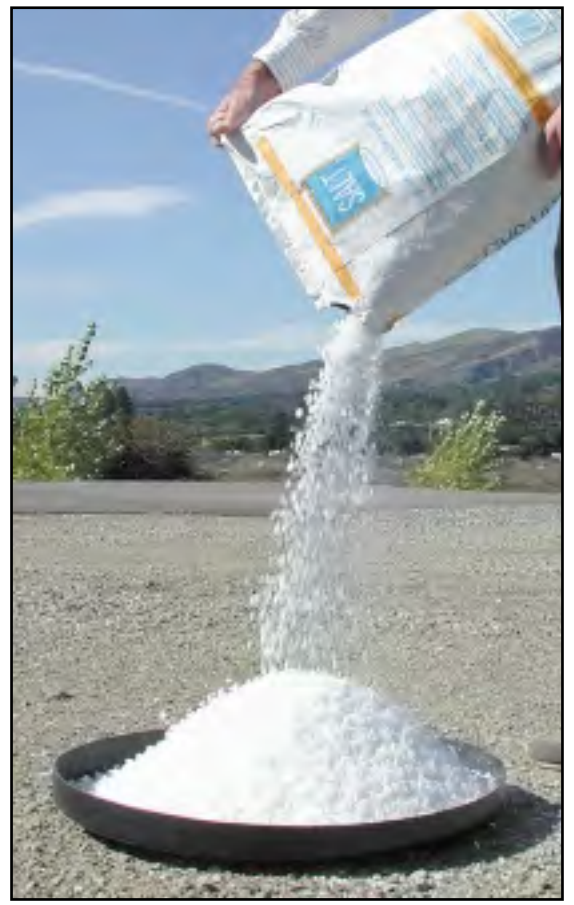
The cost per Fillmore household for water softener policing would be $2.50 per month. Softener policing would include:

- Implementing an aggressive customer outreach program to encourage users to remove their brine-discharging softeners, and making them aware of the ban on installing new softeners.
- Adopting an ordinance that requires City inspections of homes when they are sold to identify brine discharging water softeners.
- Establishing a $1,000 penalty to be levied against all owners of illegal water softeners (those installed after June 12, 2004, or those without building permits).
- Passing on the costs of public outreach and policing to the dischargers of salt higher than 100 milligrams per liter (homes without brine discharging softeners discharge 80mg/L). This cost is estimated to be $220 per month per violator. Add a $600 per month chloride control and removal surcharge to the sewer bill. If the customer signs a statement saying they do not discharge chloride above 100 mg/L (i.e.: they do not have a brine discharging water softener) and they will invite the City inspector to inspect their home with proper notice, then they will be released from the surcharge. Conduct a sewer sampling program to locate brine discharging softeners if necessary.

Questions and Answers

Q. How do I know if I have a brine-discharging water softener?

A. A. If you add salt or potassium to your water softener or have a water conditioning service do so, then you have a brine-discharging water softener. If you have a water conditioning service change out the tank on your water softener on a regular basis (say, weekly or monthly), then you have a portable exchange tank system, which is acceptable.



If you add salt or potassium to your water softener or have a water conditioning service do so, then you have a brine-discharging water softener.

Q. Doesn't most of the salt come from industrial, rather than residential, uses?

A. A. No. Most of the salt in waste-water comes from homes, primarily from brine-discharging water softeners. The City carefully regulates the discharge of salt from industrial and commercial businesses, which are being prevented from using brine discharging water softeners.

Q. I like my brine-discharging water softener. Can I continue to use it?

A. A. Technically yes, if it was legally installed prior to June 12, 2004. However, the City has passed ordinances that prohibit new installations of brine-discharging water softeners. If your existing softener breaks down, you cannot install a replacement. You also cannot transfer your system if you move to another residence.

Q. I don't like the quality of water coming into my home. How can I treat it without using a brine discharging water softener?

A. A number of different systems are available for the water you use in your home. If you need soft water, you can switch to an alternative means of softening your water, such as an exchange tank water softening system. Depending on your needs, you may also consider filtration, activated carbon, or reverse osmosis treatment units.

Q. Why can't the City treat our tap water to make it softer and eliminate the need for water softener systems?

A. This is one of the options the City is exploring and the anticipated cost in 2008 dollars per household would be approximately $24 per month.

Q. Why can't the sewage treatment plant be modified to take out the salt?

A. This also is one of the options the City is exploring, but it is the most expensive – estimated to cost $37 monthly per household in 2008 dollars.

Q. Why do there have to be limits on salt released into the Santa Clara River?

A. Salt is fine for salt water fish and sea animals. Too much of it kills freshwater fish and amphibians. To much salt also harms sensitive agricultural crops such avocados and strawberries. Fillmore as well has a legal obligation and a desire to protect the environment from destructive practices.

For More Information

If you want additional information on this important issue that affects all citizens of Fillmore, you may call the City Engineer at 524-1500, extension 231.

City of Fillmore
Central Park Plaza, 250 Central Avenue
Fillmore, CA 93015-5707
Phone: 805-524-3701 Fax: 805-524-5707
www.fillmoreca.com

Así sencillamente, nosotros en la Ciudad de Fillmore estamos desechando demasiada sal en el Rió de Santa Clara y el Estado de California nos ha notificado que tenemos que reducir los desperdicios de sal en el rió.

La Ciudad no esta cumpliendo con los mandatos del Estado sobre los desperdicios de sal en el agua y enfrenta multas de $3,000 dólares por día si no cumple con los requerimientos antes del 10 de Septiembre del año 2008.

Tres mil dólares por día es demasiado dinero.

Actualmente la concentración de sal que esta siendo desechada por la Ciudad en el río es el uno y medio más del nivel establecido y aceptado por el Estado.

La Ciudad ha determinado que bajo limites intermediarios, nosotros enfrentaremos multas de $15,000 a $30,000 dólares por año. Empezando en el año 2008, la Ciudad enfrentara multas desde casi $1.1 millones por año!

Todos estamos de acuerdo que hay cosas mas importantes en que gastar su dinero de impuestos que ha ganado con tantos esfuerzos y no en pagar multas.

Las Causas…

La sal termina en el Río de Santa Clara por medio del sistema de tratamiento de agua de la ciudad. Así es como funciona:

- Después que el agua es utilizada para lavar trastes, bañarse, lavar ropa, taza del baño y otros usos mas, el agua con desechos termina en la alcantarilla.
- De ahí procede a la planta de tratamiento de agua.
- Después del tratamiento el agua es filtrada al Río de Santa Clara. El tratamiento remueve las impurezas y las sustancias contaminantes del agua con desechos, pero no esta diseñado para remover la sal.

La mayor parte de la sal proviene de los suavizadores de agua de casa que utilizan piedras de sal. Aproximadamente 466 libras de sal por día son desechadas en la alcantarilla por medio de suavizadores de agua de sal en Fillmore.

De las 4,220 viviendas en Fillmore, aproximadamente el 39 por ciento tienen suavizadores de agua. De estos, 422 viviendas utilizan el método de desechos que pone sal en el río. De acuerdo a los archivos de la Ciudad solamente 48 de estas viviendas tienen el permiso adecuado de la ciudad para utilizar dichos suavizadores de agua.

El Concilio de la Ciudad Estará Solicitando Ideas para Resolver este Dilema

Que podemos hacer?

La Ciudad primero iniciara un programa de comunicación explicándole a los residentes el problema, las causas y que se esta haciendo para resolverlo. Este folleto será el primer paso en el proceso.

El siguiente paso será tener un taller público sobre los suavizadores de agua el jueves, 9 de Diciembre a las 6:30 de la tarde en City Hall, 250 Central Avenue. El taller será televisado en vivo en el canal 10. Queremos saber su opinión acerca de como resolver este costoso problema.

A principios de la primavera del año que entra estará recibiendo un cuestionario preguntándole su opinión acerca de opciones que la ciudad debe procurar.

Después de haber recibido sus comentarios, el concilio preparara un plan de acción en Mayo o Junio.

Por Favor Asista al taller publico el Jueves,

9 de Diciembre, a las 6:30 de la tarde.

Fillmore City Hall, 250 Central Avenue

O vealo por televisión en el canal 10

IMPORTANT: WATER RATE INCREASE

Decision Time Is At Hand

City of Fillmore
Central Park Plaza
250 Central Avenue
Fillmore, CA 93015-5707

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City of Fillmore

Central Park Plaza
Attn. Bert Rapp, City Engineer
250 Central Avenue
Fillmore, CA 93015-5707

Tell Us Your Choice Now!

