From:	Ian Guthrie
To:	Haddon, Stacey
Cc:	Thomas Allyn; Wilkie, Brad; Dorsey, Katrina; Jeff M. Malawy; Pannone, Joseph; Schwab, Teri; Ian Guthrie; Marina Ratliff
Subject:	Appeal by Lompoc Artificial Kidney Center, LLC re Wastewater Permit I-0013.
Date:	Friday, July 12, 2019 10:28:20 AM
Attachments:	19-07-12 Lompoc Art Kidney Ct Appeal.pdf

Dear Ms. Haddon,

Attached is Lompoc Artificial Kidney Center's appeal of Wastewater Permit I-0013. Please confirm receipt. Please note that Dr. Allyn and I will be gone through the end of July and request any hearing be held n or after August 15, 2019.

I do not have Mr. Throop's email so please forward him a copy.

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July 12, 2019

Via Email S_Haddon@ci.lompoc.ca.us
Stacey Haddon, City Clerk
City of Lompoc
100 Civic Center Plaza
Lompoc, CA 93436

Re: Appeal by Lompoc Artificial Kidney Center, LLC re Wastewater Permit I-0013.

Dear City Council Members:

The Lompoc Artificial Kidney Center, LLC ("Kidney Center,") pursuant to City Municipal Code, Sewer System Ordinance ("Ordinance") 1.32.010 & 13.16.140, appeals Wastewater Discharge Permit I-0013 ("Permit") and the Utility Director's Revised and Reissued Ruling on Request for Reconsideration dated June 27, 2019 ("Ruling") for the following reasons.

I. Introduction.

There are three primary issues raised by this appeal: (1) Whether or not the Kidney Center is subject to the wastewater permit requirement of the Ordinance (13.16.160); (2) Whether it is in violation of the water softener limitations of the Ordinance (13.16.320); and (3) Whether dialysate is infectious waste as defined by the Ordinance (13.16.030.B &13.16.280.) The Kidney Center understands that the Utility Director ("Director") conditionally agrees that the softener issue may be resolved by the Center upgrading the efficiency of its softeners and that the Director supports amending the definition of infectious waste to exclude dialysate. Therefore, this appeal will focus on the permit issue. The permit issue concerns the levels of sodium, chloride and total dissolved solids (TDS) in the Kidney Center's wastewater, these elements are referred to as salt load.

Lompoc Kidney Center provides kidney dialysis treatment to Lompoc residents suffering from kidney disease. It uses a regenerative water softener and is willing to upgrade its system to substantially reduce the amount of softening salt used. However, it appeals the Director's decision to require it to obtain a Wastewater Permit as an "Industrial User." Dialysis is not an industrial use and the Kidney Center's wastewater is nothing more that the urine of Lompoc's citizens with kidney disease.

Neither the spirit nor the letter of Lompoc's Sewer System Ordinance is served by requiring the Lompoc Kidney Center to obtain an Industrial wastewater permit. The spirit of the Ordinance is to prevent Industrial Users from Discharging Industrial Waste that will cause the City to violate its National Pollutant Discharge Elimination System ("NPDES") Permit. (13.16.020.) The Kidney Center has operated since 1997 without causing the City's to violate its NPDES Permit.

The letter of the Ordinance does not require the Kidney Center to obtain a Wastewater Discharge Permit. Such permits are only required for Industrial Users Discharging Industrial Wastes as those terms are defined in the Ordinance. Permits are not required for Domestic Waste water which is specifically defined in the Ordinance as wastewater from residences and "***other premises for personal uses of water for washing and sanitary purposes.***" Cleaning Lompoc's residents' blood by dialysis is a domestic sanitary purpose not an Industrial Use. The softened water and spent dialysate that drains to the sewer is Domestic wastewater not Industrial waste.

II. Requested Actions. The Kidney Center requests the Council take the following actions.

A. Amend the Ordinance to Clarify that Dialysate Is Not Infectious Waste. Amend the Ordinance's definition of infectious waste found at 13.16.030.B. to make it clear that new and used dialysate is not infectious wastes. The current ordinance states that infectious waste includes "e. Human dialysis waste materials including arterial line and dialyzable membranes." The Kidney Center requests this to be amended to: "e. Human dialysis waste materials including arterial line and dialyzable membranes, ***but excluding new or used dialysate.***" The Kidney Center understands that the Director supports this amendment and requests that he initiate and process the amendment.

B. Find That the Kidney Center Generates Domestic Wastewater and is not a Discharger of Industrial Waste or an Industrial User.

C. Find that the Kidney Center is not a Class I or II Industrial User.

D. Revoke Wastewater Permit I-0013.

E. Find That the Kidney Center's Current Water softener does not Violate 13.16.320.

F. Find that an Upgraded Softener is a Salt Remediation Measure Allowed Under the Ordinance and complies with 13.16.320.

G. Find that No Installation of Monitoring Equipment or Reporting is Required.

III. The Kidney Center.

The Center is the only kidney dialysis center serving the Lompoc area. It provides dialysis to approximately130 patients who receive approximately 1600 treatments per month. It has been in operation since1997. Kidney dialysis requires ultra-pure water to be mixed with buffers and electrolytes to match the chemistry of human blood. The Kidney Center takes the City's hard water and softens it using a regenerative water softener. The softened water then passes through carbon filters and a reverse osmosis ("RO") machine. The RO machine returns approximately 25% of the water which is discharged to a drain. The softened and purified water is then mixed with a buffer of

sodium bicarbonate and an electrolyte solution including sodium and chloride to create dialysate. These additives are FDA approved and required. A simplified diagram is submitted as Exhibit 1. The dialysate goes to the dialysis machines. The patient's blood is circulated on one side of a membrane. The dialysate circulates on the other side. They never come into contact. Urea and potassium pass from the patient's blood across the membrane into the dialysate which is flushed to the sewer. A simplified diagram is submitted as Exhibit 2. The nature of dialysis waste water is discussed in an article from the American Journal of Kidney Diseases submitted as Exhibit 3.

An EPA report dated July 1, 2019 states that a water sample taken in November 2018 at the floor drain for the reverse osmosis ("RO") filter return water was found to have a chloride concentration of 756 mg/l and a sodium concentration was 517 mg/l which exceed the discharge limits. (Exhibit 4.) However, sampling at the reverse osmosis return drain exaggerates the levels of sodium and chloride because the RO system simply removes mineral impurities already contained in the tap water. Based on this sample the Director took the position that the Kidney Center is a Significant Industrial User ("SIU") Discharging Industrial Waste and therefore must obtain a wastewater permit and issued Permit No. I-0013 and a related Ruling which the Kidney Center now appeals. (Exhibits 5 & 6)

The Kidney Center makes three contributions to the salt load of its waste water: (1) The incidental salt resulting from softening the water which it proposed to reduce by upgrading its softener; (2) Indispensable medically necessary buffers and electrolytes; and (3) Unavoidable urea and potassium removed from the patients' blood. The impact of softening is minimal. The Kidney Center uses only about 8,500 gallons per day based on its water bill. Only a portion of this is softened and treated. The city wastewater treatment plant processes approximately 2,900,000 gallons of waste water per day. (average for 2015 to 2018 per the Director.) Thus, the Kidney Center contributes at most 0.29% of the water the treatment plant receives. Any impact of the salt used in the softening process, the electrolytes used in preparing the dialysate and the urine removed through dialysis is trivial. This is obvious from the fact that despite the Kidney Center's years of operation, the City never exceeded the chloride, sodium and TDS levels set in its NPDES Permit.

IV. The City's NPDES Wastewater Permit.

The City is subject to a 2011 NPDES Permit issued by the CWQCB which sets Salinity Effluent Limitations for discharge for Lompoc's wastewater treatment plant. (Exhibit 7.) Those limitations are:

Parameter	**Units**	**Annual Mean**
Total Dissolved Solids (TDS)	mg/L	1,100
Sodium	mg/L	270
Chloride	mg/L	250

(NPDES Permit p. 13.)

A. The Salinity Management Study and Plan. The City of Lompoc Salinity Management Study and Plan – Updated July 2012 ("Study") shows that Lompoc was within those parameters in 2012. (Exhibit 8.) The salt load running means according to the Study were:

Actuals	**Units**	**Annual Mean**
Total Dissolved Solids (TDS)	mg/L	1,071
Sodium	mg/L	258

Chloride	mg/L	216

(Study p. 1-1.)

Thus, the treatment Plant was within the NPDES Permit limits at the time of the Study. The 2012 Study states that no reduction in TDS, sodium or chloride was needed for compliance although Reasonable Potential Analysis (RPA) suggested that TDS might exceed the parameters in the future. However, the 2019 wastewater report shows further reduction of the salt load including TDS.

B. Lompoc's First Quarter 2019 Report to the RWQCB. Pursuant to its NPDES Permit the City must submit quarterly wastewater quality reports to the CRWQCB. Its latest report submitted on April 3, 2019 with its first quarter results (Exhibit 9) shows the City is still well within all salt load parameters.

Actuals	**Units**	**Annual Mean**
Total Dissolved Solids (TDS)	mg/L	988
Sodium	mg/L	206
Chloride	mg/L	195

https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2155612.

The point of all this is that the City is well within its NPDES Permit parameters and there is no reason to regulate the Kidney Center particularly as it contributes less than 0.29% to the City's wastewater.

C. The City is the Primary Contributor to the Salt Load. The Study makes it clear that by far the largest contributor to the wastewater salt load is the City water system not users such as the Kidney Center. The high levels of TDS, chloride and sodium in the City water supply result from the City's use of salt to reduce hardness. Soda ash (sodium carbonate) is added by the water treatment plant. Calcium and magnesium combine with the carbonate and precipitate out, freeing up chloride ions and releasing sodium. This increases city water sodium, chloride, and TDS.

According to the Study the City's water supply contributes 88% of the TDS to the wastewater facility influent. Self-regenerating water softeners contribute only 1%. The City's water contributes 69% of the chloride to the facility influent. Water softeners contribute only 3%. The City's water supply contributes 75% of the total sodium to the waste treatment facility. Only 4% is attributable to water softeners. (Study p. iii – iv & Table E-2 and pp. 3-9 – 3-24.) The findings are summarizes at page 3-24 of the Study in Table 3-9 the notes to which state: "*Water softeners in the City make up a small percentage of the loading (4% or less).*" The magnitude of the contribution of the City water seen can be seen in these graphs taken from the Study.

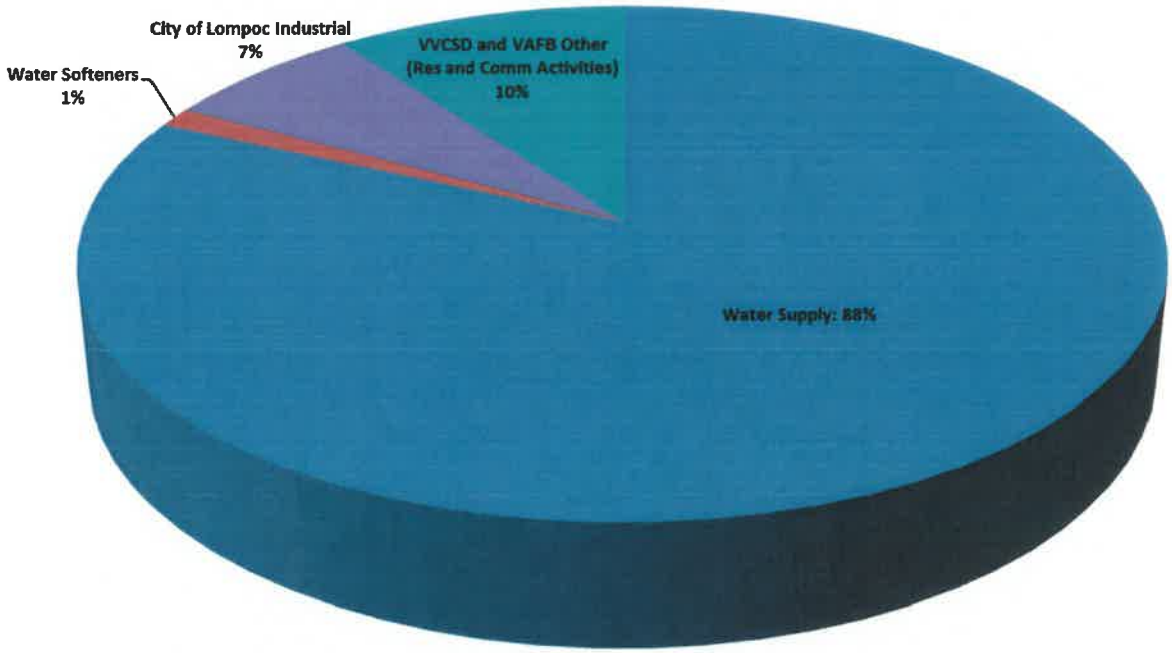

Figure 3-3. Relative Contributions of TDS to Facility Influent

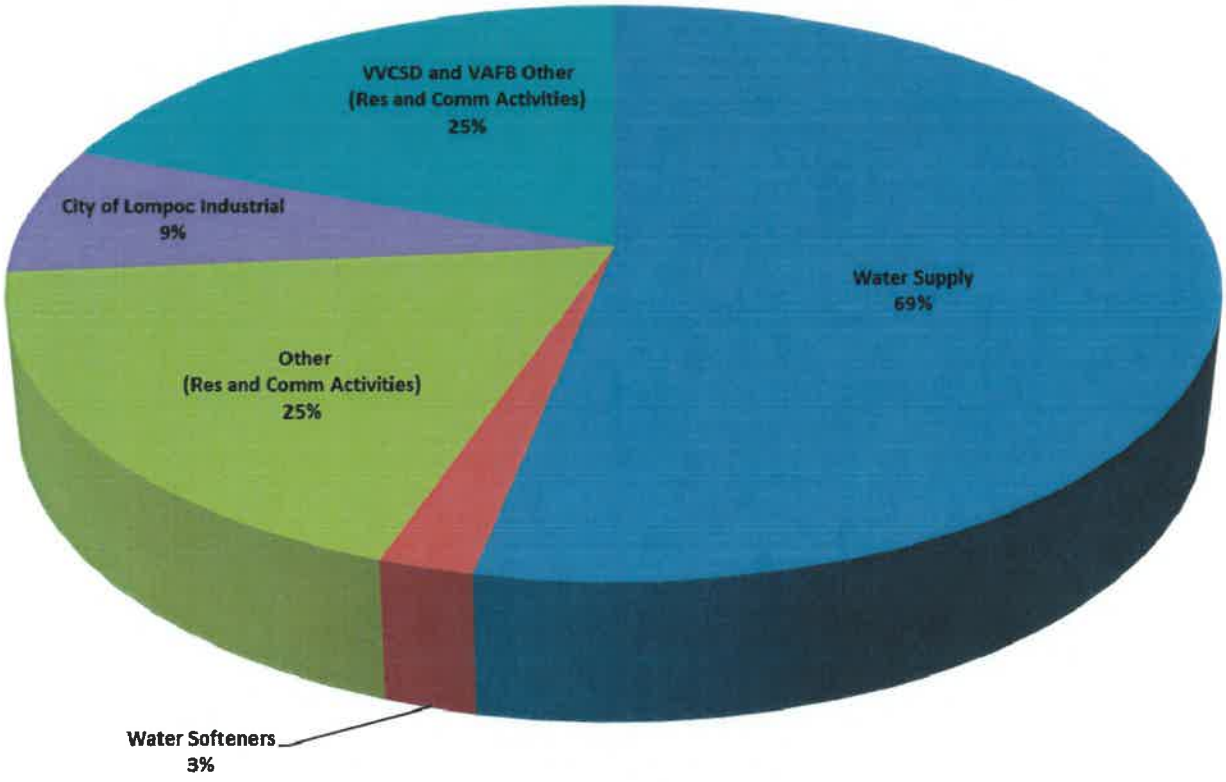

Figure 3-6. Relative Contributions of Chloride to Facility Influent

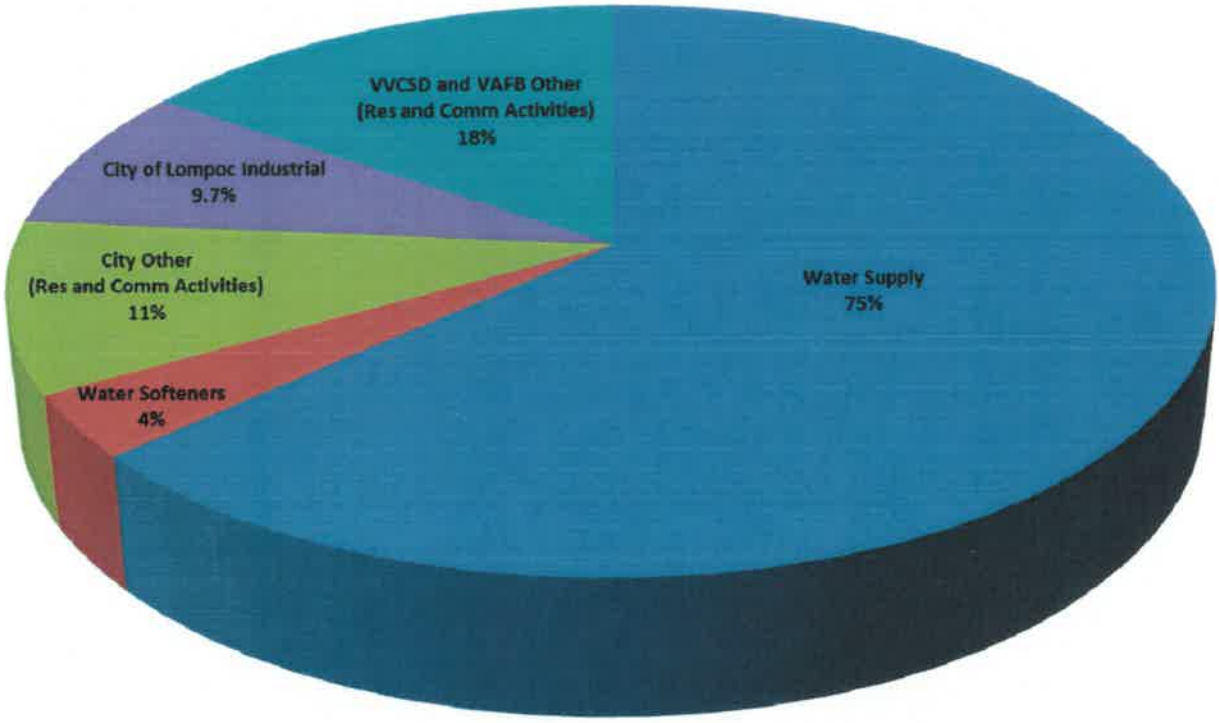

Figure 3-9. Relative Contributions of Sodium to Facility Influent

The Study explains that the reason City water is so high in TDS, sodium and chloride is that the City uses chemical salts to soften its well water with the result that the average TDS in the City's drinking water is 800 mg/L. (Study p. 4-1.) Remember that the limit is 1,100 mg/L. Since the City's own water treatment is the largest contributor to the salt load at the wastewater treatment plant the Study states that solutions to the problem include the City using reverse osmosis to soften its water supply or to install a microfiltration/reverse osmosis system at its wastewater facility, or building a discharge pipeline that drains in to ocean. However, the City has rejected these and other solutions as too costly. Ironically, it is now forcing the Kidney Center to incur the cost to solve a problem the City created. The Study discusses banning water softeners but notes that even a total ban would not solve the TDS issue and that any such ban would require complying with H&S 117686. (Study pp. 4-5.) The City has not adopted a ban. The Kidney Center believes its offer to increase the efficiency of its softener is within the spirit of the Ordinance and Plan.

As noted above the Kidney Center's actual contribution of effluent to the wastewater treatment facility is a trivial 0.29%.

V. The Kidney Center Generates Domestic Wastewater Rather than Industrial Waste and is Therefore Exempt from Permitting.

The purpose and objectives of the Sewer System Ordinance are to.

> A. Prevent the introduction of pollutants which will *interfere* with the operation of the City's wastewater system, including interference with its use or disposal of municipal sludge;

> B. Prevent the introduction of pollutants which will *pass through* the treatment works or otherwise be incompatible with such works;
>
> C. Improve other opportunities to recycle and reclaim municipal and industrial wastewaters and sludges; and
>
> D. Prevent the exposure of wastewater system workers to chemical hazards.

The Kidney Center's operation does not frustrate any of these objectives. Interference and pass-through are defined terms discussed below but basically mean causing the City to violate its NPDES Permit. The Center has operated for years without causing the City to violate its NPDES Permit. There is simply no need to require the Kidney Center to obtain a wastewater permit.

Only Industrial Users are required to obtain permits. The permit requirement states:

> **13.16.160 Permits Required.** In accordance with this Article, permits for the use of the City's sewerage system shall be ***required of Class I users, Class II*** users, temporary users, and any ***other user discharging into or proposing to discharge*** into a City sewer shall obtain permits as required by Director ***based upon the need to achieve the objectives set forth in Section 13.16.020*** and to protect the public health and safety. Applications for permits under this Section shall be submitted as required by the Director." (13.16.160.)

Ordinance 13.16.160 requires permits for Class I & II users which are by definition Industrial Users. Other Dischargers may also be required to obtain a permit if necessary, to meet the objective set forth at 13.16.020. As explained above, the Kidney Center's operation has had no impact on those objectives. Further, a Discharger is specifically defined as one who discharges Industrial rather than Domestic Wastewater.

> ***Discharger" means*** any person or entity introducing pollutants into the wastewater system from any ***non-domestic source*** regulated under Section 307(b), 307(c), or 307(d) of the Act. For the purposes of this Chapter, ***Discharger also means any person or entity introducing industrial waste to the wastewater system***. (13.16.030.B.)

The permit requirement by its own terns only applies to Dischargers of Industrial Waste and does not apply to generators of Domestic waste. This is clear based on the definition of those terms:

> ***"Domestic wastewater" means wastewater from residences and other premises derived from personal use of water for washing or sanitary purposes.***
>
> ...
>
> "Industrial user" means, generally, any discharger of industrial waste, or a source of indirect discharge."
>
> "Industrial waste" means any solid, liquid or gaseous substance discharged or permitted to flow into a City sewer from any industrial, manufacturing, agricultural, commercial, or business establishment or process, or from the

> development, recovery, or processing of any natural resource." (13.16.030.B.)

Note that the definition of Domestic Wastewater is not limited to residential sources and expressly includes wastewater from "***other premises derived from personal use of water for washing or sanitary purposes***." The Kidney Center is such an "other premise." The Director may argue that the Kidney Center is a business and therefore comes within the definition of Industrial User. However, the Council must interpret the Code to accomplish its purposes and avoid contradictions. The focus should be on the nature of the wastewater not the nature of the user. The permit requirement and the related definitions make it clear that only Industrial Users who Discharge Industrial Waste are required to be permitted and that residences or other users such as businesses that generate Domestic Wastewater from the personal use of water for washing or sanitary purposes are not required to be permitted. It is hard to imagine a more personal sanitary purpose than dialysis treatment.

The Director also misclassified the Center as a Class 1 Significant Industrial Users. As noted above the Center comes within the Ordinance's definition of a Domestic user as it provides dialysis treatments to patients. The Ordinance defines an Industrial User as "any discharger of industrial waste…" Industrial Waste is defined as "any solid, liquid or gaseous substance discharged or permitted to flow into a City sewer from any industrial, manufacturing, commercial or business establishment …" (13.16.030. B.) A Class I User is defined as any industrial uses who discharges 10,000 gallons a day of processed wastewater or is determined to be a Significant Industrial User ("SIU".) The Kidney Center uses only approximately 8,500 gallons of water per day. It is not a Significant Industrial User which is defined as any Industrial User that:

> a. Is subject to Federal categorical pretreatment standards; or
>
> b. Discharges 25,000 gal/d or more of process wastewater (average annual daily flow); or
>
> c. Contributes a process wastestream which makes up five percent or more of the average dry weather hydraulic or organic loading capacity of the wastewater treatment plant; or
>
> d. Has a reasonable potential, in the opinion of the Director, to adversely affect the wastewater treatment plant (e.g., cause interference, pass-through, or endangerment to employees of the wastewater system). (13.16.030.B.)

The Kidney Center is not subject to Federal categorical pretreatment standards. Categorical pretreatment standards refer to standards adopted for specific industries and do not include dialysis centers. "National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories will be established as separate regulations under the appropriate subpart of 40 CFR chapter I, subchapter N." (40 CFR 403.6.) The Kidney Center generates approximately 8,500 gallons of water per day. The Director has not established that the Center's waste stream makes up over 5% of the loading capacity of the City's wastewater treatment plant. In fact, it is only about 0.29%. The Center's waste water has no reasonable potential to cause interference, pass-through or endanger employees. Interference is defined as a discharge which inhibits or disrupts the City's wastewater sewage system causing it to be in violation of the City's NPDES Permit. Pass through means a discharged from the City's Wastewater treatment plant that

violates its NPDES Permit. (13.16.030.B.) We know there has been no interference or pass-through because the Center has been in operation since 1997 and the City has never violated its NPDES Permit with respect to salt load.

The Kidney Center is not a Class II user because it does not discharge Industrial Waste as discussed above. As a provider of dialysis service the Kidney Center is merely a generator of Domestic wastewater and not an Industrial User or Discharger of Industrial waste as those terms are defined by the Ordinance therefore no permit is required.

The Kidney Center has considered the Director's suggestion that it replace its self-generating softener with an exchange tank softening system, however, doing so imposes undue cost on the Kidney Center and increases the risk to the patients by using water softener tanks not under the Center's control. Switching to exchange tanks would require an investment of $50,000 and then cost approximately $3,000 month.

VI. The Kidney Center's Current Water Softener is Legal but it will Voluntary Upgrade it if the City Agrees that no Wastewater Permit is Necessary.

The Director has ruled that the Kidney Center's current softener does not comply with 13.16.320. This is incorrect. Neither Federal or California law prohibit industrial or domestic regenerative water softeners. Lompoc's Ordinance simply places performance limits on softeners installed or upgraded after the Ordnance was adopted in 2015. The Kidney Center's existing water softener was installed in 1998 and is therefore not subject to the Ordnance which states:

> "A. It is ***unlawful to install, replace, or enlarge*** apparatus for softening all or any part of the water supply to any premises when such apparatus is an ion-exchange softener or demineralizer of the type that is regenerated on the site of use with the regeneration wastes being discharged to the ground, storm drain, or City sewerage system, unless said softener or demineralizer meets or exceeds the standards specified in California Health and Safety Code sections 116775 to 116795, relating to water softening or conditioning. This Section shall not apply to apparatus of the type which is regenerated off-site by a water conditioning company." (13.16.320)

This section does not say it is illegal to operate a system that existed prior to the Ordinances enactment on November 17, 2015. It only applies to systems installed, replaced or enlarged after November 17, 2015. Thus, it has no applicability to the Kidney Center's preexisting system.

Health and Safety Code 116775 to 116795, referenced in the Ordinance, regulates residential regenerative water softeners. Section 116785 provides, in pertinent part, that a regenerative softener installed after January 1, 2002 shall meet the following standards.

> ***An appliance installed on or after January 1, 2000***, shall be certified by a third party rating organization using industry standards to have a salt efficiency rating of no less than 3,350 grains of hardness removed per pound of salt used in regeneration. An appliance installed on or after January 1, 2002, shall be certified by a third party rating organization using industry standards to have a salt efficiency rating of no less than 4,000 grains of hardness removed per pound of salt used in regeneration. (H&S 116785.)

The Kidney Center's current softener has a salt efficiency of 2,500 grains of hardness removed per pound of salt. It is willing to replace it with a softener that will have a salt efficiency of 4,000 grains of hardness removed per pound of salt substantially increasing its efficiency and decreasing any salt contribution to the wastewater, if the City will agree that; (1) by doing so it will be considered in compliance with the City's water softener regulation (13.16.320); and (2) that doing so is a sufficient salt remediation measure obviating the need for a wastewater permit. Upgrading would be pointless if the Kidney Center were subject to a permit which requires further expensive changes.

The Director argues in his Ruling that Health and Safety Code 116775 is not the applicable standard for the Kidney Center's existing softener because it only applies to softeners installed after January 1, 2000 and that instead Health and Safety Code 116790 requiring softeners meet an efficiency standard of 2,850 grains of hardness applies. Actually, neither 116775 nor 116790 apply because the Ordinance only imposes "the standards specified in California Health and Safety Code sections 116775 to 116795" on softeners "install, replace, or enlarge" after its enactment in 2015. In any event 116790 only applies to softeners "in place at a residential dwelling prior to January 1, 1980. The Kidney Center did not exist prior to 1997.

The Director's Ruling argues that the NPDES Permit provides that self-regenerating water softeners are of particular concern. However, the reference in the NPDES Permit is to residential softeners. More importantly, the NPDES Permit relies on a Study which has since been updated reducing the estimated contribution of softeners to the salt load by almost 50%. (NPDES Permit pp. 10-11, section II.S & p. 20 sectionVI.C.3.)

The Director has indicated in his Ruling that he is willing to consider an upgraded softener as complying with 13.16.320 if the RWQCB staff agrees softeners are not outright prohibited.

Despite the fact that the Kidney Center is not subject the Ordinance or the Health and Safety Code provisions relating to its softener, it is offering to voluntarily upgrade its softener to the highest efficiency level currently required if the City agrees it is not required to obtain a wastewater permit.

VII. Dialysate is not Infectious Waste and the Ordinance Should be Amended to Clarify This.

The Ordinance provides that infectious wastes shall not be discharged to the sewer. (13.16.280.) The Ordinance defines infectious waste to include "e. Human dialysis waste materials including arterial lines and dialyzable membranes." The Kidney Center disposes of the arterial lines and membranes via a medical waste disposal contract. The Kidney Center does not believe that the definition is intended to include new or used dialysate. However, to avoid any confusion it requests that the Ordinance be amended to state: "e. Human dialysis waste materials including arterial line and dialyzable membranes, ***but excluding new or used dialysate.***" The Kidney Center understands that the Director supports this change and request that his office take the lead in seeking the amendment. The City should adopt this amendment as its interpretation and forestall and enforcement action pending adoption of the amendment.

VIII. The City Cannot Require the Kidney Center to install Monitoring Meters and Provide Reports.

The Permit and Ruling require the Kidney Center to install end of pipe monitoring devices and provide quarterly reports to the Director. This is an unreasonable request. The Kidney Center was built before the current Ordinance was adopted. There is currently no way to access its sewer lateral as it exits the building to the sewer main. The Director has a right to inspect. (13.16.090.) It does not have a right to require the Kidney Center to incur the cost to install a sewer line access point and effluent monitors and report to the Director except as part of a permit. As discussed above the Kidney Center is not required to be permitted.

IX. Request for Hearing.

The Kidney Center requests a hearing before the City Council. The Center's CEO Dr. Tom Allyn and its attorney Ian Guthrie are unavailable from July 19 through July 31 and therefore request that any hearing be scheduled after August 15, 2019 to give them time to prepare.