Council to Decide Within 30 Days How to Stop Salt Pollution

The State of California has put the City of Fillmore on notice that if we don't stop polluting the Santa Clara River with excess salt we will face severe fines.

Traces of salt are present in drinking water, food, soap and many other items. But the main source of the excess salt from Fillmore is the salt brine discharging water softeners that are discharging more than 400 pounds per day into the sewer that ultimately goes into the river after treatment.

The State has established laws requiring mandatory penalties for excess salt discharges and at the same time passed separate legislation preventing Cities from prohibiting residential salt brine discharging water softeners. Your classic Catch 22.

Remember that the monthly sewer rate will likely have to be increased from the present $27.10 to $80 per month by 2008 to pay for the new sewage treatment plan and this will be an additional monthly cost.

In March, the City Council will adopt one of the following three options to assure that Fillmore stop polluting the river with excess salt:

Option 1: Soften the city's drinking water

- Will remove minerals from city water
- Cost would be $24 per month, beginning in 2008

  Capital cost $18 per month; Grants could lower this cost

  Operating cost $6 per month
- Plant would be built in 2007-08
- 75% of hardness removed
- ***Improved water*** delivered to residents in late 2008
- Improved life of plumbing fixtures
- Better dish washer, washing machine performance
- Longer water heater life
- Healthier skin and hair
- Nothing added to water, safe to drink

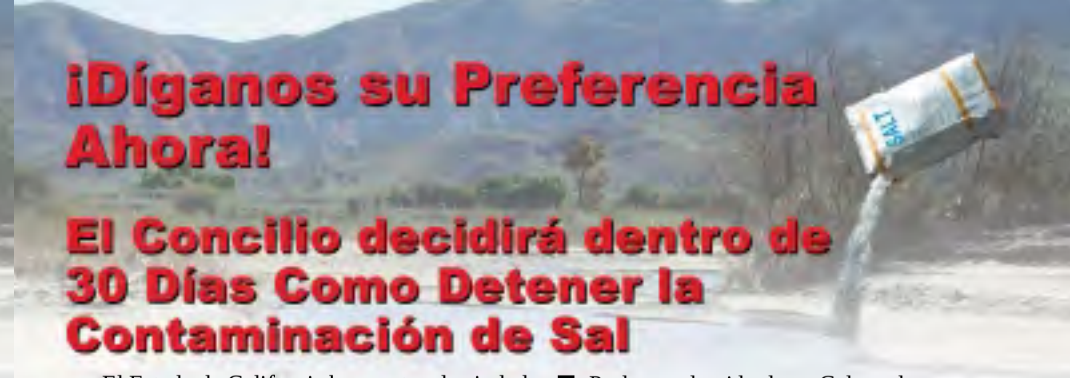
Option 2: Desalt the wastewater going into river.

- Cost would be $37 per month on sewer bill

  Grants could significantly lower this monthly cost.
- Water customers would see no improvement in water quality.
- After treatment, water would be discharged to river or percolated into the ground

Option 3: Police the remaining brine water softeners.

- Cost would be $2.50 per month on sewer bill, with a progressive program as follows:
  - City inspections of homes when they are sold to identify brine discharging water softeners
  - $1,000 penalty for owning an illegal water softener (installed after June 12, 2004, or those without building permits)
  - Costs of public outreach and policing passed on to residents with brine softeners. Estimated $220 per month per brine discharging softener owner.
  - $600 per month chloride control and removal surcharge on all sewer bills. If customers sign a statement that no brine softener is in the home and allows city inspection, then they are released from this surcharge.
- Conduct sewer sampling program to locate brine discharging softeners, if necessary.
- City's customers would see ***no improvement*** in water quality.



¡Díganos su Preferencia Ahora!

El Concilio decidirá dentro de 30 Días Como Detener la Contaminación de Sal

El Estado de California ha puesto a la ciudad de Fillmore sobre aviso que si no dejamos de contaminar el Rió de Santa Clara con demasiada sal enfrentaremos multas muy severas.

Residuos de sal están presentes en el agua potable, en la comida, jabón y muchas otras cosas. Pero el origen principal del exceso de sal en Fillmore proviene de los suavizadores de agua de sal que desechan aproximadamente 400 libras por dia en las alcantarillas que finalmente llegan al rió después del tratamiento.

El Estado ha establecido leyes que imponen multas mandatarias cuando existe un exceso de desechos de sal y al mismo tiempo a pasado una legislación que no permite que las Ciudades prohíban el uso de suavizadores de agua de sal. En otras palabras de un modo y de otro nos meteremos en problemas si no actuamos.

Recuerde que el costo mensual de la alcantarilla probablemente tendrá que ser incrementado del costo actual de $27.10 a $80 por mes para el año 2008 para pagar por el sistema de tratamiento. Y cualquier otra opción que tome la ciudad incrementará el pago mensual aun más.

En Marzo, El Concilio de la ciudad integrará una de las siguientes tres opciones para asegurarse de que la ciudad de Fillmore deje de contaminar él rió con el exceso de sal:

Opción 1: Suavizar el Agua Potable de la ciudad

- Una planta para suavizar el agua eliminará minerales del agua de la ciudad
- El costo seria de $24 dólares por mes por residencia, comenzando en el año 2008
- El costo capital seria de $18 dólares por mes; concesiones pueden reducir este costo
- La planta seria construida entre el año 2007-08
- EL 75% por ciento de la dureza del agua seria eliminada
- Mejorar el agua proporcionada a los residentes a finales del año 2008
- Mejorar la vida de la tubería de las alcantarillas
- Mejor desempeño de la lava platos y la lavadora
- Prolongar la vida de su Calentador
- Prolongar la vida y mejorar el color de su ropa
- Un cabello y piel mas sano
- Nada agregado al agua, segura para tomar

Opción 2: Eliminar la sal de los deshechos que se están derramando en él rió

- El costo seria de $37 dólares por mes en el cobro de la alcantarilla
- Concesiones reducirían significantemente este costo mensual.
- Clientes del agua no verían mejoramientos en la calidad del agua.
- Después de tratar el agua seria derramada en él rió o filtrada en la tierra.

Opción 3: Monitorear el resto de los suavizadores de agua con sal

- El costo seria de $2.50 por mes en su cobro, implementando un programa agresivo que incluiría lo siguiente:
  - Inspecciones de la Ciudad que identifiquen los suavizadores de sal cuando una propiedad es vendida.
  - Establecer una multa de $1,000 dólares a todos los dueños de casa que hayan comprado un suavizador de sal ilegal (aquellos instalados después del 12 de Junio del año 2004 o aquellos sin permisos).
  - Transferir el costo de educar al público y monitorear los desechos de sal a los que utilizan suavizadores de agua con sal. Este costo es de aproximadamente $220 dólares por mes por cada dueño de suavizador de agua de sal.
  - Agregar $600 dólares para cubrir el costo de controlar y eliminar el cloro a todos los cobros mensuales. Si el cliente firma una nota que indica que no tiene un suavizador de agua con sal y esta dispuesto a permitirle al inspector que revise la casa, estará libre de cargos extras en su cobro mensual.
- Implementar un programa que tome muestras de la alcantarilla para saber si tienen un suavizador de sal, si es necesario.
- Los clientes verán mejoramientos en la calidad del agua.

Make Your Choice Now!

Please indicate the option you wish the City Council to take to meet the State-mandated salt reduction and mail this postage-paid response card.

- ❑ **Option 1:** Soften the city's drinking water ($24 per month per home)
- ❑ **Option 2:** Desalt the wastewater going into river ($37 per month per home)
- ❑ **Option 3:** Police the remaining brine water softeners ($2.50 per month per home, plus additional costs for offenders)

¡Haga Su Elección Ahora!

Por favor de indicar la opción que usted desea que El Concilio de la Ciudad tome para cumplir con el mandato estatal de la reducción de sal y mande esta tarjeta prepagada por correo.

- ❑ **Opción 1:** Suavizar el agua potable de la ciudad ($24 por mes por vivienda)
- ❑ **Opción 2:** Quitarle la sal a el agua desechada en el rió ($37 por mes por vivienda)
- ❑ **Opción 3:** Monitorear los suavizadores de agua de sal restantes (2.50 por mes por vivienda, mas costos adicionales a los ofensores)

Solution to the Pollution.