Regards,

Ian M. Guthrie

CC via email to:
Tom Allyn M.D.
Jim Throop, City Manager
Brad Wilkie, Utility Director
Katrina Dorsey, Water Resource Protection Technician
Jeff Malawy, City Attorney
Joseph Pannone, Esq.
Teri Schwab, Paralegal/Legal Assistant

LOMPOC ARTIFICIAL KIDNEY CENTER EXHIBITS
IN SUPPORT OF ITS APPEAL TO PERMIT I-0013

Exhibit 1:	Kidney Center Dialysis System Diagram
Exhibit 2:	Dialysis Diagram
Exhibit 3:	American Journal of Kidney Diseases: Reusing Dialysis Wastewater: The Elephant in the Room
Exhibit 4:	EPA Inspection Report dated July 1, 2019
Exhibit 5:	Wastewater Discharge Permit I-0013 without Appendices
Exhibit 6:	Utility Director's Revised and Reissued Ruling, dated June 27, 2019
Exhibit 7:	Lompoc 2011 NPDES Permit – (Excerpts)
Exhibit 8:	Salinity Management Study and Plan – Updated, dated July 2012 (Excerpts)
Exhibit 9:	First Quarter 2019 Lompoc Wastewater Report

EXHIBIT 1

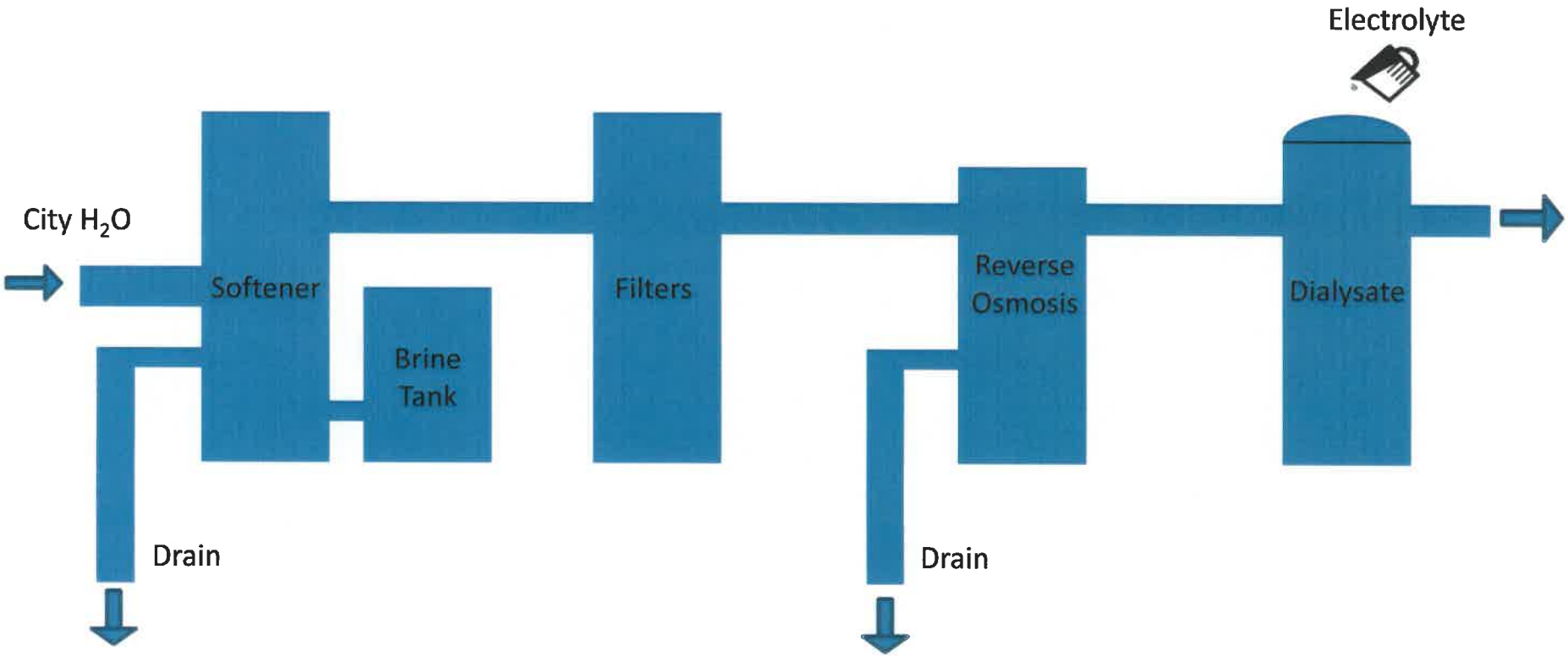
Electrolyte
City H_2O
Softener
Brine Tank
Filters
Reverse Osmosis
Dialysate
Drain
Drain

EXHIBIT 2

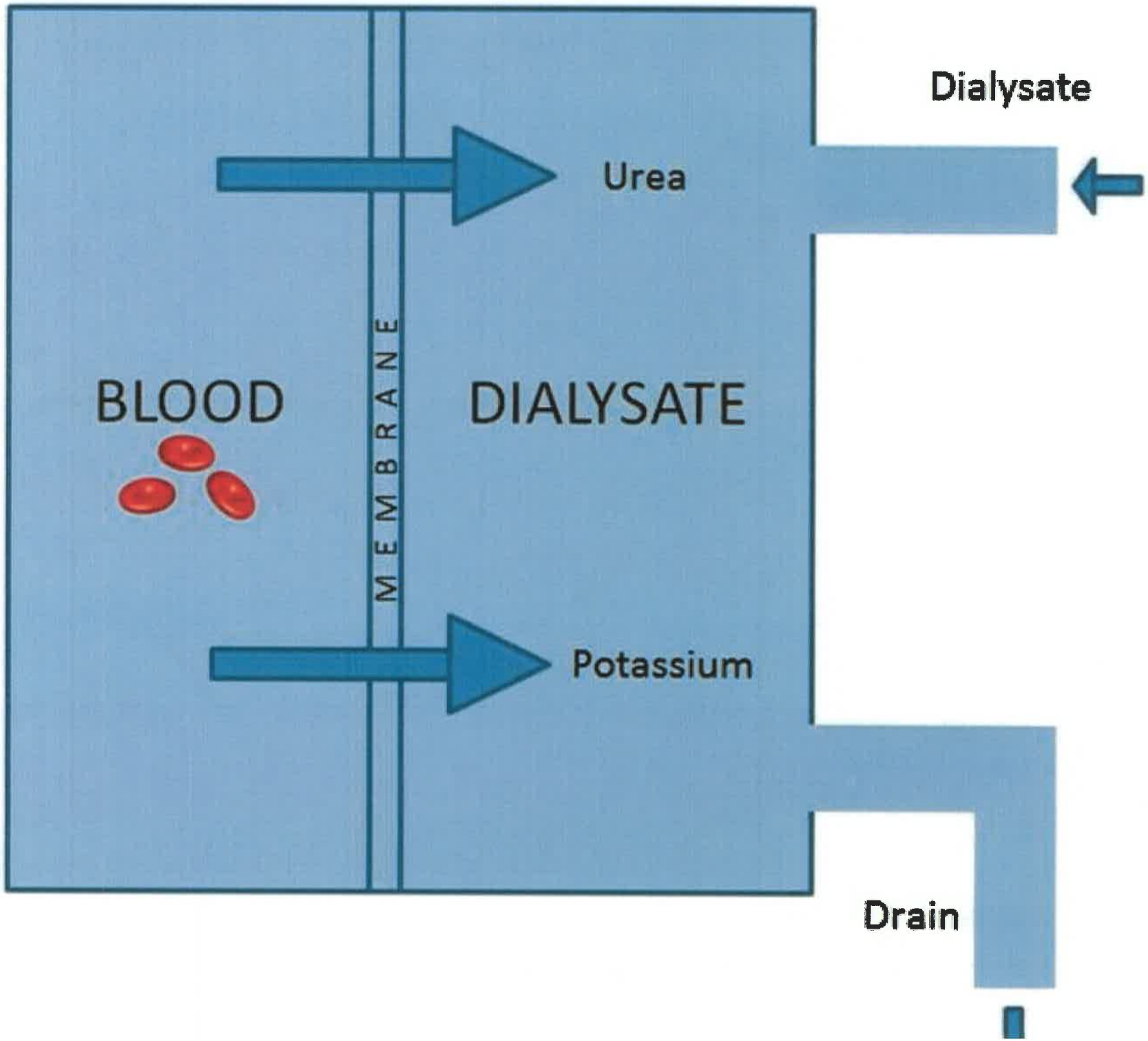
Dialysate
Urea
BLOOD
MEMBRANE
DIALYSATE
Potassium
Drain

EXHIBIT 3

Reusing Dialysis Wastewater: The Elephant in the Room

Related Article, p. 154

Global warming, climate change, and the resulting drive to adopt far more environmentally conscious attitudes to our dwindling natural resources has become the universal catch cry of the early 21st century.[1-3] This new societal ethos is welcome and, as responsible citizens in our various corners of the world, dialysis providers must also rapidly embrace this global movement and put our own house in order. Despite widespread endemic drought conditions worldwide, most hemodialysis (HD) clinics still ignorantly discard daily to the sewer huge volumes of a reusable high-quality resource: dialysis process-derived water.

The dialysis process generates 2 very different water-related components. The first of these is reverse-osmosis reject water, whereas the second is spent dialysate effluent.

Reject water, highly filtered and purified, is formed by predialysis water filtration before exposure to blood products. In retrospect, applying the term "reject" to water of such high quality is at least a misnomer and, at worst, counterproductive because the word has connotations of badness or impurity. Although far from true of reject water, it may explain our thoughtless dialysis practice of completely discarding reject water to the sewer without considering its potential uses.

Meticulous particulate, carbon, and reverse-osmosis filtration is essential to the dialysis process.[4] In the 1970s, aluminum,[5] chloramines,[6] endotoxin,[7] and other substances were shown to pass into the patient from the dialysate across the dialyzer membrane. To protect from unwanted toxins carried in the water required to create dialysate in single-pass systems, reverse-osmosis water filtration became a standard requirement. After prefiltration, the reverse-osmosis process rejects to drain any remaining dissolved solutes. The high-volume effluent thus produced is known as reject water. Although the higher solute concentration of reject water increases its conductivity, reject water is otherwise better than mains water and despite its higher conductivity, most reject water is well within the US Environmental Protection Agency standards for potable drinking water.[8]

Whereas reject water is a predialysis effluent, spent dialysate effluent is formed after blood contact. After reverse-osmosis purification, accepted water mixes with a chemical concentrate in single-pass dialysis systems to form a serum-compatible bicarbonate-buffered dialysate that removes electrolytes, solutes, and uremic metabolic wastes from blood across the dialyzer membrane. The dialysate effluent thus formed is then uniformly drained to the sewer by all dialysis services worldwide.

To our embarrassment, despite 5 decades of HD, one of the first reports of dialysis water conservation is only now just appearing. In this issue of *American Journal of Kidney Diseases*, Tarrass et al[9] report from Morocco a desalination trial of unsegregated reverse-osmosis reject water and dialysate effluent for reuse in landscape and irrigation programs. They report the water quality achieved, technical problems faced, and costs incurred by desalinating a combined effluent and compare the latter with standard Moroccan seawater desalination costs. They correctly criticize the current worldwide dialysis practice of the profligate wastage of dialysis wastewater, both reject water and dialysate effluent, and estimate that in Morocco alone, the combined effluent wastage from some 80,000 facility-based 4-hour treatments is approximately 50 million US gallons per year. In arid and drought-stricken regions, such losses are no longer supportable, and this Moroccan initiative is timely.

Although the Moroccan study focuses on combined reject water and dialysate effluent, 2 recent Australian studies have reported several reuse projects for reject water alone in both facility-based[10] and home HD.[11] These investigators claimed that given similar use patterns, the annual US equivalent reject water generation would be approximately 27 gigaliters, sufficient to provide all yearly water requirements for a US city

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of approximately 175,000, for example, Salt Lake City, Utah.[12] In these reports, facility-based reject water has provided water for sterilizer steam generation, janitor stations, maintenance, and landscape care, whereas home HD–generated reject water has supplied home toilets, laundries, gardens, and stock watering. Even an income-generating reject water–powered commercial car-wash facility is under consideration in the Australian initiative.[13]

Tarrass et al[9] propose using combined effluent for irrigation, agricultural, and landscape use after desalination. To first confirm chemical suitability and microbiological safety, they analyzed the combined effluent and compared it with the agricultural wastewater standards of both the World Health Organization[14] and the United Nations Food and Agriculture Organization.[15] With the expected exception of the sodium and chloride concentration of the combined effluent, and thus its conductivity, the chemical analysis is well within the limits of both standards. However, because dialysate effluent presupposes patient blood contact, they applied the Association for the Advancement of Medical Instrumentation culture method[16] of trypticase soy agar incubated at 36°C for 48 hours to their combined effluent. The resultant cultures also were within these standards. Although more stringent dialysis water sterility standards are now recommended to include incubation at room temperature for up to a week with Reasoners 2A or tryptone glucose-extract agar,[17] this applies to in-feed and not effluent water. For dialysate effluent use in agricultural irrigation or landscaping, Association for the Advancement of Medical Instrumentation compliance seems more than adequate, particularly because bacterial colony counts have been well within both World Health Organization and United Nations Food and Agriculture Organization recommendations.

Concerns may surface that environmental bacterial or viral contamination may occur in effluent fluids of patients infected with viral hepatitis, acquired immunodeficiency syndrome, or other infectious diseases. Although there is no evidence that contamination poses a practical risk, the reuse of reject water alone, as proposed from Australia, rather than recycling a combined wastewater effluent that incorporates patient-contact dialysate effluent would avoid all contamination risk. Reject water use alone may also be both more practical and less expensive to install.

Although Tarrass et al[9] compared the costs of combined reject water and dialysate effluent desalination by nanofiltration (US $0.70/cubic meter) or reverse osmosis (US $0.74/cubic meter) with those for commercial seawater desalination, desalination is unnecessary for reject water use alone. Desalination uses considerable power,[18] and although the Moroccan study costs dialysate effluent desalination at 20% to 30% less than the desalination of seawater, the predicted expenditure is still high and would add significantly to dialysis budgets.

Equipment advances now also curb dialysis water use more efficiently. Installing better pretreatment technology minimizes reject water losses, but only with large capital and maintenance investments that, although economical for larger systems, are not as cost-effective for comparably smaller dialysis-system reverse osmosis. Although early HD reverse-osmosis systems rejected up to 75% of feed-water,[19] later models can recycle the excess permeate back to the feed-water and reduce reverse osmosis wastage to approximately 20%. However, in the real world, many operational reverse-osmosis systems are the old varieties, and even with recirculation, water will always be wasted. Because budget restrictions will also prevent any rapid replacement program for many dialysis services, reject water reuse will likely remain valid and valuable in the medium future.

Newer prepacked or on-line dialysate generation systems[20] and renewed interest in sorbent technology both for dialysate regeneration[21] and in wearable kidney prototypes[22] may alter future dialysis water use, with one currently emerging sorbent system already reducing total dialysis-related water use to 6 L/treatment.[21] The potential impact of these technological advances on global dialysis-related water use is immense.

Whether through bulk effluent or separated reject water and dialysate effluent collection, there is a clear challenge to rethink our dialysis wastewater policies, and we must rapidly explore the potential for innovative wastewater reuse. For the reject water–only reuse model, little beyond some do-it-yourself hardware and a weekend plumbing project seems necessary to redirect reject water to wiser uses. For the whole-

of-effluent model, in which conductivity issues demand additional desalination, cost may yet prove inhibitory. However, both demand urgent consideration.

This is an important report because it identifies "the elephant in our room." As policymakers realize the potentials for dialysis wastewater reuse, regulatory bodies will follow, requiring dialysis services to include a wastewater reuse program in their charter. This is as it should be. The Tarrass report in this edition of *American Journal of Kidney Diseases* provides our wake-up call. Let us hope it leads to further innovative reuse ideas for one of nature's most precious resources—water.

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EXHIBIT 4

EPA United States Environmental Protection Agency

Region 9 Enforcement Division
75 Hawthorne Street
San Francisco, CA 94105

INSPECTION REPORT

Inspection Date(s):	April 25, 2019	
Time:	**Entry:** 2:05 pm	**Exit:** 3:30 pm
Media:	Water	
Regulatory Program(s)	Clean Water Act Pretreatment – Industrial User Inspection	
Company Name:	Lompoc Artificial Kidney Center	
Facility or Site Name:	Lompoc Artificial Kidney Center	
Facility/Site Physical Location:	127 West Pine Avenue Lompoc, CA 93436	
Geographic Coordinates:	34°39'2.17"N 120°27'31.86"W	
Mailing address:	127 West Pine Avenue Lompoc, CA 93436	
Facility/Site Contact:	Marlene C. Lacambra	**Title:** Head Nurse
	Phone: 805-740-0210	Email: mlacambra@lompocakc.com
Industrial User Permit No:	I-0013	
Publicly Owned Treatment Works (POTW):	City of Lompoc Regional Wastewater Reclamation Plant (WRP)	
POTW Permit Nos:	CA0048127	
Control Authority:	City of Lompoc	
Categorical Part/Subpart:	NA	

Facility/Site Personnel Participating in Inspection:

Name	Affiliation	Title	Email
Marlene C. Lacambra	Lompoc Artificial Kidney Center	Head Nurse	mlacambra@lompocakc.com

Inspector(s):

James Polek	U.S. EPA	Environmental Engineer	polek.jim@epa.gov
Michael Weiss	U.S. EPA	Environmental Engineer	weiss.michael@epa.gov

POTW/Federal/State/Tribal/Local Representatives:			
Peter von Langen, Ph.D.	California Central Coast Water Board	Engineering Geologist	Peter.vonlangen@waterboards.ca.gov
Katrina Dorsey	City of Lompoc	Water Resource Protection Technician	k_dorsey@ci.lompoc.ca.us
Stuart Stewart	Fluid Resource Management	Consultant	stuarts@frm-ops.com
Inspection Report Author:	James Polek		415-972-3185
			Date: 7/1/19
Supervisor Review:			
	Eric Magnan ERIC MAGNAN Digitally signed by ERIC MAGNAN Date: 2019.07.02 19:12:12 -07'00'		415-947-4179
			Date:

SECTION I – INTRODUCTION

I.1 Purpose of the Inspection

The purpose of the inspection was to understand Lompoc Artificial Kidney Center's (Lompoc AKC or facility) industrial processes and the associated wastewater streams, and how these wastewater streams are treated and discharged. The unannounced inspection consisted of a review of the process area and waste generating processes.

On April 25, 2019, a U.S. EPA inspection team (Jim Polek and Michael Weiss) inspected Lompoc AKC in Santa Barbara County, CA. Discharges from the facility flow to the City of Lompoc Regional Wastewater Reclamation Plant (WRP) (NPDES Permit No. CA0048127), a publicly owned treatment works.

Upon arriving at the facility, the inspection team met Marlene C. Lacambra (Head Nurse), referred to as Facility Representative. The inspection team presented credentials, provided business cards, and informed the Facility Representative of the purpose and intent of the inspection. Lompoc Artificial Kidney Center is designated by the City of Lompoc as a significant industrial user for discharging brackish wastewater to the sewer.

The City's designation of the facility as a significant industrial user is partially based on a November 29, 2018 sampling of the facility's wastewater. The wastewater was sampled at the floor drain accepting reverse osmosis reject water and spent dialysate, and had a chloride concentration of 756 mg/l and a sodium concentration of 517 mg/l. The City's local limit for chloride is 250 mg/l and for sodium is 270 mg/l. On May 8, 2019, the City permitted the Lompoc AKC as a significant industrial user.

SECTION II – FACILITY / SITE DESCRIPTION

II.1 Facility Description

Lompoc AKC has been in business at this location for 20 years and is located in one building. The facility operates Monday through Saturday 6:00 am to 9:00 pm and has 30 employees.

Lompoc AKC provides dialysis services to 131 patients. Patients of the facility have failed kidney function and they come to the Lompoc AKC to have their blood cleaned of urea and certain salts on a regular basis. The blood cleaning process is done in machines that are attached to reclining chairs for patients to relax in during the process. The facility has 18 dialysis machine/chairs.

The blood cleaning process must utilize ultra-pure water, so the facility first softens City water with sodium chloride to replace magnesium and calcium ions. The softened water is then passed

through four granulated activated carbon canisters in series to remove free chlorine, free chloramines, and organic compounds. The water is then sent through a reverse osmosis system. Water from the reverse osmosis system is used in the dialysis machine/chairs.

Reverse osmosis water is mixed with potassium and sodium bicarbonate to make dialysate, which is placed in one compartment of the dialysis machine/chair. The patient's blood is circulated through semi-porous tubing through the dialysate, so urea and certain salts migrate through the tubing into the dialysate. Red and white blood cells are too large to pass through the tubing. The cleaned blood is returned to the patient and the spent dialysate, containing urea and certain salts, is discharged to the sewer.

II.2 Wastewater Sources

Lompoc AKC's wastewater streams include spend dialysate, reverse osmosis reject water, water softener backwash, and equipment disinfection wastewater, which are discharged to the sanitary sewer.

Spent dialysate is discharged to the sewer during operating hours when the spent dialysate is removed from the dialysis machine/chairs.

Reverse osmosis reject water is continuously generated and discharged when the system is operating. The facility has two reverse osmosis units. One unit is run on Mondays, Wednesdays, and Fridays, and the other unit is run on Tuesdays, Thursdays, and Saturdays. Backwashing is conducted about once per week.

The water softener is backwashed every operating day. Backwashing is usually conducted at midnight.

Equipment disinfection is conducted regularly. The dialysis machine/chairs are disinfected daily with a water and vinegar mixture. The dialysis machine/chairs also receive a weekly disinfection with bleach and reverse osmosis water. The reverse osmosis system is disinfected with bleach and water once per month.

No wastewater is generated from maintaining the granular activated carbon canisters. The canisters are replaced about every three years.

II.3 Wastewater Treatment

No treatment of the wastewater is conducted prior to it being discharged to the sanitary sewer.

SECTION III – OBSERVATIONS

The following observations were made during a walk-through of the facility.

- The water softener, granular activated carbon canisters, and reverse osmosis equipment were well labeled with instructions on their purpose and operating instructions (Photograph 1)
- The reverse osmosis reject water was discharging water to a floor drain (See drain pipe in forefront of Photograph 2).
- The sampling point used by the City on November 29, 2018 was the drain that receives reverse osmosis reject water and spent dialysate (Photograph 2).

SECTION IV – AREA OF CONCERN

The presentation of areas of concern does not constitute a formal compliance determination.

- Wastewater samples for self-monitoring and compliance monitoring must be collected at a location that is representative of all the facility's wastewater streams described in Section II.2 above. The sampling should be representative of normal work cycles and expected discharges to the Lompoc Regional WRP
- The facility has been designated and permitted as a significant industrial user and must comply with all the requirements of its wastewater discharge permit.
- The initial sampling of the facility wastewater had a chloride concentration more than three times the allowable limit and a sodium concentration almost twice the allowable limit.

Appendix 1 – Photograph Log

The photographs were taken during the inspection by Michael Weiss using an Olympus Tough TG-5 digital camera. Original copies of the photos are maintained by EPA Region 9.

Photograph 1 – Water Treatment Equipment Labeled with Operating Instructions

Photograph 2 – Drain Receiving Reverse Osmosis Reject and Spent Dialysate

EXHIBIT 5

City of LOMPOC

CITY OF LOMPOC
WASTEWATER DIVISION

WASTEWATER DISCHARGE PERMIT

Class I – Significant Industrial User

This wastewater discharge permit is granted in accordance with Chapter 13.16 of the City of Lompoc (City) Municipal Code and may be suspended or revoked by the Director of the Utility Department (Director) for cause.

PERMIT NUMBER: I-0013

EFFECTIVE DATE: May 8, 2019
EXPIRATION DATE: May 7, 2024

BUSINESS NAME:

Lompoc Artificial Kidney Center (LAKC)
127 W. Pine Ave. Lompoc CA, 93436

TYPE OF BUSINESS:

Outpatient Dialysis Clinic

PERMIT RECEIVED BY:

_____
Thomas R. Allyn, CEO
LAKC Authorized Representative

CONTACT INFORMATION:

Thomas Allyn
tallyn@sbakc.com
805-682-9942

PERMIT ISSUED BY:

Brad Wilkie

Brad Wilkie, Utility Director
City of Lompoc

Call **(805) 736-5083** to reach the wastewater treatment plant by telephone.

This permit is non-transferable and must be posted in a conspicuous location.

STANDARD CONDITIONS WITH ADDITIONAL SPECIAL CONDITIONS:

In consideration of the granting of this permit, Lompoc Artificial Kidney Center (hereinafter designated as the User) agrees to:

1. Furnish any additional information on industrial wastewater discharges as required by the Director;
2. Accept and abide by applicable provisions of Chapter 13.16, Sewer System, of the City Municipal Code (Appendix B);
3. Operate and maintain any and all required pretreatment devices in a satisfactory approved manner;
4. Cooperate with City personnel, or their representatives, in the inspection and sampling of industrial facilities and discharge;
5. Notify the wastewater treatment plant by telephone, **(805) 736-5083**, immediately in the event of any accident, negligence, or other occurrence that results or could result in discharge to the sewer of any material whose nature and quantity might be reasonably judged to constitute a hazard to City personnel, the wastewater system, wastewater treatment plant, or the environment;
6. Pay the City any required surcharge or use charge fees for wastewater treatment;
7. Submit, as required by the Director, accurate data on industrial wastewater discharge flows and constituents;
8. Accept and abide by the terms and conditions of the permit as specified herein.

Site Address

Mailing Address:
127 W. Pine Ave.
Lompoc, CA 93436

Site Discharge Location:
127 W. Pine Ave.
Lompoc, CA 93436

Diagrams of process / sample site(s) are in Appendix C.

Section I – Wastewater Discharge Limitations

A. Discharge Location 001 – General Discharge

The User shall not discharge wastewater containing constituents greater than the quantities specified below (discharge limitations taken from Chapter 13.16.340 of the City's Municipal Code, Subsection B):

Constituent	Limit[A, B]	Type of Limit
Flow	12,250 gallons per day	Maximum monthly average[C]
pH[D]	6 – 9 standard units	Instantaneous maximum
Ammonia	55	Maximum daily average
Arsenic	2.0	Maximum daily average
Beryllium	3.0	Maximum daily average
Cadmium	0.2	Maximum daily average
Chloride	250	Maximum daily average
Chromium (Total)	2.0	Maximum daily average
Copper	2.0	Maximum daily average
Cyanide (Total)	1.0	Instantaneous maximum
Lead	1.0	Maximum daily average
Mercury	0.01	Maximum daily average
Nickel	3.0	Maximum daily average
Oil and Grease (Total)	100	Instantaneous maximum
Phenol	25.0	Instantaneous maximum
Selenium	0.4	Maximum daily average
Silver	1.5	Maximum daily average
Sodium	270	Maximum daily average
Zinc	1.0	Maximum daily average
Total Dissolved Solids	1,100	Maximum daily average

[A] All concentrations are in mg/L unless otherwise specified, and sample concentrations shall be determined by analytical procedures specified by 40 CFR Part 136.

[B] Local limits apply at the location as designated on the site map in Appendix C.

[C] The highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

[D] pH must be analyzed within 15 minutes of sample collection.

Section II – Special Conditions/Compliance Schedules

A. General Waste Discharge

1. The User is required to install a flow meter to measure the effluent discharge at the facility. The meter shall monitor and record flow and conductivity data, which shall be available to City staff upon request.

2. The appropriate flow measurement devices and methods consistent with approved scientific practices must be selected and used to ensure the accuracy and reliability of measurement of the volume of monitored discharges. The devices must be installed, calibrated, and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. The devices selected must be capable of measuring flows with a maximum deviation of less than 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. The User shall submit any regulated pollutant monitoring, regardless of frequency, conducted at the appropriate sampling location, which shall be included in the corresponding report for that reporting period.

4. The User shall participate in Pretreatment Compliance Inspections and Audits and shall comply with all applicable requirements specified by regulatory agencies pursuant to these regulatory reviews.

5. The User is subject to all applicable Pretreatment Requirements in 40 CFR 403.

6. Additional fees/rates/fines may apply if discharges exceed specific discharge limits.

7. All self-monitoring records shall be retained and preserved on-site for three (3) years and made available for City staff inspection upon request.

8. The User shall not use dilution of wastewater to meet discharge limits.

9. All pretreatment devices shall be maintained and operated according to the manufacturers' specifications.

10. Requests for modifications to the permit that include a substantial change in the permitted waste stream shall be made at least 90 days prior to discharge of waste.

B. Slug Discharge Control Plan

1. The User is not required at this time to develop and implement a slug discharge control plan (also known as the accidental spill prevention plan).

2. A slug discharge control plan must include:

a. A description of discharge practices, including non-routine batch discharges;
b. A description of stored chemicals;
c. Procedures for immediately notifying the City of slug discharges, including any discharge that would violate a prohibition under 40 CFR 403.5(b) with procedures for follow-up written notification within five days; and
d. If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment for emergency response.

3. As applicable, the User will review the slug discharge control plan every two (2) years and submit any changes or updates to the City.

Section III – Self-Monitoring/Sampling Requirements, Procedures, and Self-Reporting Requirements

A. Self-Monitoring Requirements

1. Monitoring of the follow parameters shall be conducted on a continuous basis:

Constituent	Frequency	Type[A]	Location[B]
Flow	Continuous	Meter	001
Conductivity	Continuous	Meter	001

[A] Monitoring to be conducted during operating hours (if not 24 hours).

[B] Sample location (001) at the effluent tank in LAKC's pretreatment area as shown in Appendix C.

2. Quarterly monitoring of the following parameters shall take place in January through March, April through June, July through September, and October through December of each year:

Constituent	Frequency	Type[A]	Location[B]
Chloride	Quarterly	24-hour composite	001
Sodium	Quarterly	24-hour composite	001
Total Dissolved Solids (TDS)	Quarterly	24-hour composite	001
pH[C]	Quarterly	Grab	001

[A] Based on a composite sample of the working day (if not 24 hours).

[B] Sample location (001) at the effluent tank in LAKC's pretreatment area as shown in Appendix C.

[C] pH must be analyzed within 15 minutes of sample collection.

3. All meters and other measurement devices (e.g., flow meters, pH meters) must be installed, maintained, used, and calibrated according to manufacturer's instructions. All meter maintenance and calibration activities shall be documented in an on-site log that shall be made available to the City or the City's authorized representatives upon request.

4. Any discharge violation shall be reported to the Wastewater Division [**(805) 736-5083**] within 24 hours of the User becoming aware of the violation. The User shall also repeat the sampling and analysis and submit the results of the repeat analysis to the Wastewater Division within 30 days after becoming aware of the violation. Subsequent sampling and analysis of all constituents violating the limitations, as specified, shall be conducted until consistent compliance is proven. All reports shall include the signatory statement.

5. The User shall submit any regulated pollutant monitoring, regardless of frequency, conducted at the appropriate sampling location and this information shall be included in the corresponding report for that reporting period.

B. Self-Monitoring/Sampling Requirements and Procedures

1. Sampling – Shall be conducted on all required discharges according to 40 CFR Part 136. Analyses shall be performed by a state-certified laboratory in accordance with 40 CFR 136. Proper documentation shall be completed in order to confirm Quality Control, Quality Assurance and Chain-of-Custody procedures. This will also include analysis methods, extraction, and preparation dates for each applicable analysis.

2. Samples and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit and, unless otherwise specified, before the effluent joins or is diluted by any other wastestream, body of water or substance. All equipment used for sampling and analysis must be routinely calibrated, inspected and maintained to ensure their accuracy. Monitoring points must not be changed without notification to and the approval of the City.

C. Self-Reporting Requirements

1. Compliance Reporting – Shall be submitted to the City of Lompoc's Wastewater Division as necessary:
    a. Process Installation Progress Report – Written progress reports will include:
        i. List of equipment that has been installed;
        ii. Any proposed timeline change(s), include the reason(s).
    b. Written progress reports on the Pretreatment System upgrade.

2. Monthly Compliance Reports – Shall be submitted to the City of Lompoc's Wastewater Division as follows:

Reporting Requirements		
Time Period Covered	**Report Name**	**Report Due By**
January	Monthly	February 15th
February	Monthly	March 15th
March	Monthly	April 15th
April	Monthly	May 15th
May	Monthly	June 15th
June	Monthly	July 15th
July	Monthly	August 15th
August	Monthly	September 15th
September	Monthly	October 15th
October	Monthly	November 15th
November	Monthly	December 15th
December	Monthly	January 15th of the following year

Monthly reports shall be submitted using the form included in Appendix A and shall be typewritten or written legibly in ink. Reports must address increments of progress that relate to Section III.C.1. Each report shall indicate the minimum, maximum, and average flow and conductivity measured via continuous meter and include all other sampling results received during the reporting period.