Is there a salt solution?

There is no cost-effective way to filter the salt out of wastewater. Pollution prevention and education are the best measures for ensuring we have done our part to protect our water supply for today and for generations to come.

Where Does This 'Salt' Come From?

Salts are a result of adding any type of chemicals to water in just about any daily household chore. It could be from detergents, soaps, shampoos, water softeners, and many other commonly used household products. It can also be from chemicals and disinfectants used in many different industrial processes. Salts can also make their way to groundwater when applying fertilizers to lawns and flower beds as they wash down into the ground each time we irrigate.

Learn To Use Less.

Less soap, less detergent, less fertilizers, less irrigation, less cleaning supplies. Learning to use less of everything, every day, takes practice; but environmentally, it's well worth the change in habit, whether it's cutting back on dish or laundry soap, fertilizers for your lawn, or household cleaning products.

Using less can have a significant impact on the amount of salt that is ultimately discharged into our wastewater system. If you think about it, the less you use on your end, the less we have to deal with at our end.

The Truth About Water Softeners.

Salt-based water softeners are also part of the problem. The role of a water softener is to remove minerals by using common salt. Therefore, if you have a water softener unit in your home, ask yourself why? Even though the City of Fresno provides its customers with water that meets strict federal drinking water standards, the market is saturated with a variety of water treatment units that promise better water.

If your concern is taste, odor, color, or appearance you could chose a variety of filters that will serve that purpose without adding salt to the environment.

If your concern is aesthetic (water spots) or scale, consider a reverse osmosis (RO) system and have it serviced on a regular schedule.

If you still choose a salt-based water softener system, select an "on-demand system" that recharges as needed. This will use less salt and will also use less water during the recharge cycle. Brine (water and common salt) is discharged to the sewer each time a water softener recharges. Salt will pass through the wastewater treatment plant and will make its way back to the ground and into the groundwater. Overall, a water-softening unit has a negative impact on the environment.

How You Can Help... Choose Wisely.

- **Conservation is key.** Use less and put less down the drain.
- **Choose liquid** instead of powder laundry soap.
- **Buy dryer sheets** instead of liquid softeners.
- **Use mopping pads** instead of a traditional mop and bucket of water.
- **Sweep** instead of hosing down an outside area.
- **Avoid overwatering.**
- **Use compost** instead of chemicals and fertilizers on your lawn.
- **Live by example.** Teach your children about conserving water; everything that goes down the drain must be processed before being returned safely to the environment.
- **Educate others.** Removing salts at the RWRF is too costly. Choose pollution prevention. Less is better.
- Finally, use the option to **disconnect the salt-based water softener** unit at your home.

The issue of salt is serious.

Remember, the less salt discharged today will help maintain water quality within the Basin for generations to come. Water is our greatest resource – let's work together to keep salt out of our wastewater, every day, in all that we do.

Mission Statement.

We provide high-quality wastewater treatment and reclamation services professionally and competitively to preserve the environment and ensure the health, safety, and economic vitality of our community.

Who We Are.

The Fresno-Clovis Regional Wastewater Reclamation Facility is operated by the City of Fresno Wastewater Management Division and provides wastewater treatment services for the greater Fresno metropolitan area, including Clovis. We are the seventh largest wastewater treatment facility in the state of California—treating about 71 million gallons of wastewater every day.

City of FRESNO

Department of Public Utilities
Wastewater Management Division
5607 West Jensen Avenue • Fresno, CA 93706
(559) 621-5100 • Fax (559) 498-1700
www.fresnowastewater.org

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The Seriousness of Salt

Raising Awareness About the Increasing Salinity in our Wastewater.

Fresno-Clovis Regional Wastewater Reclamation Facility

WORKING WITH WATER.

The role of treating wastewater is no small job. The Regional Wastewater Reclamation Facility (RWRF) provides safe and reliable wastewater treatment to the community while using innovative technology to achieve compliance with strict federal, state and local regulations. Wastewater from homes, schools, restaurants, businesses and industry is cleaned and treated at the facility before it is returned safely to the environment.

Facing The Challenges Of The Modern World: Salt.

"Salt" is a generic term used to describe certain **"pollutants"** which cannot be removed from wastewater in an economically-feasible manner.

One challenge we face in treating wastewater is the salinity (salt) content found in it. The issue of salt has the potential to affect every home and business in the Central Valley.

An easy way to determine the amount of salt in water or wastewater is to measure its electrical conductivity (EC), or the ability of a liquid to conduct electricity. EC levels of pure water are insignificant. Water with a lot of free ions (calcium, magnesium, sodium, chlorides, etc.) will show higher levels of EC.

Daily tests conducted on the influent coming into the RWRF show that more and more salts are being released into our wastewater stream. These salts pass through the treatment process and make their way into the underground water where they will ultimately remain. These salts degrade our water quality.

The Shape Of Things.

One of the main contributing factors to the Valley's salt problem is the natural geographical landscape of the underground water, especially for communities located within the Tulare Lake Basin that are dependent on groundwater as their main water supply. This is an enclosed basin without a natural cleanout, which is why salts discharged onto the ground pass through and remain in the underground water. As we continue to pull from this aquifer for our water needs, salts keep circulating and concentrating even after we safely return the treated wastewater back to the environment. Eventually, excess salts will become so built-up in the groundwater that it will become unsuitable for human or agricultural use.

Increase in Salinity of Fresno/Clovis Wastewater

(measured as electrical conductivity in micromhos per centimeter (µmhos/cm)

Overall, the problem of salinity in our wastewater has increased through the years, while our limit/regulations have become stricter.

RED LINE: "Monthly Maximum" at any point (in the case of 2005 our salinity reached 920 µmhos/cm).

ORANGE LINE: "Yearly Average" of wastewater with salinity (which for 2005 equaled 860 µmhos/cm).

BLUE LINE: "Discharge Limit"* for salinity set by the Central Valley Regional Water Quality Board.

*Source Water EC + 500 µmhos/cm is the limit imposed by the Board for RWRF effluent.

wastewaterline

www.fresnowastewater.org

Salt Is Serious

The Regional Wastewater Reclamation Facility (RWRF) provides safe and reliable wastewater treatment to the community while using innovative technology to achieve compliance with strict federal, state and local regulations. Wastewater from homes, schools, restaurants, businesses and industry is cleaned and treated at the facility before it is safely returned to the environment. But we face a challenge of the modern world – salt.

Salts are a result of adding any type of chemicals to water in just about any daily household chore. It could be from detergents, soaps, shampoos, water softeners, and many other commonly used household products. It can be from chemicals and disinfectants used in many industrial processes. Salts can also make their way to groundwater when applying fertilizers to lawn and flower beds as they wash down into the ground each time we irrigate.

Unfortunately, there is no cost effective way to filter the salt out of wastewater. As the salts collect and concentrate in our underground water supply, they become so excessive that our water sources will become unsuitable for human or agricultural use.

A Solution To The Polution: How You Can Help

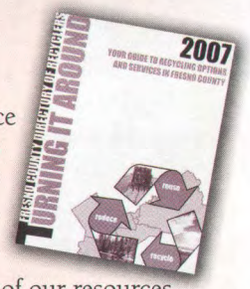
Using less can have a significant impact on the amount of salt that is ultimately discharged into our wastewater system. Here are some ways you can help out:

- **Conserve.** Use less and put less down the drain.
- **Choose liquid detergents** instead of powder laundry detergent.
- **Buy dryer sheets** instead of liquid softeners.
- **Use microfiber mops** instead of a mop and bucket of water.
- **Sweep** instead of hosing down an outside area.
- **Avoid overwatering.**
- **Use organic compost** instead of chemical fertilizers.
- **Live by example.** Teach your children about conserving water; everything that goes down the drain must be processed before being returned safely to the environment.
- **Educate others.** Removing salts at the RWRF is too costly. Choose pollution prevention. Less is better.
- Finally, use the option to **disconnect your salt-based water softener**.

Use Less. Choose Wisely.

If you have any questions, call 621-5100, or log onto: www.fresnowastewater.org.

Turning It Around Is Back!