These reports should also include the following, at a minimum, unless otherwise authorized by the Utility Director:

a. Results of all analyses, regardless of whether the water is further treated or discharged;
b. Any significant changes in production rate, raw materials, discharge quantity or quality, or facility operations;
c. Proposed changes affecting discharge flow or constituent concentrations;
d. Any violations, including date, time, and duration;
e. Monthly water usage (City water billing may be used in lieu of metering the volume of wastewater discharged, with the fire/domestic usage reported separately from the process waste stream when flow meter is out of service for repairs);
f. Signatory requirement, as specified in Section IV.J;
g. Reports shall be submitted to:

City of Lompoc Wastewater Division
ATTN: Water Resources Protection Tech
1801 W. Central Ave.
Lompoc, CA 93438

3. General – The User shall comply with all applicable reporting requirements of 40 CFR 403.12. All reports required by this Section shall be submitted to the City of Lompoc's Wastewater Division as required. The following are some examples of the required reports contained in 40 CFR 403.12:
    a. **Notice of Pretreatment By-Pass** – Notification of Wastewater Division [**(805) 736-5083**)] must be made within 24 hours of any occurrence, either accidental or non-accidental, that results in the by-pass of the pretreatment system to the sewer of any process waste stream. In addition, a written report must follow this verbal notification within five (5) days of the occurrence. This report shall contain a description of the by-pass and its cause; the duration of the by-pass, including exact dates and times; if the by-pass has not been corrected, the anticipated time it is expected to be corrected; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the by-pass. If the User knows in advance of the need for a by-pass, it shall submit prior notice to the City, if possible, at least ten (10) days before the date of the by-pass. [40 CFR 403.17(c)]
    b. **Notice of Upset** – To establish an affirmative defense of upset the User shall demonstrate through properly signed, contemporaneous operating logs, or other logs, or other relevant evidence that:
        i. an upset occurred and the User can identify the cause(s) of the upset;
        ii. the facility was at the time being operated in a prudent and workmanlike manner and in compliance with applicable operation and maintenance procedures;
        iii. the User has submitted the following information to the City within 24 hours of becoming aware of the upset; if this information is provided orally, a written submission must be provided within five (5) days containing:
            A. a description of the indirect discharge and cause of noncompliance;
            B. the period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
            C. steps being taken and/or planned to reduce, eliminate and prevent recurrence of the noncompliance.

    c. **Hazardous Waste Discharge to Sewer** – Hazardous waste discharged to sewer is prohibited. In the event hazardous waste is discharged to the sewer, the User shall immediately notify the Wastewater Division of hazardous waste discharged into the sewer. The User shall also notify the Wastewater Division, EPA Regional Waste Management Division Director, and State Hazardous Waste authorities in writing within 180 days of any discharge into the City's POTW to a substance, which, if otherwise disposed would be a hazardous waste as set forth in 40 CFR 261. Written notification shall include:

i. EPA hazardous waste number;
ii. type of discharge (continuous, batch, or other);
iii. an identification of the hazardous constituents contained in the wastes;
iv. an estimation of the mass and concentration of such constituent in the wastestream discharged during that calendar month;
v. an estimation of the mass of constituents in the wastestream expected to be discharged during the following twelve (12) months; and
vi. the User shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical.

All notifications shall take place within 180 days following discharge of a listed or characteristic hazardous waste. Any notification under this paragraph need be submitted only once for each hazardous waste discharged. However, notifications of changed discharges must be submitted pursuant to 40 CFR 403.12(j). The notification requirement in this section does not apply to pollutants already reported under the self-monitoring requirements of 40 CFR 403.12 (b), (d), and (e).

d. **Slug Load Notification** (City Municipal Code, Chapter 13.16.380) – The User shall immediately notify the Wastewater Division by telephone [**(805) 736-5083**] of any accidental or slug load discharge (as defined in City Municipal Code, Chapter 13.16.030) to the wastewater system.

e. **Spills** – The User shall immediately notify the Wastewater Division by telephone [**(805) 736-5083**] of any emergency draining, accidental spill, or slug load of compatible or incompatible constituents to the sanitary sewer (City Municipal Code, Chapter 13.16.380). The User shall complete and submit the Accidental Spill Reporting Form (in Appendix A) to the Wastewater Division within fifteen (15) days of the spill. Completion of the form does not relieve the user of any liabilities due to the accidental discharge.

f. **Significant Change in Discharge** – According to 40 CFR 403.12(j): The User shall promptly notify the Wastewater Division in advance of any substantial change in the volume or character of pollutants in their discharge, including the listed or characteristic hazardous wastes for which the User has submitted initially notification under 40 CFR 403.12(p).

g. **Slug Potential Notification** – The User shall immediately notify the Wastewater Division of any changes at its facility affecting potential for a slug discharge.

Section IV - Standard Conditions

A. Prohibited Discharges – The User shall comply with the discharge prohibitions specified in Chapter 13.16.240 through Chapter 13.16.250 of the City's Municipal Code.

B. Proper Operation and Maintenance – The User must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes the following: effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

C. Duty to Halt or Reduce Activity – Upon reduction of efficiency of operation, or loss or failure of all or part of the treatment facility, the User must, to the extent necessary to maintain compliance with its permit, control its production or discharges (or both) until operation of the treatment facility is restored or an alternative method of treatment is provided. Such a requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced. It will not be a defense for a User in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with this permit.

D. Right of Entry – The User shall allow the City or its representatives, exhibiting proper credentials and identification, to enter upon the premises of Users, at all reasonable times, for the purposes of inspection, sampling, or records examination and copying (City Municipal Code, Chapter 13.16.090). Reasonable hours in the context of inspection and sampling include any time the User is operating any process which result in, or may result in, a process wastewater discharge in the City sewerage system.

E. Records Retention –

1. The User shall retain and preserve for three (3) years any records, books, documents, memoranda, reports, correspondence and all summaries thereof, relating to monitoring, sampling, chemical analysis, transport, and disposal of reclaimed wastes made by or on behalf of the user in connection with its discharge.

2. All records that pertain to matters that are the subject of special orders or any other enforcement or litigation activities brought by the City shall be retained and preserved by the User until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

F. Confidential Information – Except for data determined to be confidential, defined by City Municipal Code, Chapter 13.16.110, all reports required by this permit shall be available for public inspection at the Lompoc Regional Wastewater Reclamation Plant.

G. Sampling and Analysis – Recording of results – Sampling protocol shall be established by City staff and specified in wastewater discharge permits. All sampling and analysis shall be in accordance with 40 CFR 136. For each measurement or sample taken pursuant to the requirements of this permit, the User shall record the following information:

1. The exact place, date, and time of sampling;
2. The dates the analyses were performed;
3. The person(s) who performed the sampling;
4. The person(s) who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of all required analyses.

H. Dilution – The User shall not increase the use of process water, or in any way attempt to dilute a discharge as a partial or complete substitute for adequate treatment in order to achieve compliance with the limitations contained in this permit (City Municipal Code, Chapter 13.16.330).

I. Proper Storage and Disposal of Hazardous Materials, Pretreatment Sludges, and Spent Chemicals – The storage and disposal of hazardous materials, sludges, spent chemical, and other wastes recovered from pretreatment devices shall be done in accordance with Section 405 of the Clean Water Act, Subtitles C & D of the Resource Conservation and Recovery Act, and all other applicable codes and regulations. All records relating to such disposal shall be maintained by the User for a minimum of three (3) years.

J. Signatory Requirements – All reports required by this permit shall be signed by an authorized representative of the user. Any person signing a report shall make the following written certification:

> *"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."*

K. Revocation of Permit – In accordance with Chapter 13.16.230 of the City's Municipal Code, the wastewater discharge permit issued to the User by the City may be revoked when, after inspection, monitoring, or analysis, it is determined that the discharge of wastewater to the sanitary sewer is in violation of Federal, State or local laws, ordinances or regulations. In addition, permit revocation may result from:

1. Failure to factually report wastewater constituents and characteristics;
2. Failure to report significant changes in operations or wastewater constituents and characteristics, including slug loads;
3. Knowingly submitting false statements, false representations, records, plans or other documents to the City;
4. Tampering with or knowingly rendering inaccurate any monitoring device;
5. Refusal of, or obstruction to, access to the User's premises for inspection and/or monitoring and surveillance; and
6. Violation of permit terms and conditions.

L. Knowing Violations – In accordance with Chapter 13.16.470 of the City's Municipal Code, the following actions may result in criminal prosecution as well as civil penalties and injunctive relief:

1. Willful or negligent violation of applicable requirements;
2. Knowingly making false statements on any report or document; or
3. Knowingly rendering any monitoring device or method inaccurate.

M. Right of Revision – The terms and conditions of wastewater discharge permits may be subject to modification by the City at any time, as limitations or requirements as identified in the City's Municipal Code are modified, or other just cause exists (Chapter 13.16.190). Any permit modifications which result in new conditions in the permit shall include a reasonable time schedule of compliance, if necessary.

N. Non-transferability – Wastewater discharge permits are issued to a specific User for a specific operation and shall not be reassigned, transferred, or sold (City Municipal Code, Chapter 13.16.200).

O. Re-issuance of Permit (Renewal) – The User shall notify the City, at a minimum, 90 days prior to its existing permit expiration and apply for permit renewal. If application for permit renewal (re-issuance) is not submitted within this time period, the User must apply for a new wastewater discharge permit. The User shall be responsible for permit renewal, regardless of notification by the City (City Municipal Code, Chapter 13.16.210).

P. Appeals – Any action, decision, or determination made by the Director interpreting or implementing the provisions of this Permit and/or of Chapter 13.16 of the City's Municipal Code may be appealed in accordance with Chapter 13.16.140.

Q. Severability – The provisions of wastewater discharge permits are severable, and if any provision of a permit, or the application of any provision of a permit to circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be thereby affected.

R. Enforcement/Penalties – Any User found to be violating terms or conditions specified in wastewater discharge permits shall be subject to administrative penalties, civil penalties, criminal penalties, and preliminary or permanent injunction (City Municipal Code, Chapter 13.16.430 through 13.16.500)

S. Civil Penalties – In accordance with Section 309(d) of the Act, any user who violates this Article may also be liable in a sum not to exceed $25,000 per day in which such violation occurs (33 USC 1319).

T. Criminal Penalties – The City Attorney may prosecute violations of this Article in accordance with the General Penalty provisions of Section 1.24.010 of this Code. Violations shall be subject to fines of up to $1,000 and imprisonment not exceeding six months. Every day any violation continues to exist shall constitute a separate offense.

Section V – Abandonment of Processes or Premises

A. Notification of Sale or Change of Owner – The User will notify the Wastewater Division prior to change of ownership of the process waste stream and/or the facilities permitted by this document.

B. Wastewater Treatment Unit Removal Reporting Requirements –

1. The User will notify the Wastewater Division in writing, 60 working days prior to the removal of any wastewater treatment unit.
2. Any waste stream discharged to the Wastewater System during the removal process must be collected and analyzed prior to discharge. It must comply with the permit limits.
3. The User will complete the regularly required self-monitoring report for the Wastewater Division, including the procedures followed and the analysis of any discharge.

C. Closure Procedures – The User will notify the Wastewater Division, in writing, when selling or going out of business. Notifications must be made at least 30 days prior to closure. Written notification must include, but is not limited to:

1. Disposal procedures of equipment, raw materials, products, etc.;
2. Name, address, and telephone number of person purchasing the property (either equipment or real estate); and
3. Date of closure.

EXHIBIT 6

City of LOMPOC

June 27, 2019

Thomas R. Allyn, MD, FACP
Bindu M. Kamal, MD
Lompoc Artificial Kidney Center, LLC
127 West Pine Avenue
Lompoc, CA 93436

REVISED AND REISSUED RULING ON REQUEST FOR RECONSIDERATION

Dear Drs. Allyn and Kamal:

Thank you for meeting with me and City staff on June 25, 2019 (Meeting) regarding the Ruling I sent dated June 18, 2019. This Revised and Reissued Ruling on Request for Reconsideration (this Revised and Reissued Ruling) supersedes the June 18th Ruling and the dates for appeal pursuant to Lompoc Municipal Code (LMC) section 13.16.140 will be counted from the date of this Revised and Reissued Ruling.

In light of that Meeting, I have re-reviewed the request for reconsideration, dated May 29, 2019, and submitted by Ian M. Guthrie on behalf of the Lompoc Artificial Kidney Center, LLC (Kidney Center). This Revised and Reissued Ruling is issued pursuant to Lompoc Municipal Code (LMC) section 13.16.140.

FINDINGS:

1) **Water Softener:** According to information provided by the Kidney Center, its water softening device, which was installed in 1998, performs at 2,500 grains of hardness removed per pound of salt used for regeneration. That does not meet the standard of operation set in the LMC as follows:

- LMC 13.16.320 requires all water softening devices discharging to the City sanitary sewer to meet the California Health and Safety Code (HSC) specifications in Sections 116775 to 116795. HSC section 116790 states all softening devices installed prior to 1980 have a 4-year grandfathering period to meet the standard (*at least 2,850 grains of hardness removed per pound of salt used for regeneration*); otherwise, all water softener devices must meet the operational standard in cities that have salt loading limitations.
- The City is under salt loading limitations. The City currently has a 2011 NPDES permit (Order R3-2011-0211) (Order). The Order includes numerical effluent limits for salts constituents. Further, the Order states in Sections II.S and VI.C.3.a the City is subject to a salt loading Salinity Management Study and Plan and notes self-generating water softeners are of particular concern; therefore,

2011 is the latest date by which any water softeners (residential and commercial/industrial) installed after 1980 must perform at ≥2,850 grains of hardness removed per pound of salt used for regeneration, and 2015 is the latest date by which water softeners installed before 1980 must meet the standard. The City has timely filed for renewal of the Order, but it has not yet been issued by the local Regional Water Quality Control Board (RWQCB).

- HSC, subdivision 116785(b)(2) is not an applicable standard for the Kidney Center because those standards are only applicable to systems installed on or after January 1, 2000, or 2002, as specified.

The foregoing finding is contingent of City staff having a discussion with RWQCB staff to determine whether, pursuant to the requirements of Wastewater Discharge Permit I-0013, water softeners are prohibited in the City no matter what the grain of hardness removal performance is. If water softeners are not outright prohibited and the Kidney Center installs and maintains use of a water softener that performs at ≥4,000 grains of hardness removed per pound of salt used for regeneration, then the City will consider the Kidney Center is in compliance with the LMC regarding water softeners.

2) **Discharge of Infectious Wastes to the Sanitary Sewer:** The Kidney Center discharges human dialysis waste materials to the City sanitary sewer system. Such wastes, defined as *infectious waste* per LMC, subdivision 13.16.030. B, are prohibited from discharge from a medical facility to the public sewer by any means (LMC, subdivision 13.16.280 A). Further, LMC, subdivision 13.16.280. B requires infectious waste generated by medical facilities shall be handled in accordance with applicable provisions of California Code of Regulations, title 22, as amended, and Article V of Chapter 18 of the Santa Barbara County Code, and the applicable provisions of that Chapter.

3) **Monitoring Facilities:** The City concurs a representative monitoring location has not yet been designated for sampling the Kidney Center's end-of-pipe wastewater contribution to the sanitary sewer. LMC, section 13.16.390 requires adequate monitoring facilities be installed, operated, and maintained at the Kidney Center's expense.

4) **Effluent Meter:** Once the monitoring facilities described in 3), above, are installed and proper monitoring does not show two consecutive quarters of compliance by the Kidney Center, then, pursuant to Wastewater Permit I-0013 requirements at Section II.A.1 and within 30 days after written notice from the Director, the Kidney Center shall install and maintain an appropriate effluent meter that continuously measures flow and conductivity.

5) **Reporting Frequency:** The City can revise the reporting frequency in the Kidney Center Wastewater Permit I-0013 Section III.C.2 from Monthly to Quarterly as follows:

"2. Quarterly Compliance Reports – Shall be submitted to the City of Lompoc's Wastewater Division as follows:

Reporting Requirements		
Time Period Covered	**Report Name**	**Report Due By**
January – March	Quarterly	April 15th
April – June	Quarterly	July 15th
July – September	Quarterly	October 15th
October – December	Quarterly	January 15th of the following year

Quarterly reports would be required to be submitted using the form included in Appendix A and shall be typewritten or written legibly in ink. Reports must address increments of progress that relate to Section III.C.1. Each report shall indicate the minimum, maximum, and average flow and conductivity measured via continuous meter during the reporting period, and include all other sampling results received during the reporting period.

If two consecutive quarterly reports show compliance with the Kidney Center is in compliance with the requirements of Wastewater Discharge Permit I-0013, then no additional quarterly reporting will be required, unless the City determines the Kidney Center is not complying with the requirements of Wastewater Discharge Permit I-0013.

REVISED AND REISSUED RULING: Based upon the foregoing findings, your subject request for reconsideration is denied and you must comply with the requirements set forth in this Revised and Reissued Ruling.