The 2007 *Turning It Around* is here! This is a great resource guide to recycling efforts and services in Fresno County. Recycling is not only good for the environment, but encourages cost-effective use of our resources, saves energy, and discourages wasteful behavior. To receive your free copy, while supplies last, call **262-4259** or log on to **www.co.fresno.ca.us**.

phonelines

One Call Center	**621-CITY**
After-Hour Emergencies	621-1100
Billing Questions (Utility Bill Collections)	621-6888
Account Info & Credit Card Payments Online	www.fresnoutilitybill.com
Code Enforcement	621-8400
Graffiti Hotline	621-8247
Household Hazardous Waste	262-4259
Mayor/Council Offices	621-8000
Median Islands (Street Division)	621-1492
Oil–Used Motor Oil & Curbside Collection	621-1111
Operation Clean-Up/Community Sanitation	621-1447
Recycling Hotline	621-1111
Sewer Maintenance	621-1496
Solid Waste (Garbage & Recycling)	621-1452
Solid Waste (Containers-In-View)	621-1879
Speakers' Bureau	621-5305
Tours	621-8635
Tire Disposal	621-8400
Tree Roots, Street Drainage, Sidewalks & Potholes, Street Tree Trimmings & Streetlights	621-1492
Wastewater Management Division	621-5100
Water Division	621-5300
Water Conservation Program	621-5480

City of FRESNO

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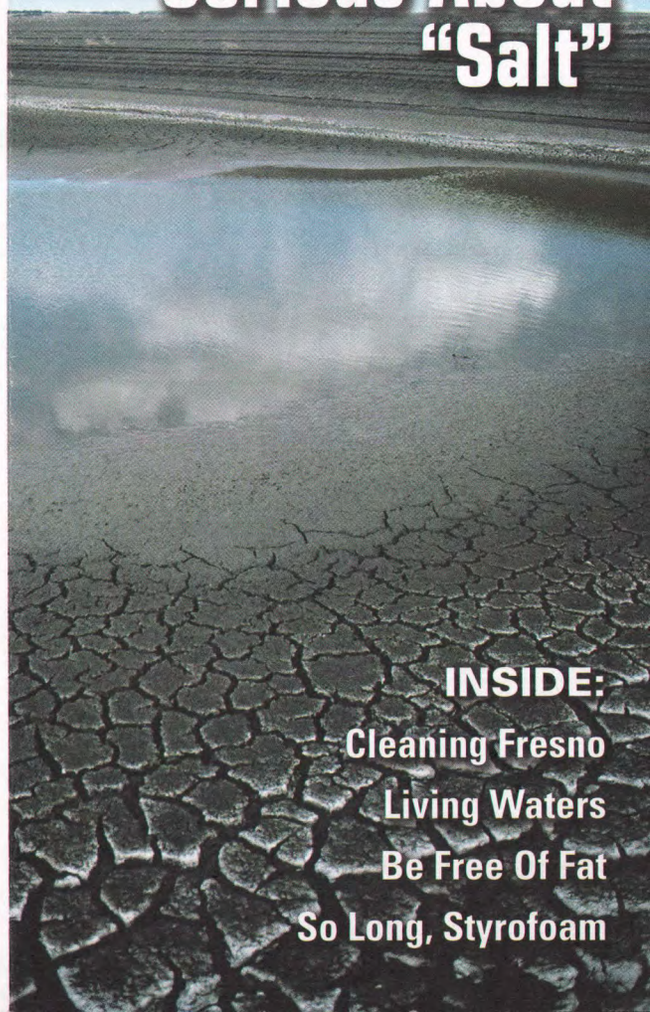
Fresno Gets Serious About "Salt"



INSIDE:

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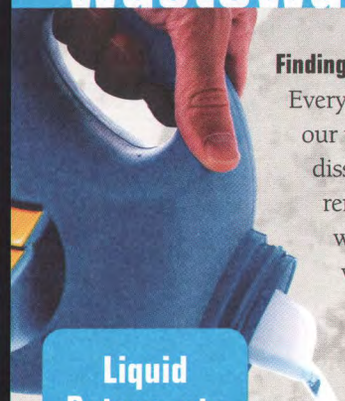

Liquid Detergents Use Less Salt.

Finding a Solution to Salts

Every day, we add salts to our wastewater. Salts are dissolved minerals that remain in the wastewater we produce each time we use household cleaning products, laundry detergents, soaps or shampoos. And because there's no cost-effective way to remove salt, it's important to use less and make wise choices about the household products we use. The less salt discharged today will help maintain a healthy water supply for generations to come.

Cut Back and Make an Impact

The following are ways we can make a difference:

- Choose liquid laundry detergent instead of powder.
- Use dryer sheets instead of liquid softeners.
- Use mopping pads instead of a traditional mop and bucket of water.
- Minimize the use of household cleaning products.

Salt-based water softeners also contribute to the problem. Water softeners remove minerals by using common salt, which eventually will make its way into the environment, but there are eco-friendly solutions to water softeners.

If you're concerned about the taste, odor, color or appearance of your water, try using filters that won't add salts to the environment.

If you're concerned about the aesthetics (water spots) or scale, consider using a reverse osmosis system.

We all contribute to the salt problem. Be part of the solution. Use Less and Choose Wisely.

Choose a Water Filtration Pitcher for the Fridge.

Salts can also make their way into groundwater when fertilizers are used on lawns and flower beds.

HEALTHY AIR LIVING

Try something new during Healthy Air Living Week, July 7-13! Take the bus. Carpool. Bike to work. Avoid the drive-thru. Anything you can do to drive less will save gas and help improve our air. Go to **www.HealthyAirLiving.com.**

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Taking Salt Out of Water, One Grain at a Time

INSIDE:

wastewaterline

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What's a Salt Footprint?

A salt footprint is a measure of the amount of salt left in water after a specific activity. This is done by testing the "fixed residue" left in water. Water contains natural salts in the form of dissolved minerals. Here are some examples of products that add salt:

Salinity is the presence of soluble salts in soil or water.

- Soaps
- Shampoos
- Chemicals
- Cleansers
- Fertilizers

These items leave a "trail of salt," and this salt is difficult to remove from our water supply. The City must use expensive equipment — and a lot of energy — to eliminate the salt. Salts that remain in the water eventually make their way back to a body of water, soils or groundwater, adding to the salt that's already there.

If too much salt builds up in our water, it can make it unusable. It's up to all of us to reduce our salt footprint in order to keep our water supply safe and affordable!

Use Less, Choose Wisely

Looking for ways to reduce your salt footprint? Here are a few tips:

- Use dryer sheets instead of liquid softeners.
- Choose liquid detergents instead of powder laundry detergent.
- Use organic compost instead of chemical fertilizers.
- Reduce water use both inside and outside of your home.
- Choose salt-efficient or salt-free water conditioning system.
- Avoid putting food scraps down the drain.

It is not just common table salt... Above are a few examples of how we can reduce our salt footprint.

Q&A

Are some water softeners easier on the environment than others?

There are many alternatives to traditional salt-based water softeners today. Choose salt-efficient or salt-free water conditioning systems for the least impact. For more information, call 621-5100 or visit www.fresnowastewater.org

phonelines

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SPRING ISSUE • MAR/APR 2009

Reduce Your Salt Footprint

Be Salt Smart!

INSIDE:

Attachment B. Example Water Softener Ordinances

CITY OF FILLMORE ORDINANCE # 04-777

ORDINANCE PROHIBITING BRINE DISCHARGING WATER SOFTENING APPLIANCES IN NON-RESIDENTIAL APPLICATIONS AND PROHIBITING THE INSTALLATION IN RESIDENTIAL APPLICATIONS

The City Council of the City of Fillmore ordains as follows:

1. AUTHORIZATION

This Ordinance is enacted pursuant to the authority contained in Health and safety Code 116786.

2. PURPOSE

The purpose of this Ordinance is to protect the quality of the waters of the State including, but not limited to, protecting the beneficial uses of the Santa Clara River downstream of the City of Fillmore Wastewater Treatment Plant.

3. DEFINITIONS

The following definitions shall apply to the terms used in this Ordinance:

(a) "City" means the City of Fillmore, California. [12.04.020 (10)]
(b) "Non-residential" means any structure which is not included in the definition of residence as defined in this ordinance.
(c) "Non-residential brine discharging water softening appliance" means a water softening device located within or adjacent to a non-residential structure located within the City or which discharges into a community sewer system that is tributary to the sewer system owned and operated by the City, whereby the capacity of the appliance to remove hardness from water is renewed by the on-site application of a chloride salt-containing brine solution to the active softening or conditioning material contained therein, followed by a subsequent rinsing of the active softening or conditioning material.
(d) "Person" means any natural person, or any firm, association, joint venture, joint stock company, partnership, trust, estate, governmental entity, organization, club, company, corporation, business trust, or the manager, lessee, agent, servant, officer or employee of any of them. [12.04.020 (49)]
(e) "Regional Board" means the California Regional Water Quality Control Board, Los Angeles Region, created and exercising its powers pursuant to the Porter-Cologne Water Quality Control Act, California Water Code Sections 13000 et seq.
(f) "Residence" means a structure which is or is intended to be, in whole or in part, a place of dwelling, whether occupied or not, whether fully constructed or not, and includes, without limitation, homes, whether attached to another structure or not, apartments, condominiums and mobile homes.

(g) "Residential brine discharging water softening appliance" means a water softening device located within or adjacent to a residence located within the City or which discharges into a community sewer system that is tributary to the sewer system owned and operated by the City, whereby the capacity of the appliance to remove hardness from water is renewed by the on-site application of a chloride salt-containing brine solution to the active softening or conditioning material contained therein, followed by a subsequent rinsing of the active softening or conditioning material.

4. FINDINGS

(a) The state legislature has found and declared that pollution prevention should be the first step in a hierarchy for reducing pollution and managing wastes, and to achieve environmental stewardship for society.
(b) The City is not in compliance with waste discharge requirements issued by the Regional Board pursuant to Chapter 5.5 (commencing with Section 13370) of Division 7 of the Water Code.
(c) Limiting the availability, or prohibiting the installation, of brine discharging water softening appliances is a necessary means of achieving compliance with waste discharge requirements issued by the Regional Board.
(d) This ordinance adopts and the City will enforce regulatory requirements that prohibit the volumes and concentrations of saline discharges from non-residential sources in the community waste disposal system.

Findings 4 (b), (c) and (d) have been substantiated by an independent study of discharges from all sources of salinity, including, but not limited to, residential water softening or conditioning appliances, residential consumptive use, industrial and commercial discharges, and seawater or brackish water infiltration and inflow into the sewage collection system. This study has been made in accordance with the requirements of Section 116786(c) of the California Health and Safety Code. A copy of said study is on file at the City's administrative office, 250 Central Avenue, Fillmore, CA 93015-1907.

5. MEDICAL EXEMPTION

The City Manager shall have the authority to allow medical exemptions and may permit individual residential brine discharging water softeners provided that all of the following conditions are met:

a. The medical need for soft water is verified in writing by a physician.
b. The resident has a financial hardship which in the opinion of the City Manager precludes using canister softener service.

The City Manager shall have the authority to rescind medical exclusions if the City is in violation of State chloride discharge limits and in the opinion of the City Manager it is essential that the medical exemption be terminated. Such termination shall become effective 60 days after written notice from the City to the subject resident. ***All decisions***

by the City Manager regarding Section 5 of this Ordinance may be appealed to the City Council for reconsideration. Such appeals must be submitted in writing to the City Clerk within fourteen (14) days of the date of the City Manager's written decision.

6. PROHIBITION

(a) Residential -- No person shall install or in any manner assist in the installation of a residential brine discharging water softening appliance that discharges into the community sewer system owned and operated by the City or that discharges into a private sewer or community sewer system that is tributary to the sewer system owned and operated by the City or that discharges to land within the City.

(b) Non-Residential – All existing brine discharging water softeners in non-residential uses shall be removed within 120 days of the effective date of this ordinance. Hence forth no person shall install or in any manner assist in the installation of a brine discharging water softening appliance of any sort that discharges into the community sewer system owned and operated by the City or that discharges into a private sewer or community sewer system that is tributary to the sewer system owned and operated by the City or that discharges to land within the City.

7. VIOLATION

A violation of this Ordinance is a misdemeanor punishable by a fine not to exceed $1,000, imprisonment not to exceed thirty days or both.

8. ENFORCEMENT

The City Manager of the City shall administer, implement and enforce the provisions of this Ordinance. Any powers granted to or duties imposed upon the City Manager may be delegated to persons acting in the beneficial interest of or in the employ of the City.

9. SEVERABILITY

If any provision of this Ordinance or the applicability thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this Ordinance which can be given effect without the invalid portion or application, and to that end the provisions of this Ordinance are severable.

10. EFFECTIVE DATE

This Ordinance shall become effective thirty days from the date of final passage and shall be prospective in nature.

ORDINANCE NO. 11-004

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DIXON AMENDING PART XIV OF CHAPTER 17 OF ARTICLE I OF THE DIXON CITY CODE RELATING TO BRINE DISCHARGING WATER SOFTENING AND CONDITIONING APPLIANCES

THE CITY COUNCIL OF THE CITY OF DIXON DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1: Part XIV of Chapter 17 of Article I of the Dixon City Code is hereby amended to read as follows:

Part XIV Residential Brine Discharging Water Softening and Conditioning Appliances

17.14.7 Water Softening/Conditioning Appliance Exchange Program

A. The City of Dixon hereby establishes an Exchange Program to encourage owners of residential brine discharging water softening or conditioning appliances to voluntarily remove and dispose of their residential brine discharging water softening or conditioning appliances without being subject to the enforcement actions included in this Part. The Exchange Program shall become effective on the Effective Date of this Section 17.14.7, and shall remain in effect for 600 days. The City Council may extend the effective period of this section for an addition term of not more than 200 days by resolution.

B. Owners of residential brine discharging water softening or conditioning appliances that qualify for the Program will, subject to the conditions of Section G below, be compensated $600, which exceeds the reasonable value and reasonable cost of the removal and disposal of each residential brine discharging water softening or conditioning appliance removed from a specific property. Fifty percent (50%) of the payment shall be in the form of a check. The other fifty percent (50%) shall be in the form of a credit on the customer's sewer account. The credit shall apply to the specific customer, at that specific residence only. The credit shall not transfer with ownership of the property, or move with the owner. Payments are subject to budget limits.

C. Upon expiration of the Exchange Program, any property owner who has a brine discharging water softening or conditioning appliance that is installed or maintained upon residential property or premises owned by him or her, and that discharges into the POTW is in violation of this Chapter. Any property owner in violation of this Chapter in this manner will be responsible for all fines, penalties,

The foregoing Ordinance was introduced and read at a regular meeting of the City Council of the City of Dixon on the 25th day of January, 2011, and was adopted and enacted at a duly held regular meeting of the City Council held on the 8th day of March, 2011 by the following vote on roll call:

AYES: Besneatte, Bogue, Ceremello, Fuller, Batchelor

NOES: None

ABSTAIN: None

ABSENT: None

APPROVED:

JACK BATCHELOR, JR.
Mayor

ATTEST:

STEVE JOHNSON
City Clerk

ORDINANCE NO.: 11-004

DATE: MAR 08 2011

ORDINANCE PROHIBITING THE INSTALLATION OF CERTAIN WATER SOFTENING APPLIANCES

The Board of Directors of County Sanitation District No. 32 of Los Angeles County ordain as follows:

1. AUTHORIZATION

This Ordinance is enacted pursuant to authority contained in the County Sanitation District Act, California Health and Safety Code Sections 4700 et seq. and exercises authority conferred by law including, but not limited to, Chapter 5, Part 12, Division 104 of the California Health and Safety Code.

2. PURPOSE

The purpose of this Ordinance is to protect the quality of the waters of the State including, but not limited to, protecting beneficial uses of the Santa Clara River downstream of the County Sanitation District No. 32 of Los Angeles County's Valencia Water Reclamation Plant.

3. DEFINITIONS

The following definitions shall apply to the terms used in this Ordinance:

(a) "District" means County Sanitation District No. 32 of Los Angeles County.

(b) "Person" includes any person, firm, association, organization, partnership, business, trust, corporation, company, district, county, city and county, city, town, the state, the federal government and any of the agencies and political subdivisions of such entities.

(c) "Regional Board" means the California Regional Water Quality Control Board, Los Angeles Region, created and exercising its powers pursuant to the Porter-Cologne Water Quality Control Act, California Water Code Sections 13000 et seq.

(d) "Residence" means a structure which is or is intended to be, in whole or in part, a place of dwelling, whether occupied or not, whether fully constructed or not, and includes, without limitation, homes, whether attached to another structure or not, apartments, condominiums and mobile homes.