ALTERNATIVE DETERMINATION #1:

The City appreciates the Kidney Center has determined (i) it can operate without a water softener system and is prepared to remove it and (ii) if using unsoftened water creates significant problems for the membranes of the Kidney Center's reverse osmosis (RO) system, the Kidney Center will have an exchange tank softening system installed, similar to dialysis centers in the cities of Riverside and Santa Clarita, which discharge into streams. If that removal is completed within 60 days after the date of this Revised and Reissued Ruling and the following conditions are timely and consistently met, then I agree the need for a wastewater permit for the Kidney Center would be obviated. Those conditions are as follows:

a. If RWQCB indicates Wastewater Discharge Permit I-0013 does not prohibit water softeners, then ensure each and every water softening device used at the Kidney Center performs at ≥4,000 grains of hardness removed per pound of salt used for regeneration. Documentation, as reasonably determined by the City's Water Resource Protection Technician, of the Kidney Center's compliance with all applicable requirements shall be submitted to the City within 30 days after the date of this Revised and Reissued Ruling.
b. Ensure infectious wastes generated at the Kidney Center are properly disposed. If the Kidney Center is discharging infectious wastes to the sanitary sewer, then such discharges shall cease within a reasonable time approved by the Director and within 30 days after the date of this Revised and Reissued Ruling the Kidney Center shall submit documentation, reasonably acceptable to the Director, committing the Kidney Center to comply with this this subsection.
c. Designate a sampling point that is representative of the Kidney Center's end-of-pipe discharges to the City's sanitary sewer. The Kidney Center shall submit documentation of the proposed sampling point to the City within 10 days after the date of this Revised and Reissued Ruling. Upon approval by the City, the Kidney Center will install/construct such devices as necessary to allow for monitoring activities in accordance with LMC, section 13.16.390 at the approved sampling point within 60 days after receiving the City's approval.
d. Install an effluent meter that meets all permit requirements, if required as indicated in 4), above. Documentation of the Kidney Center's compliance with the effluent meter requirements shall be submitted to the City within 30 days after compliance with 4), above, if applicable.
e. Comply with the revised reporting frequencies as specified above. As noted previously, the Kidney Center does not have an appropriate effluent meter or sampling point at this time and therefore cannot conduct the required sampling. If the Kidney Center timely meets all the above specified compliance dates, then the monitoring and reporting requirements in the wastewater discharge permit Sections III.A.1&2 and III.C.2 are hereby waived until installation of appropriate devices and/or equipment is complete and adequate documentation of such activities have been received by the City. Permit monitoring and reporting requirements as specified in Sections III.A.1&2 and III.C.2 shall be reinstated upon installation of appropriate devices and/or equipment (e.g., when the effluent meter is installed and activated, when the sampling point has been installed). Permit requirements not addressed in these sections remain in effect and continue to be enforceable.
f. If, for a consecutive period of 190 days the timely reporting conducted by the City and Kidney Facility shows the wastewater created by the Kidney Center meets federal and state mandates, then the City will rescind the requirement

for the Kidney Center to have a wastewater discharge permit. If at any time the City determines the Kidney Center is not meeting those requirements, then a wastewater permit shall again be required. In order to verify the foregoing requirements are being met, the City, upon 24-hours' written notice to the Kidney Center, will be allowed to take periodic samplings of the Kidney Center's wastewater until the above-stated 190-day period has ended. Each time that notice is provided, the City can conduct the sampling on any date within 30 days after that particular notice, to ensure an accurate sampling is obtained.

ALTERNATIVE DETERMINATION #2:

If the Kidney Center requests the City Council to amend LMC, subdivision 13.16.030 B. to exclude human dialysis waste materials from the definition of Infectious waste, then the City Manager and Utility Director will support that request. The Utility Director shall also seek the necessary and required approval from the RWQCB for approval of that change. If, in each of their sole discretion, the RWQCB and City Council approve that change to the definition of Infectious waste and the Kidney Center does all the following:

1. Informs the City of any changes to the Kidney Center wastewater processing,
2. Informs the City if there is any changes to operations, such as the addition of shifts or increase in patients seen,
3. Obtains appropriate building permits from the City,
4. Recognizes random sampling and inspections can still occur at any point and
5. Provides proof for two consecutive quarters of compliance in all areas of concern, as discussed in this Revised and Reissued Ruling.

then the Kidney Center will be deemed to have met the City's wastewater requirements. Until that change is effective, the Kidney Center must comply with this Revised and Reissued Ruling or Alternative Determination #1.

CONCLUSION

The Kidney Center is required to fulfill the conditions set forth above pursuant to this Revised and Reissued Ruling or Alternative Determination #1 by the dates specified therein. Please respond at the address below in writing and within 15 business days after receipt of this Revised and Reissued Ruling, addressing the specific steps you have taken or will take to address the requirements stated in this Revised and Reissued Ruling or Alternative Determination #1. If the Kidney Center desires to request the City Council to amend LMC according to Alternative Determination #2, that request should be addressed with the response to this Revised and Reissued Ruling or Alternative

Determination #1. Be advised, if you file an appeal as described below, then the 15-day period set forth above will be held in abeyance during the pendency of that appeal.

City of Lompoc
Attn: Wastewater Division
Water Resources Protection Technician
100 Civic Center Plaza
Lompoc, CA 93436

You may appeal this Revised and Reissued Ruling to the City Council by submitting a written appeal to the City Clerk within 10 working days after the date of this Revised and Reissued Ruling. That appeal shall be heard and decided by the City Council within 60 days after receipt of your timely request. (LMC, section 13.16.140.)

Please note the City is corresponding with you concerning this matter with the understanding you are authorized representatives of the Kidney Center. If that is not the case, then please inform me immediately.

Very truly yours,

Brad Wilkie
Utility Director

c: Jim Throop, City Manager
Stacey Haddon, City Clerk
Jeff Malawy, City Attorney
Katrina Dorsey, Water Resource Protection Technician
Teri Schwab, Paralegal/Legal Assistant
Ian M. Guthrie, Esq.

EXHIBIT 7

California Regional Water Quality Control Board
Central Coast Region

895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906
(805) 549-3147 • FAX (805) 543-0397
http://www.waterboards.ca.gov/centralcoast

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

December 8, 2011

Timothy R. Smith
T_SMITH@ci.lompoc.ca.us
Wastewater Superintendent
Lompoc Regional Wastewater Reclamation Plant
1801 W Central Ave
Lompoc, CA 93438-8001

Sent Via Electronic Mail Only

Dear Mr. Smith:

WASTE DISCHARGE REQUIREMENTS ORDER (WDR) NO. R3-2011-0211, (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM [NPDES] PERMIT NO. CA0048127), CITY OF LOMPOC REGIONAL WASTEWATER RECLAMATION PLANT, (WDID 3 420105001, PLACE ID 227315)

At its public meeting on December 1, 2011, the Central Coast Water Board adopted Order No. R3-2011-0221, Waste Discharge Requirements for the City of Lompoc Regional Wastewater Reclamation Plant (reissued NPDES Permit No. CA0048127). Note the change from the draft permit to add more detail about the City's request for a Time Schedule Order and Water Board staff's response on page F-45 of the Fact Sheet.

The permit will also be posted online at:
http://www.waterboards.ca.gov/centralcoast/board_decisions/adopted_orders/index.shtml
If you have any questions, please call **Peter von Langen, Ph.D. at 805/549-3688** or Sheila Soderberg at 805/549-3592.

Sincerely,

Roger W. Briggs
Executive Officer

Attachment: WDR Order No. R3-2011-0211

cc:
Peter von Langen, Central Coast Water Board, pvonlangen@waterboards.ca.gov
State Water Board, dmr@waterboards.ca.gov
Dan Connally, PG Environmental, LLC, Dan.Connally@pgenv.com
David Smith, USEPA Region IX, Smith.davidw@epa.gov
Jamie Marincola, Water Division, USEPA Region IX, Marincola.JamesPaul@epa.gov
State Water Board NPDES, NPDES_wastewater@waterboards.ca.gov

S:\Seniors\Shared\NPDES\NPDES Facilities\Santa Barbara Co\Lompoc Regional WWTP\2011 WDR renewal\Draft Permit\Changes from public comments\Final permit cover letter.doc

California Regional Water Quality Control Board
Central Coast Region

Matthew Rodriquez
Secretary for
Environmental Protection

895 Aerovista Place, Suite 101, San Luis Obispo, California 93401
(805) 549-3147 • Fax (805) 543-0397
http://www.waterboards.ca.gov/centralcoast/

Edmund G. Brown Jr.
Governor

ORDER NO. R3-2011-0211
NPDES NO. CA CA0048127

WASTE DISCHARGE REQUIREMENTS
FOR THE CITY OF LOMPOC REGIONAL WASTEWATER RECLAMATION PLANT

The following Discharger is subject to waste discharge requirements as set forth in this Order.

Table 1. Discharger Information

Discharger	City of Lompoc
Indirect Dischargers	Vandenberg Air Force Base Vandenberg Village Community Services District
Name of Facility	City of Lompoc Regional Wastewater Reclamation Plant
Facility Address	1801 West Central Avenue
	Lompoc, CA 93436
	Santa Barbara County
The U.S. Environmental Protection Agency (USEPA) and the Central Coast Regional Water Quality Control Board (Central Coast Water Board) have classified this discharge as a major discharge.	

Discharges by the City of Lompoc Regional Wastewater Reclamation Plant from the discharge points identified below are subject to waste discharge requirements as set forth in this Order.

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Tertiary treated domestic wastewater	34° 39' 47" N	120° 28' 55" W	San Miguelito Creek

Table 3. Administrative Information

This Order was adopted by the Central Coast Water Board on:	**December 1, 2011**
This Order shall become effective on:	**January 13, 2012**
This Order shall expire on:	**January 13, 2017**
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date

IT IS HEREBY ORDERED, that Order No. R3-2006-0037 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, Roger Briggs Executive Officer, do hereby certify that this Order, with all attachments, is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Coastal Region, on December 1, 2011.

Roger W. Briggs, Executive Officer

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I. Facility Information

The following Discharger is subject to waste discharge requirements as set forth in this Order.

Table 4. Facility Information

Discharger	City of Lompoc
Indirect Dischargers	Vandenberg Air Force Base Vandenberg Village Community Services District
Name of Facility	City of Lompoc Regional Wastewater Reclamation Plant
Facility Address	1801 West Central Avenue Lompoc, CA 93436 Santa Barbara County
Facility Contact, Title, and Phone	Tim Smith, Acting Wastewater Superintendent, (805) 875-8415
Mailing Address	100 Civic Center Plaza, P.O. Box 8001, Lompoc, CA 93438
Type of Facility	Publically Owned Treatment Works (POTW)
Facility Design Flow	**Design Flow:** 5.5 million gallons per day (MGD) (average dry weather flow) **Permitted Flow:** 5.0 MGD

II. FINDINGS

The Central Coast Regional Water Quality Control Board, Central Coast Region (hereinafter the Central Coast Water Board), finds:

A. Background. The City of Lompoc (hereinafter Discharger) is currently discharging pursuant to Order No. R3-2006-0037 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0048127. The Discharger submitted a Report of Waste Discharge (ROWD), dated January 6, 2011, and applied to renew it's NPDES permit to discharge up to 5.0 MGD of treated wastewater from the City of Lompoc Regional Wastewater Reclamation Plant (hereinafter Facility). The Central Coast Water Board deemed the application complete on January 24, 2011.

For the purposes of this Order, references to the "Discharger", "Facility", or "Permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates a municipal wastewater collection, treatment, and disposal system that discharges tertiary treated wastewater to San Miguelito Creek. The Facility currently serves approximately 53,050 municipal and industrial users and receives wastewater from the City of Lompoc, Vandenberg Air Force Base, and Vandenberg Village Community Services District (VVCSD). The Discharger completed major upgrades to the Facility in November 2009. The new wastewater handling and treatment system includes mechanical bar screens, an aerated grit tank, two parallel oxidation ditches, three secondary clarifiers, tertiary filters, and UV disinfection. Sludge handling includes two dissolved air floatation thickeners, aerobic sludge digesters, two sludge lagoons, drying beds, and offsite disposal. The Facility also maintains an emergency retention basin for use during events of disinfection maintenance, spills, and

N. **Antidegradation Policy.** NPDES regulations at 40 CFR 131.12 require that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that the existing quality of waters be maintained unless degradation is justified based on specific findings. The Central Coast Water Board's Basin Plan implements and incorporates by reference both the State and federal antidegradation policies. As discussed in detail in section IV.D.2 of the Fact Sheet, the permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

O. **Anti-backsliding Requirements.** CWA §402 (o) (2) and CWA §303 (d) (4) and NPDES regulations at 40 CFR 122.44 (l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. As discussed in section IV.D.1 of the Fact Sheet, effluent limitations and other requirements established by this Order satisfy applicable anti-backsliding provisions of the CWA and NPDES regulations.

P. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. §1531 to §1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all requirements of State and federal law regarding threatened and endangered species.

Q. **Monitoring and Reporting.** NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify requirements for recording and reporting monitoring results. CWC §13267 and §13383 authorize the Central Coast Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

R. **Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with NPDES regulations at 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Central Coast Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

S. **Recycled Water Policy.** A priority of the Strategic Plan Update 2008-2012 for the Regional Boards includes a priority to increase sustainable local water supplies available for meeting existing and future beneficial uses by 1,725,000 acre-feet per year, in excess of 2002 levels, by 2015, and ensure adequate water flows for fish and wildlife habitat. The State Water Board adopted the Recycled Water Policy via Resolution No. 2009-0011 on February 3, 2009[1]. The Recycled Water Policy is intended to support the Strategic Plan

[1] http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2009/rs2009_0011.pdf

priority to Promote Sustainable Local Water Supplies. Increasing the acceptance and promoting the use of recycled water is a means towards achieving sustainable local water supplies and can result in reduction in greenhouse gases, a significant driver of climate change. The Recycled Water Policy is also intended to encourage beneficial use of, rather than solely disposal of, recycled water.

The Recycled Water Policy calls for the development of regional groundwater basin/sub-basin salt/nutrient management plans. The State Water Board recognizes that, pursuant to the letter from statewide water and wastewater entities[2] dated December 19, 2008 and attached to Resolution No. 2009-0011 adopting the Policy, the local water and wastewater entities, together with local salt/nutrient contributing stakeholders, will fund locally driven and controlled, collaborative processes open to all stakeholders that will prepare salt and nutrient management plans for each basin/sub-basin in California, including compliance with CEQA and participation by Central Coast Water Board staff.

It is the intent of the Recycled Water Policy that salts and nutrients from all sources be managed on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses. The State Water Board finds that the appropriate way to address salt and nutrient issues is through the development of regional or subregional salt and nutrient management plans rather than through imposing requirements solely on individual projects. The Central Coast Water Board finds that a combination of regional management plans and individual or programmatic project requirements may be necessary to protect beneficial uses.

One of the primary components of the required regional salt/nutrient management plans is the development and implementation of groundwater basin/sub-basin monitoring programs. As specified in the Recycled Water Policy, salt/nutrient contributing stakeholders will be responsible for conducting, compiling, and reporting the monitoring data once the regional groundwater monitoring programs are developed.

A large number of technical reports and data contained within Central Coast Water Board files document widespread and increasing salt and nutrient impacts within the groundwater basins throughout the Central Coast Region, including the Lompoc Plain sub area of the Santa Ynez groundwater unit.

Assembly Bill No. 1366, approved on October 11, 2009, allows local agencies in California 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 that the control of residential salinity input will contribute to the achievement of water quality objectives." Actions to control salinity inputs authorized are included in the Assembly Bill No. 1366.

The City of Lompoc and VVCSD wastewater contributions to the Facility influent contain salts. The Discharger's 2011 Salinity Management Study and Plan identifies self-

[2] http://www.waterboards.ca.gov/board_info/agendas/2009/feb/020309_7_%20rw_policy_funding_letter.pdf

regenerating water softeners as a source of high wastewater salinity. More specifically, the Salinity Management Study and Plan finds that residential water softeners contribute approximately 2 percent of the TDS loading, 5 percent of the chloride loading, and 7 percent of the sodium loading to Facility influent. Additionally, the Salinity Management Study and Plan estimates that the Facility influent would need a 15 percent reduction in TDS, 61 percent reduction in chloride, and a 54 percent reduction in sodium to meet applicable surface WQOs for salinity. Therefore, the Central Coast Water Board finds that control of residential self-regenerating water softeners will contribute to the achievement of WQOs.

T. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections V.B of this Order is included to implement State law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

U. Notification of Interested Parties. The Central Coast Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet accompanying this Order.

V. Consideration of Public Comment. The Central Coast Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

W. Privilege to Discharge. A permit and the privilege to discharge waste into waters of the State are conditional upon the discharge complying with provisions of division 7 of the CWC and of the CWA (as amended or as supplemented by implementing guidelines and regulations); and with any more stringent effluent limitations necessary to implement water quality control plans, to protect beneficial uses, and to prevent nuisances.

III. DISCHARGE PROHIBITIONS

A. The discharge of any waste not specifically regulated by this Order, excluding storm water regulated by General Permit No. CAS000001 (Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities), is prohibited.

B. Discharge of treated wastewater at a location other than Discharge Point No. 001, as described by this Order, is prohibited, unless the discharge is regulated by General Permit No. CAS000001 or another discharge permit.

C. The overflow or bypass of wastewater from the Discharger's collection, treatment, or disposal facilities and the subsequent discharge of untreated wastewater, except as provided for in Attachment D, Standard Provision I.G (Bypass), is prohibited.

D. Creation of a condition of pollution, contamination, or nuisance, as defined by CWC §13050, is prohibited.

E. The discharge shall not cause or contribute to adverse impacts to beneficial uses of water or to threatened or endangered species and their habitat.

F. The discharge of radioactive substances is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the attached Monitoring and Reporting Program (MRP) (Attachment E)

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (5-day @ 20°C) (BOD)[1]	mg/L	10	15	20
	lbs/day	420	630	830
Total Suspended Solids (TSS)[1]	mg/L	10	15	20
	lbs/day	420	630	830
Oil & Grease	mg/L	5.0	--	10
Settleable Solids	mL/L	0.1	--	0.3
Turbidity	NTU	10	--	20
pH	s.u.	6.5 – 8.3[2],[3]		
Un-ionized Ammonia	mg/L	--	0.025	--
Nitrate, Total (as N)	mg/L	--	--	10
Bis (2-ethylhexyl) Phthalate	µg/L	1.8	--	3.6
Aluminum	mg/L	1.0	--	--
Acute Toxicity	% survival	--	--	[4]
Chronic Toxicity	TUc	--	--	1.0

[1] The average monthly percent removal for BOD and TSS shall not be less than 85 percent.

[2] Applied as an instantaneous effluent limitation.

[3] When the Discharger continuously monitors effluent pH, levels shall be maintained within specified ranges 99 percent of the time. To determine 99 percent compliance, the following conditions shall be met:

- The total time during which pH is outside the range of 6.5 – 8.3 shall not exceed 7 hours and 26 minutes in any calendar month;
- No single excursion from the range of 6.5 – 8.3 shall exceed 30 minutes;
- No single excursion shall fall outside the range of 6.0 – 9.0; and
- When continuous monitoring is not being performed, standard compliance guidelines shall be followed (i.e., between 6.5 – 8.3 at all times, measured daily).

[4] Survival of test organisms exposed to 100 percent effluent shall not be significantly reduced when compared, using a t-test (or another test consistent with the procedures described by *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,* Fifth Edition, U.S. EPA Office of Water, EPA-821-R-02-012 (2002) or the latest edition) to the survival of control organisms, as defined in section V of Attachment E to this Order.

2. **Dry Weather Flow:** Effluent average dry weather flow shall not exceed a monthly average of 5.0 MGD.

3. **Floating Material.** Discharge of treated wastewater through Discharge Point No. 001 shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

4. **Bacteria**

   a. **Fecal Coliform**

      i. Fecal coliform concentrations shall not exceed a log mean of 200 organisms/100 mL for any 30-day period (based on a minimum of 5 samples); and

      ii. Fecal coliform concentrations shall not exceed 400 organisms/100 mL for more than 10 percent of the samples in a 30-day period.

5. **Salinity.** The discharge of tertiary treated wastewater shall comply with the following effluent limitations:

Table 7. Salinity Effluent Limitations

Parameter	Units	Annual Mean[1]
Total Dissolved Solids (TDS)	mg/L	1,100
Sodium	mg/L	270
Chloride	mg/L	250

[1] Compliance with the effluent limitations are based on a 12-month running mean.

B. Land Discharge Effluent Limitations and Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. Receiving Water Limitations

A. Surface Water Limitations

Receiving water limitations are based on WQOs contained in the Basin Plan, are consistent with the SIP, and are a required part of this Order. The discharge shall not cause a violation of the following receiving water limitations in San Miguelito Creek, which is tributary to the Santa Ynez River. The Central Coast Water Board may require the Discharger to investigate the cause of exceedances in the receiving water before determining whether the Discharger caused any water condition that exceeds the following receiving water limitations.

1. Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater.

2. Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

3. Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

4. Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

5. Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.

6. Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

7. Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

8. The suspended sediment load and suspended sediment discharge rate to surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

9. Concentrations of toxic metals and inorganic chemicals in waters shall not be increased in such a manner that may adversely affect beneficial uses.

10. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits.

    a. 5 NTU, where natural turbidity is less than 25 NTU.

    b. 20 percent, where natural turbidity is between 25 and 50 NTU.

    c. 10 NTU, where natural turbidity is between 50 and 100 NTU.

    d. 10 percent, where natural turbidity is greater than 100 NTU.

11. The pH value shall not be depressed below 7.0 nor raised above 8.3. The change in normal ambient pH levels shall not exceed 0.5 units.

12. Dissolved oxygen concentrations in receiving waters shall not be reduced below 7.0 mg/L at any time.

13. Natural temperature of receiving waters shall not be altered unless it can be demonstrated to the satisfaction of the Central Coast Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or

VI. Provisions

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. **Central Coast Water Board Standard Provisions.** The Discharger shall comply with all Central Coast Water Board Standard Provisions included in Attachment D-1 of this Order.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order. All monitoring shall be conducted according to 40 CFR 136, *Guidelines Establishing Test Procedures for Analysis of Pollutants*.

C. Special Provisions

1. Reopener Provisions

This permit may be reopened and modified in accordance with NPDES regulations at 40 CFR 122 and 124, as necessary, to include additional conditions or limitations based on newly available information or to implement any USEPA approved, new, State WQO.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Toxicity Reduction Requirements

As indicated in section V.D of the MRP, when acute or chronic toxicity is detected in the effluent above the effluent limitations, if the discharge is continuing, the Discharger shall resample immediately, retest, and report the results to the Executive Officer, who will determine whether to initiate an enforcement action, require a Toxicity Reduction Evaluation (TRE) in accordance with the Discharger's TRE Workplan, or implement other measures.

A TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases - characterization, identification, and confirmation using aquatic organism toxicity tests. The TRE shall include all reasonable steps to identify the source of toxicity.

The Discharger shall take all reasonable steps to reduce toxicity to the required level once the source of toxicity is identified.

The Discharger shall maintain a TRE Workplan, which describes steps that the Discharger intends to follow in the event that a toxicity effluent limitation established by this Order is exceeded in the discharge. The workplan shall be prepared in accordance with current technical guidance and reference material, including EPA/600/2-88/062, and shall include, at a minimum:

i. Actions that will be taken to investigate/identify the causes/sources of toxicity;

ii. Actions that will be evaluated to mitigate the impact of the discharge, to correct the non-compliance, and/or to prevent the recurrence of acute or chronic toxicity (this list of action steps may be expanded, if a TRE is undertaken); and

iii. A schedule under which these actions will be implemented.

When monitoring measures toxicity in the effluent above a limitation established by this Order, if the discharge is continuing the Discharger shall resample immediately, and retest for acute or chronic toxicity. Results of an initial failed test and results of subsequent monitoring shall be reported to the Executive Officer as soon as possible following receipt of monitoring results. The Executive Officer will determine whether to initiate enforcement action, whether to require the Discharger to implement a TRE, or to implement other measures. When the Executive Officer requires the Discharger to conduct a TRE, the TRE shall be conducted giving due consideration to guidance provided by the USEPA's Toxicity Reduction Evaluation Procedures, Phases 1, 2, and 3 (USEPA document Nos. EPA 600/R-91/003, 600/R-92/080, and 600/R-92/081, respectively). A TRE, if necessary, shall be conducted in accordance with the following schedule.

Table 11. Toxicity Reduction Evaluation—Schedule

Action Step	When Required
Take all reasonable measures necessary to immediately reduce toxicity, where the source is known.	Within 24 hours of identification of noncompliance.
Initiate the TRE in accordance to the Workplan.	Within 7 days of notification by the Executive Officer
Conduct the TRE following the procedures in the Workplan.	Within the period specified in the Workplan (not to exceed one year, without an approved Workplan)
Submit the results of the TRE, including summary of findings, required corrective action, and all results and data.	Within 60 days of completion of the TRE
Implement corrective actions to meet Permit limits and conditions.	To be determined by the Executive Officer

3. Best Management Practices and Pollution Prevention

a. Salt and Nutrient Management

i. The Discharger shall continue to update and implement an ongoing Salt Management Program, with the intent of reducing mass loading of salts in treated effluent and attainment of applicable WQOs for salts in the Lompoc Plain Sub-Basin of the Santa Ynez Drainage Basin. Additionally, the Discharger shall develop and implement a Nutrient Management Program, with the intent of reducing mass loading of nutrients in treated effluent and attainment of applicable WQOs for nutrients in the same basin.

ii. Salt reduction measures shall focus on all potential salt contributors to the collection system, including water supply, commercial, industrial, and residential dischargers.

iii. Nutrient reduction measures shall focus on optimizing wastewater treatment processes for nitrification and denitrification, or other means of nitrogen removal. Reduction measures may also include source control (non-human waste from commercial and industrial sources) as appropriate.

iv. As part of the Salt and Nutrient Management Program, the Discharger shall submit an annual report describing salt and nutrient reduction efforts as described in the section IX.C of the MRP (Attachment E).

v. As an alternative to the Salt and Nutrient Management Program requirements described above, upon Executive Officer approval, the Discharger may submit documentation and summary of participation in a regional salt/nutrient management plan implemented under the provisions of State Water Board Resolution No. 2009-0011 (Recycled Water Policy).

4. Construction, Operation and Maintenance Specifications – Not Applicable

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Biosolids Management

i. The handling, treatment, use, management, and disposal of sludge and solids derived from wastewater treatment must comply with applicable provisions of CWA section 405 and USEPA regulations at 40 CFR Parts 257, 258, 501, and 503, including all monitoring, record keeping, and reporting requirements.

ii. Sludge and wastewater solids must be disposed of in a municipal solid waste landfill, reused by land application, or disposed of in a sludge-only landfill in accordance with 40 CFR Parts 258 and 503 and Title 23, Chapter 15 of the CCR. If the Discharger desires to dispose of solids and/or sludge in a different manner, a request for permit modification must be submitted to the USEPA and to the Central Coast Water Board at least 180 days prior to beginning the alternative means of disposal.

EXHIBIT 8

JULY 2012

CITY OF LOMPOC

Salinity Management Study and Plan – Updated

Submitted to:

CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD

Prepared by:

LARRY WALKER ASSOCIATES

LARRY WALKER ASSOCIATES

Science. Policy. Solutions.

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Executive Summary

The City is required under Provision VI.C.6 of its current NPDES permit (Order No. R3-2006-0037) to conduct a Salt Management Study for total dissolved solids (TDS), chloride, boron, sodium, and sulfate. The purpose of this document is to meet the requirements of Provision VI.C.6 by summarizing effluent and receiving water monitoring data, characterizing source water supply and wastewater quality, and evaluating and identifying feasible source control strategies.

As part of the effluent data summary, a Reasonable Potential Analysis (RPA) was conducted. Results indicated that all five salts constituents have a reasonable potential to cause or contribute to an exceedance of effluent limits and/or surface water quality objectives. Additionally, the percent reduction needed to meet effluent limits and surface water quality objectives was evaluated and is summarized in **Table E-1**. As indicated in Table E-1, no reductions are needed for sodium and chloride to meet effluent limits.

Table E-1. Estimated % Reductions Needed

Constituent	Estimated % Reduction Needed to Meet Effluent Limit	Estimated % Reduction Needed to Meet Surface Water Quality Objective
TDS	7%	15%
Chloride	0%	61%
Sodium	0%	54%
Sulfate	n/a	43%
Boron	n/a	17%

Receiving water data revealed that water quality upstream and downstream of Facility effluent exceeds surface water quality objectives. This indicates that background levels of salt are elevated prior to contributions from Facility effluent.

In order to characterize source water supply and wastewater quality, existing data was compiled and data gaps were identified. Data gaps included boron concentrations in industrial and facility influent; chloride concentrations in industrial effluent; and TDS, chloride, sodium, sulfate and boron concentrations in residential and commercial effluent. To fill these gaps, additional monitoring was conducted in May and June 2010.

Using existing data and monitoring data collected as part of this study, a mass balance was developed to determine contributions to Facility influent. The mass balance found that there are elevated loadings of all salt constituents before any anthropogenic contributions (i.e., industrial, commercial, residential) from the City were included. For example, 88% of the TDS to the facility was found to be attributable to the water supply. These elevated contributions from source water were also seen for chloride (69%), sodium (75%), sulfate (107%), and boron (34%). A summary of mass balance findings is provided in **Table E-2**.

Table E-2. Summary of Mass Balance Findings by Constituent

Source	Constituent				
	TDS	Chloride	Sodium	Sulfate	Boron
Water Supply	88%	69%	75%	107%	34%
City, VVCSD, and VAFB Activities					
Residential Water Softeners	1% ~~2%~~	3% ~~5%~~	4% ~~7%~~	n/a	n/a
Industrial	7%	9%	9%	6%	2%
Other Activities	11% ~~10%~~	49% ~~46%~~	30% ~~26%~~	24%	45%

Lastly, an analysis was conducted to evaluate the potential for source control to address necessary reductions and the main sources of salts loadings. The analysis ranked several implementation efforts from low to high efficacy by ease of implementation/feasibility. The source reduction analysis found that capital improvements (i.e., microfiltration/reverse osmosis, source water changes) are cost prohibitive and significant hurdles exist for implementation. The City identified modifications to the VVCSD water treatment plant, borax-free detergent outreach, significant industrial user outreach, a residential water softener removal program, and water recycling as effective as potential options for the Facility to reduce influent salinity loading.

Section 1

Introduction

The City of Lompoc Regional Wastewater Reclamation Facility (Facility) operates under the National Pollutant Discharge Elimination System (NPDES) Permit No. CA0048127, Order No. R3-2006-0037. Provision VI.C.6 of the NPDES permit requires the Facility to conduct a Salt Management Study for the following constituents:

- total dissolved solids (TDS)
- chloride
- boron
- sodium
- sulfate

The goals of the Salts Management Study, as defined by Provision VI.C.6 of Order No. R3-2006-0037, are to control "levels of salts in discharges from the wastewater treatment facility to San Miguelito Creek and the Santa Ynez River and [attain] applicable water quality objectives for salts in the Lompoc Plain Sub-basin of the Santa Ynez Drainage Basin." The NPDES permit further specifies that the Salt Management Study:

- summarize effluent and receiving water monitoring data
- characterize source water supply and wastewater quality
- evaluate alternative control strategies
- develop a Salt Management Plan

REGULATORY BACKGROUND AND REQUIREMENTS

For the Salts Management Study, several regulatory requirements come into play. According to the NDPES permit, the Facility is subject to effluent limitations for TDS, chloride, and sodium. Similarly, the Facility's NPDES permit specifies that "discharges shall not cause receiving water to exceed the following water quality objectives." **Table 1-1** displays effluent limits and surface water quality objectives in comparison with the Facility's maximum effluent concentrations based on a 12-month running mean.