(e) "Residential self-regenerating water softening appliance" means a water softening device located within or adjacent to a residence located within the District or which discharges into a community sewer system that is tributary to the sewer system owned and operated by the District, whereby the capability of the appliance to remove hardness from water is renewed by the on-site application of a chloride salt-containing brine solution to the active softening or conditioning material contained therein, followed by a subsequent rinsing of the active softening or conditioning material.

4. **FINDINGS**

(a) The state legislature has found and declared that pollution prevention should be the first step in a hierarchy for reducing pollution and managing wastes, and to achieve environmental stewardship for society.

(b) The District is not in compliance with waste discharge requirements issued by the Regional Board pursuant to Chapter 5.5 (commencing with Section 13370) of Division 7 of the Water Code.

(c) Limiting the availability, or prohibiting the installation, of self-regenerating water softening appliances is the only available means of achieving compliance with waste discharge requirements issued by the Regional Board.

(d) The District has adopted and is enforcing regulatory requirements that limit the volumes and the concentrations of saline discharges from nonresidential sources in the community waste disposal system to the extent technologically and economically feasible.

Findings 4 (b), (c), and (d) have been substantiated by an independent study of discharges from all sources of salinity, including, but not limited to, residential water softening or conditioning appliances, residential consumptive use, industrial and commercial discharges, and seawater or brackish water infiltration and inflow into the sewer collection system. This study has been made in accordance with the requirements of Section 116786(c) of the California Health and Safety Code. A copy of said study is on file at the District's Joint Administration Office, 1955 Workman Mill Road, Whittier, California 90601-1400.

5. **PROHIBITION**

No person shall install or in any manner assist in the installation of a residential self-regenerating water softening appliance that discharges into the community sewer system owned and operated by the District or that discharges into a community sewer system that is tributary to the sewer system owned and operated by the District.

6. **VIOLATION**

A violation of this Ordinance, is a misdemeanor punishable by a fine not to exceed $1,000, imprisonment not to exceed thirty days, or both.

7. **ENFORCEMENT**

The Chief Engineer and General Manager of the District shall administer, implement and enforce the provisions of this Ordinance. Any powers granted to or duties imposed upon the Chief Engineer and General Manager may be delegated to persons acting in the beneficial interest of or in the employ of the District.

8. **SEVERABILITY**

If any provision of this Ordinance or the applicability thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this Ordinance which can be given effect without the invalid portion or application, and to that end the provisions of this Ordinance are severable.

9. **EFFECTIVE DATE**

This Ordinance shall become effective thirty days from the date of final passage and shall be prospective in nature.

Chairperson, Board of Directors
County Sanitation District No. 32
of Los Angeles County

ATTEST:

M. Alma Horvath
Clerk, Board of Directors
County Sanitation District No. 32
of Los Angeles County

PASSED AND ADOPTED by the Board of Directors of County Sanitation District No. 32 of Los Angeles County on February 25, 2003, by the following vote:

AYES: Directors Weste and Smyth

NOES: None

ABSTAIN: None

ABSENT: Director Burke

M. Alma Horvath
Secretary of the Board of Directors of
County Sanitation District No. 32
of Los Angeles County

SANTA CLARA RIVER
CHLORIDE REDUCTION ORDINANCE OF 2008

The Board of Directors of the Santa Clarita Valley Sanitation District of Los Angeles County ordains as follows:

1. AUTHORIZATION

This Ordinance is enacted pursuant to authority contained in the County Sanitation District Act, California Health and Safety Code Sections 4700 *et seq.*, and exercises authority conferred by law including, but not limited to, Chapter 5, Part 12, Division 104 of the California Health and Safety Code, and Article 4, Chapter 1, Part 1, Division 2 beginning with Section 53069.4 of the Government Code.

2. SHORT TITLE

This Ordinance shall be known and referred to as the *Santa Clara River Chloride Reduction Ordinance of 2008.*

3. PURPOSE

The purpose of this Ordinance is to limit the discharge of chlorides to the Santa Clara River thereby improving the potential for the Santa Clarita Valley Sanitation District of Los Angeles County to comply with requirements of the California Regional Water Quality Control Board, Los Angeles Region. It is also the purpose of this Ordinance to reduce the expenditure of public funds and mitigate rate increases by lessening the need for new capital facilities.

4. DEFINITIONS

The following definitions shall apply to the terms used in this Ordinance:

(a.) "District" means the Santa Clarita Valley Sanitation District of Los Angeles County. The District owns and operates a sewer system that conveys wastewater to the Saugus and Valencia Water Reclamation Plants.

(b.) "Person" means any person, firm, association, organization, partnership, business, trust, corporation, company, district, county, city and county, city, town, the state, the federal government, and any of the agencies and political subdivisions of such entities.

(c.) "Plants" means the District's Saugus and Valencia Water Reclamation Plants.

(d.) "Community Sewer System" means the network of facilities owned and operated by the District or that are tributary to the District-owned and operated facilities that convey wastewater from within the District's service area to the Plants.

(e.) "Regional Board" means the California Regional Water Quality Control Board, Los Angeles Region, created and exercising its powers pursuant to the Porter-Cologne Water Quality Control Act, California Water Code Sections 13000 *et seq.*

(f.) "Brine" means a heavily saturated salt solution containing chloride.

(g.) "Residence" means a structure that is, or is intended to be, in whole or in part, a place of dwelling, whether occupied or not, whether fully constructed or not, and includes, without limitation, homes, whether attached to another structure or not, apartments, condominiums, and mobile homes.

(h.) "Residential self-regenerating water softener" and/or "appliance" means residential water softening or conditioning appliances that discharge Brine into the Community Sewer System. Residential self-regenerating water softeners are also more commonly known as "automatic" water softeners. Residential self-regenerating water softeners only include water softening or conditioning devices that renew their capability to remove hardness from water by the on-site application of a chloride solution to the active softening or conditioning material contained therein, followed by a subsequent rinsing of the active softening or conditioning material.

5. **FINDINGS**

The Board of Directors of the District finds and declares the following:

a) The Santa Clara River is one of the only remaining natural rivers in Southern California, supporting fish and wildlife, recreation and agriculture in Los Angeles and Ventura Counties.

b) The District's Plants discharge to the Santa Clara River.

c) Use of residential self-regenerating water softeners installed prior to 2003 is the most significant controllable source of chloride entering the Community Sewer System and the Plants. Residential self-regenerating water softeners use salt to renew their capacity to remove hardness, and then discharge Brine to the Community Sewer System. Residential self-regenerating water softeners account for approximately 30% of all chloride in the Plant's discharge. Although wastewater is treated to a high level at the District's Plants, the Plants are not designed to remove chloride.

d) The Regional Board has determined that chloride levels in the Santa Clara River must be reduced, and pursuant to a Total Maximum Daily Load ("TMDL") for chloride established by the Regional Board for Reaches 5 and 6 of the Santa Clara River in Los Angeles County, which became effective May 4, 2005, has required the District to reduce the chloride levels in its Plants' discharge.

e) The District has adopted and is enforcing regulatory requirements that limit the volume and concentrations of chloride discharges from non-residential sources to the Community Sewer System to the extent technologically and economically feasible.

f) The District has adopted and is enforcing an ordinance prohibiting the prospective installation of residential self-regenerating water softeners pursuant to Health & Safety Code Section 116786.

g) To further reduce chloride in the Plants' discharge, the District must either reduce sources of chloride in wastewater discharged to the Community Sewer System, remove chloride from wastewater at the Plants through construction and operation of expensive and energy-intensive advanced treatment facilities, or both. Construction and operation of advanced treatment facilities for chloride removal at the Plants will result in the production of Brine, which will also require disposal. If residential self-regenerating water softeners are not removed, the incremental present worth of construction and operation of advanced treatment

and Brine disposal facilities to remove chloride contributed by residential self-regenerating water softeners is approximately $73 million.

h) Reducing chloride levels by requiring the removal of all remaining installed residential self-regenerating water softeners discharging to the Community Sewer System will cost the District approximately $2-3 million.

i) Reducing chloride levels by requiring the removal of all installed residential self-regenerating water softeners would save the District's ratepayers approximately $70 million, based on the difference between the cost of residential self-regenerating water softener removal and the incremental cost of new advanced treatment and Brine disposal facilities to remove the same amount of chloride.

j) Removal of residential self-regenerating water softeners within the District is estimated to take approximately one year after the effective date of this Ordinance. Under the TMDL, the District must perform environmental review, permitting, design and construction of new advanced treatment and Brine disposal facilities for the removal of chloride by May 4, 2016. Therefore, removing residential self-regenerating water softeners will reduce chloride in discharges to the Santa Clara River sooner than installing advanced treatment and Brine disposal facilities to achieve an equivalent level of chloride reduction.

k) The removal of all installed residential self-regenerating water softeners is a necessary and cost-effective means of achieving timely compliance with a TMDL issued by the Regional Board for the Santa Clara River.

l) Residents within the District will maintain the ability to soften or condition their water by using water softening or conditioning devices that do not discharge Brine to the Community Sewer System. Among these are portable exchange water softeners, which use a removable tank to soften water. These tanks are serviced by facilities located outside the District's service area that are permitted to treat and dispose of the Brine used to regenerate them. Based on available information, sufficient capacity to treat Brine exists in Los Angeles County, and therefore, portable exchange water softeners remain available as a water softening option for residents affected by this Ordinance.

m) Based on available information, the adoption and implementation of this Ordinance will avoid or significantly reduce the costs associated with advanced treatment for chloride removal and Brine disposal that otherwise would be necessary to meet the TMDL.

n) The District has established a voluntary program to compensate owners of residential self-regenerating water softeners within its service area for 100% of the reasonable value of each removed residential self-regenerating water softener and the reasonable cost of the removal and disposal of that residential self-regenerating water softener. This program shall remain in effect until the Effective Date of this Ordinance. The program is expected to result in the removal of 3,300 self-regenerating water softeners. The reduction in chloride levels resulting from the voluntary program is expected to be 4,400 pounds per day.

o) On and after the Effective Date of this Ordinance, the District will continue a program to compensate owners of residential self-regenerating water softeners within its service area for 75% of the reasonable value of each removed residential self-regenerating water softener and the reasonable cost of the removal and disposal of that residential self-regenerating water

softener. Approximately 3,200 self-regenerating water softeners are expected to be removed. The potential reduction in chloride levels expected as a result of the program is 4,300 pounds per day.

6. REQUIREMENT FOR REMOVAL OF RESIDENTIAL SELF-REGENERATING WATER SOFTENERS

Every person who has a residential self-regenerating water softener that is installed upon his or her property or premises, and every person occupying or leasing the property or premises of another who has a residential self-regenerating water softener installed thereon, that discharges into the Community Sewer System shall remove and dispose of the installed residential self-regenerating water softener within 180 days after the Effective Date of this Ordinance.

7. ADMINISTRATIVE ENFORCEMENT

a) The Chief Engineer and General Manager of the District ("Chief Engineer") shall administer, implement, and enforce the provisions of this Ordinance. Any powers granted to or duties imposed upon the Chief Engineer may be delegated to persons acting in the beneficial interest of or in the employ of the District. The Chief Engineer shall enforce this Ordinance by (1) performing public outreach to inform residents of the terms of this Ordinance and to encourage voluntary compliance, (2) withholding administrative enforcement actions until 180 days after the Effective Date of the Ordinance have passed to allow all affected residents adequate time to remove their installed residential self-regenerating water softeners, (3) monitoring flows within the Community Sewer System to determine the locations of residential self-regenerating water softeners, and/or (4) conducting inspections upon reasonable notice of any residence that discharges to the Community Sewer System.

b) The Chief Engineer may issue a Notice of Violation to any Person who fails to remove a residential self-regenerating water softener as required by this Ordinance. A Notice of Violation shall allow a period of 60 days to correct the violation and to remove and dispose of the installed residential self-regenerating water softener. Any Person violating this Ordinance after issuance of Notice of Violation and the subsequent 60-day period shall pay an administrative fine to the District in an amount not to exceed $1,000.00 for such violation.

c) Any Person who has received a Notice of Violation may within 30 days request a hearing and review by a hearing officer of the District. The hearing shall be held within 30 days of the request. Following the hearing, the District's hearing officer may dismiss the violation or issue an Administrative Order for the imposition of an administrative fine and the removal of any installed appliance. Service of the Administrative Order may be made by personal delivery or by first class mail addressed to the Person at the address listed in the notice. An Administrative Order may be appealed in accordance with the provisions of Government Code Section 53069.4.

d) The owner of a residential self-regenerating water softener subject to administrative enforcement under this section may elect to have the District remove the residential self-regenerating water softener from the residence. The owner retains the right to compensation for 75% of the reasonable value of the residential self-regenerating water softener.

8. **VIOLATION**

Any Person who violates any of the provisions of this Ordinance following the issuance of a final Administrative Order under Section 7 is guilty of a misdemeanor punishable by a fine of not to exceed $1,000.00 or by imprisonment not to exceed 30 days or by both such fine and imprisonment. The amount of any such fine shall be first allocated to pay the District's costs of enforcement.

9. **SEVERABILITY**

If any provision of this Ordinance or the applicability thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this Ordinance that can be given effect without the invalid portion or application, and to that end the provisions of this Ordinance are severable.

10. **REFERENDUM**

Pursuant to California Health & Safety Code Section 116787(b), this Ordinance shall not be effective until it is approved by a majority vote of the qualified votes cast in a regularly scheduled election, held in the District's service area, in a referendum in accordance with applicable provisions of the Elections Code.

11. **EFFECTIVE DATE**

This Ordinance shall become effective 30 days from the date of final passage by the Board of Directors and subsequent approval by the voters pursuant to referendum, but no earlier than January 1, 2009.

PRO TEM
Chairperson, Board of Directors
Santa Clarita Valley Sanitation District
of Los Angeles County

JUN 1 1 2008

ATTEST:

Clerk, Board of Directors
Santa Clarita Valley Sanitation District
of Los Angeles County

PASSED AND ADOPTED by the Board of Directors of the Santa Clarita Valley Sanitation District of Los Angeles County on June 11, 2008 by the following vote:

AYES: Directors Burke and Weste

NOES: None

ABSENT: Director Kellar

ABSTAIN: None

Secretary of the Board of Directors
Santa Clarita Valley Sanitation District
ofLos Angeles County

Attachment C. Example Rebate Materials

CITY OF DIXON
BRINE DISCHARGING WATER SOFTENER REMOVAL PROGRAM

In order to comply with requirements set by the California Regional Water Quality Control Board, Dixon needs to reduce the salinity content (sodium chloride and potassium chloride) of the wastewater at our Wastewater Treatment Plant. The Regional Board established these salinity reduction requirements because high salinity can be harmful to the local groundwater basin which in turn may make groundwater unsafe to drink or irrigate crops and soil unable to grow food. If the City does not meet these salinity reduction requirements, the City will need to make expensive improvements at the Wastewater Treatment Plant or may face substantial fines. Both will have an impact on wastewater rates.

A salinity study of the City's wastewater content, estimated that 45% of the salinity entering the City's Wastewater Treatment Plant is from brine discharging water softeners. A brine-discharging water softener includes products that use salt (sodium chloride) and potassium (potassium chloride) pellets and periodically discharge fluids into the sewer line.

In order to reduce the impact of brine discharging softeners on the salinity levels, the City of Dixon has adopted a prohibition on existing residential brine-discharging water softeners (Ordinances 10-013 and 11-04). The prohibition does not include exchange units which use salt or potassium but do not discharge into the sewer line. Other allowable water softening/conditioning appliances include, but are not limited to, those using carbon filtration, reverse osmosis, descalers, and magnets. For information about alternative water softening/conditioning products go to the City of Dixon's website at www.ci.dixon.ca.us.

To encourage residents to comply with the softener prohibition and reduce wastewater salinity levels, the City is offering an "amnesty" program where residents may receive a financial incentive for removing their brine-discharging water softener prior to November 27, 2012. The incentive amount is as follows:

$300	payment via check
$300	credit on resident's sewer bill
$600	total value of incentive

After November 27, 2012, the amnesty program ends. Any resident found with a brine-discharging water softener will be required to remove the softener, and may be subject to fines and penalties per Ordinance 10-013. The resident will receive $200 as the

salvage value of their softener, regardless of any fines or penalties for violation of the City Code.

Initial results from the softener removal program have resulted in an estimated 17% reduction in the chloride levels entering the Wastewater Treatment Plant. However, significant reductions are still needed to meet the requirements set by the Regional Board.

If you wish to participate in the incentive removal program, please select from one of the plumbers below and contact the City of Dixon at 707-678-7031 x 304. City staff will send an authorization form to the plumber you selected. The plumber will then contact you to schedule the removal. The City will pay the cost of the plumber's services. There is no cost to the customer for the removal.

- Environmental Aqua
- Jake's Plumbing
- Same Day Service Plumbing
- Plumbing Doctor
- Culligan Water
- Rayne Water

Please note, funding for this program is on a first come first serve basis. If you have questions please call 707-678-7031 x 304.

More tips for reducing the salinity content of your wastewater:

- Put kitchen food waste in the trash instead of the in-sink garbage disposal. Food waste is high in salt.
- If you use powered soap in your dishwashers or washing machine, replace it with liquid soap. Powdered soaps have higher salt content.
- Use dryer sheets instead of liquid laundry softeners. Liquid softeners have high salt content.
- When cleaning floors, use mopping pads instead of a traditional mop and bucket of water.

❍ ❍ ❍

Cómo puedo ayudar?

- Si usted tiene un suavizador de agua que descarga sal, desconéctelo. Si es necesario, puede utilizar un suavizador de agua que no descarge sal. Los suavizadores de agua que descargán sal son grandes contribuidores de sal en las aguas residuales de nuestra Ciudad.
- Elige el javón liquido para la lavadora y fregador de trastes. El javón de polvo contiene alto contenido de sal.
- Comprar y utilizar hojas para la secadora en lugar de suavizantes líquidos. Suavizantes líquidos contienen alto contenido de sal.
- Usar cervilletas para trapear en vez de un trapeador tradicional y balde de agua.
- Poner las sobras de comida en la basura en vez de el triturador de basura del fregadero. Las sobras de cominda son altas en sal.
- Viva por ejemplo. Enseñar a otros y a sus niños acerca de poner menos sal por el desagüe.
- Educar a otros sobre la prevención de contaminación y el problema de sal en la Ciudad.

SANITATION DISTRICTS OF LOS ANGELES COUNTY

INDUSTRIAL WASTE SECTION
1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, ext. 2900, FAX: (562) 908-4224
www.lacsd.org

Santa Clarita Valley Automatic Water Softener Rebate Program
APPLICATION FORM

Please complete **ALL** applicable sections of this Application Form, sign it, and send it to: LACSD, P.O. Box 4998, Whittier, CA 90607, Attn: **SCV Rebate Program**

Property Type, Check one:
☐ Detached Home (single family) ☐ Attached Home (up to four-plex) ☐ Townhome
☐ Apartment ☐ Condominium
☐ Mobile Home (Space No.) _____
Please list Mobil Home Park Name: _____

SECTION 1 – Applicant Information

First and Last Name or Business Name (Please Print) | EMAIL address (optional)

Address Where Softener Installed | Apt. or Space # | City | State | Zip Code

Home Phone No. ( ) - | Daytime Phone No. ( ) -

FILL OUT THIS SECTION ONLY IF CHECK SHOULD BE MAILED TO A DIFFERENT ADDRESS THAN ABOVE

Address | Apt. or Space # | City | State | Zip Code

SECTION 2 – Information on Salt-Based Automatic Water Softener to be Removed

☐ I own the automatic water softener for which I am applying

☐ Yes ☐ No – Was the automatic water softener in the home when you purchased the residence?

Make & Model | Serial Number | Actual Date Installed (if unknown, please estimate)

Actual Purchase Price (if unknown please estimate)	$	To expedite processing of this application, please provide verification of water softener purchase using one or more of the following documents if available: dated receipt, contract, original service agreement, or other relevant paperwork.

This application form is for owners of residential automatic water softeners. To be eligible for a rebate, the automatic water softener must be installed at a residence that is served by the Santa Clarita Valley Sanitation District's sewer system. Upon verifying the application information and applicant's eligibility, an Authorization for Rebate letter will be forwarded to the applicant identifying the amount of your rebate and a list of **approved and licensed plumbers** to remove the automatic water softener unit from your residence at no cost to the applicant. **This form can be faxed or mailed using the information in the upper right hand corner**.

PLEASE READ THE TERMS AND CONDITIONS ON THE FOLLOWING PAGE AND SIGN BELOW

Questions? Call 1-877-CUT-SALT or visit www.lacsd.org/chloride

I have read and understand the terms and conditions on the following page. I certify under penalty of perjury that the information I have provided is true and correct. Please allow 8 to 12 weeks for processing.

Executed on _____ in _____, California

SIGN HERE →

Applicant Signature *Name (Please Print)*

Santa Clarita Valley
Automatic Water Softener Rebate Program
TERMS AND CONDITIONS

1. The unit for which I am applying is an automatic water softener, the kind to which rock salt (sodium chloride) or potassium chloride is added. I understand that **portable exchange tank units,** which are units where the softening tank is **exchanged periodically** by a service provider for a new softening tank, **are not eligible for a rebate**. Non-salt water conditioning equipment is also not eligible for a rebate.

2. The rebate is based on the reasonable value of the automatic water softener and the cost of its removal and disposal. The reasonable value of the automatic water softener will be based on 75% of the sale price and installation date of the unit and a 12-year life expectancy of the unit. Depending on the age, make, and model of your automatic water softener, rebates for individual units may range from $150.00 to $2,000.00. A minimum rebate of $150.00 (effective 09/01/2012) will be issued for all owned automatic water softeners installed prior to March 27, 2003. Removal and disposal of the automatic water softener is at no cost to the resident if a plumber on the Santa Clarita Valley Sanitation District of Los Angeles County's (SCVSD's) List of Approved and Licensed Plumbers is used.

3. Rebate checks will be issued to the applicant identified in Section 1 of the Application Form.

4. The automatic water softener for which I am applying for a rebate is installed at a residence (house, multiplex, condominium, townhome, apartment, or mobile home) served by the SCVSD. Residences not served by the SCVSD or **served by septic tanks are not eligible** for the rebate.

5. I understand that this program is limited to one rebate per site address (location where the automatic water softener is installed).

6. I have not previously applied for a rebate for this automatic water softener.

7. I understand that it is **illegal to have installed automatic water softeners** in residences served by the SCVSD after March 27, 2003.

8. **I understand that the automatic water softener for which I am applying for the rebate must be disposed of ONLY by using the approved licensed plumbers on the list provided by the SCVSD or authorized SCVSD employees.**

9. I understand that the rebate will not be paid until the SCVSD verifies that the automatic water softener has been removed from the residence pursuant to line 8 above.

10. I understand that the program may be modified or terminated without prior notice.

11. As a condition of accepting this rebate, I will allow, if requested, SCVSD or its representative reasonable access to my home to verify that no automatic water softeners are present before a rebate is paid. I understand that a rebate will not be paid if I refuse to allow access to the SCVSD or its representative to verify that the automatic water softener has been removed from the residence. The verification must be scheduled within 30 days after the applicant has been contacted by the SCVSD or its representative.

12. I understand that the SCVSD may contact providers and/or parties to verify purchase information I have provided on the cost and age of the unit, as well as my name and/or address.

13. I certify that I own the automatic water softener to be removed.

14. I am responsible for meeting all rebate program requirements, terms, and conditions and complying with my state/county/city governments, property owner, and/or homeowners association requirements (if any) in my area regarding local conditions, restrictions, codes, ordinances, rules, and regulations concerning actions taken under this rebate program.

15. I understand that the SCVSD is not responsible for items lost or destroyed in mail/transit.

16. Removal of the automatic water softener must occur within 30 days of the date on the Authorization for Rebate letter or the applicant must reapply.

I hereby release the SCVSD, all other County Sanitation Districts of Los Angeles and their officers, agents and employees from and against any and all claims, demands, liability or loss arising out of activities conducted by or on behalf of the SCVSD in connection with the Automatic Water Softener Rebate Program.

I understand that I may hereafter discover facts different from or in addition to the facts that I now know or believe to be true. I am advised that California Civil Code Section 1542 provides as follows: "A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor."

I expressly waive and relinquish any and all rights; remedies and/or benefits I may now have or that may hereafter accrue in respect to the SCVSD's Automatic Water Softener Rebate Program.

Questions? Call 1-877-CUT-SALT or visit www.lacsd.org/chloride