Table 1-1. Effluent Limitations and Surface Water Quality Objectives

Parameter	Effluent Limitation Average Monthly[1] (mg/L)	Surface Water Quality Objective[2] (mg/L)	Maximum Effluent Concentration 12-Month Running Mean (mg/L)
TDS	1,100	1,000	1,181
Chloride	250	100	216
Sodium	270	100	258
Sulfate	n/a	350	420
Boron	n/a	0.4	0.7

1: Compliance is based on 12-month running means
2: Annual mean values

OVERVIEW OF SERVICE AREA AND HYDROLOGY

The Facility is a tertiary treatment plant with an average dry weather flow design capacity of 5.5 million gallons per day (MGD). Influent is received from the City of Lompoc, Vandenberg Air Force Base (VAFB), and the Vandenberg Village Community Services District (VVCSD). VAFB and VVCSD contribute 0.63 and 0.5 MGD[1], respectively to the Facility. Source water to the City primarily consists of well water with a small portion coming from Frick Springs. Frick Springs water is treated at the Frick Springs Water Treatment Plant which provides water to several residences in Miguelito Canyon and Miguelito County Park. VVCSD obtains its source water from wells while VAFB utilizes well water and State Water Project water (approximately 25% well water and 75% state water). It is estimated that approximately 5 – 10% of the City's residents have water softeners compared to 40 – 60% of VVCSD's residents. For the purposes of the study, it was assumed that VAFB has little to no water softeners.

The Santa Ynez River flows east to west through the Santa Ynez Valley, reaching the Pacific Ocean near VAFB and the City. Upstream of the Facility, the Santa Ynez River is generally dry during from June through October with the exception of water releases from the Bradbury Dam at Lake Cachuma. The major tributary to the Santa Ynez River in the City is San Miguelito Creek. San Miguelito Creek is spring fed, originates in the Lompoc Hills and approaches the City from the south. The Facility discharges to San Miguelito Creek approximately 1,000 feet upstream of the confluence with the Santa Ynez River. During dry months, the combined flow of San Miguelito Creek (if any) and the Facility effluent are the only flow in the Santa Ynez River downstream of the discharge point. These features are depicted in **Figure 1-1**.

SALINITY MANAGEMENT PLAN ORGANIZATION

As required by the NPDES permit, the major elements of this Plan include the following:

Section 1: Introduction

Section 2: Effluent and Receiving Water Quality Data

Section 2: Source Identification

Section 3: Source Reduction Options

Section 4: Proposal to Proceed

[1] VVCSD and VAFB contributions include dry and wet weather flows

Section 2

Effluent and Receiving Water Quality Data

The purpose of this section is to provide a summary of effluent and receiving water quality data as required by NPDES permit Provision VI.C.6. Existing data was obtained from the Facility, Central Coast Conditional Agricultural Waiver Program (Ag Waiver Program), and Lompoc Molybdenum Study (Mo Study). At a minimum, the Facility monitors levels of TDS, chloride, sodium, sulfate and boron in the Facility on a quarterly basis. The Facility also monitors receiving waters (San Miguelito Creek) upstream and downstream of the Facility effluent. The Facility's receiving water quality data was supplemented with data from the Ag Waiver Program and the Mo Study which monitored TDS levels in the Santa Ynez River at Floradale Ave (downstream of effluent) and in San Miguelito Creek. A description of the monitoring sites is provided in **Table 2-1** followed by a summary of available data in **Table 2-2.**

Table 2-1. Description of Receiving Water Quality Monitoring Sites

Site Name	Site ID	Site Description
San Miguelito Creek at V St	R-001	San Miguelito Creek located upstream of Facility Effluent
San Miguelito Creek, downstream of Effluent	R-002	San Miguelito Creek located just downstream of Facility Effluent
Santa Ynez River at Floradale Ave	SYR-2	Santa Ynez River located below confluence with San Miguelito

Table 2-2. Summary of Available Receiving Water Quality Data

Site	Constituent(s) Monitored					Data Source
	TDS	Chloride	Sodium	Sulfate	Boron	
San Miguelito Creek at V St (R-001)	2001 – 2010	2006 – 2010	2006 – 2010	2006 – 2010	2006 – 2010	Facility, Mo Study
San Miguelito Creek, downstream of Effluent (R-002)	2001 – 2010	2006 – 2010	2006 – 2010	2006 – 2010	2006 – 2010	Facility, Ag Waiver, Mo Study
Santa Ynez River at Floradale Ave (SYR-2)	2006 – 2009	n/a	n/a	n/a	n/a	Ag Waiver, Mo Study

n/a: data not available

FACILITY EFFLUENT AND RECEIVING WATER QUALITY RESULTS

Total Dissolved Solids (TDS)

Facility Effluent

The Facility's TDS effluent limit is 1,100 mg/L and compliance is based on a 12-month running mean. **Figure 2-1** shows the Facility's TDS 12-month running mean in comparison with the

effluent limit and illustrates the Facility's ability to comply with the limit over time. The average 12-month running mean is 1,071 mg/L which is less than the effluent limit.

A Reasonable Potential Analysis (RPA) was also conducted to determine whether or not TDS has a reasonable potential to cause or contribute to an exceedance of the effluent limit and the surface water quality objective. According to the RPA, TDS show reasonable potential to exceed both the effluent limit and the surface water objective. In comparison with the maximum 12-month running mean (1,181 mg/L), approximately a 7% reduction in TDS levels is needed to achieve compliance with the effluent limit.

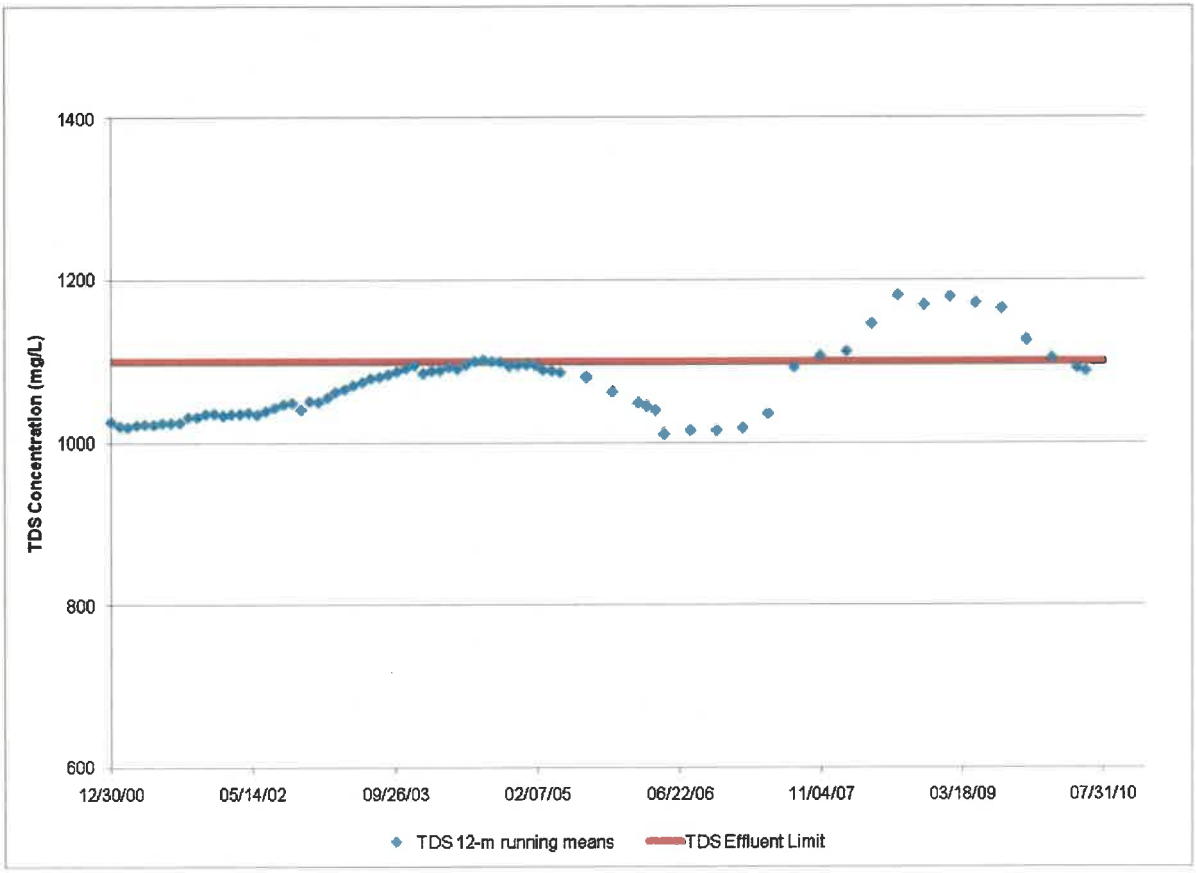

Figure 2-1. Facility TDS 12-Month Running Mean in Comparison with the Effluent Limit

Receiving Waters

As illustrated in **Figure 2-2**, both upstream (R-001) and downstream (R-002 and SYR-2) locations exceed the surface water quality objective of 1,000 mg/L. TDS concentrations are lower downstream of the Facility effluent. Concentrations at R-001 (San Miguelito Creek at V St., upstream of Facility effluent) indicate that background TDS levels in receiving waters are elevated prior to the contribution from the Facility's effluent.

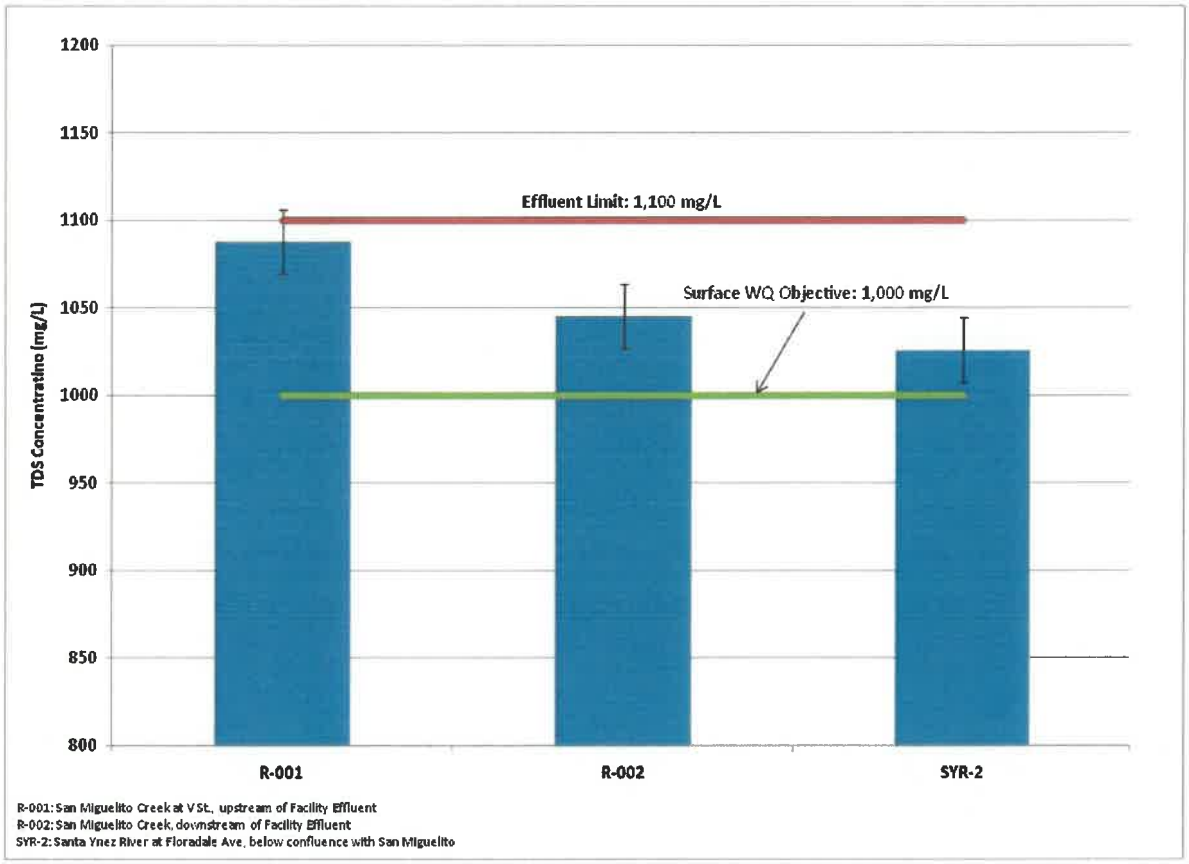

Figure 2-2. TDS Concentrations in Receiving Waters
(Error bars are one standard error)

Chloride

Facility Effluent

The Facility's average 12-month running mean is 203 mg/L and as **Figure 2-3** illustrates, the Facility's chloride 12-month running mean is able to comply with the 250 mg/L effluent limit. The maximum 12-month running mean was 216 mg/L so no reduction is needed for compliance. In contrast, an RPA was conducted and determined that chloride shows reasonable potential to cause or contribute to an exceedance of the effluent limit.

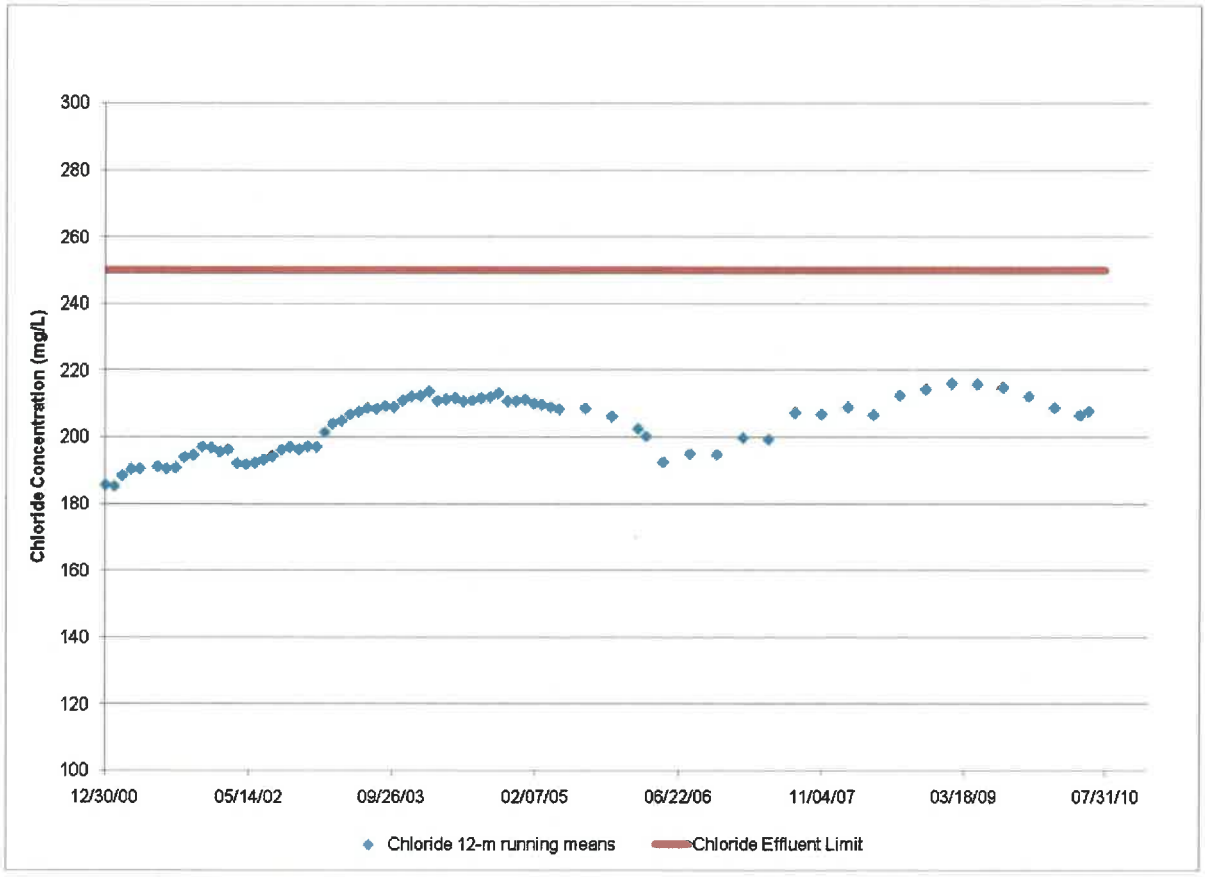

Figure 2-3. Facility Chloride 12-Month Running Mean in Comparison with the Effluent Limit

Receiving Waters

As illustrated in **Figure 2-4**, both upstream (R-001) and downstream (R-002) locations exceed the surface water quality objective of 100 mg/L. On average, downstream concentrations are approximately 4% greater than upstream concentrations. Similar to TDS, concentrations at R-001 (San Miguelito Creek at V St., upstream of Facility effluent) indicate that background chloride levels in Lompoc receiving waters are elevated prior to contribution from the Facility's effluent.

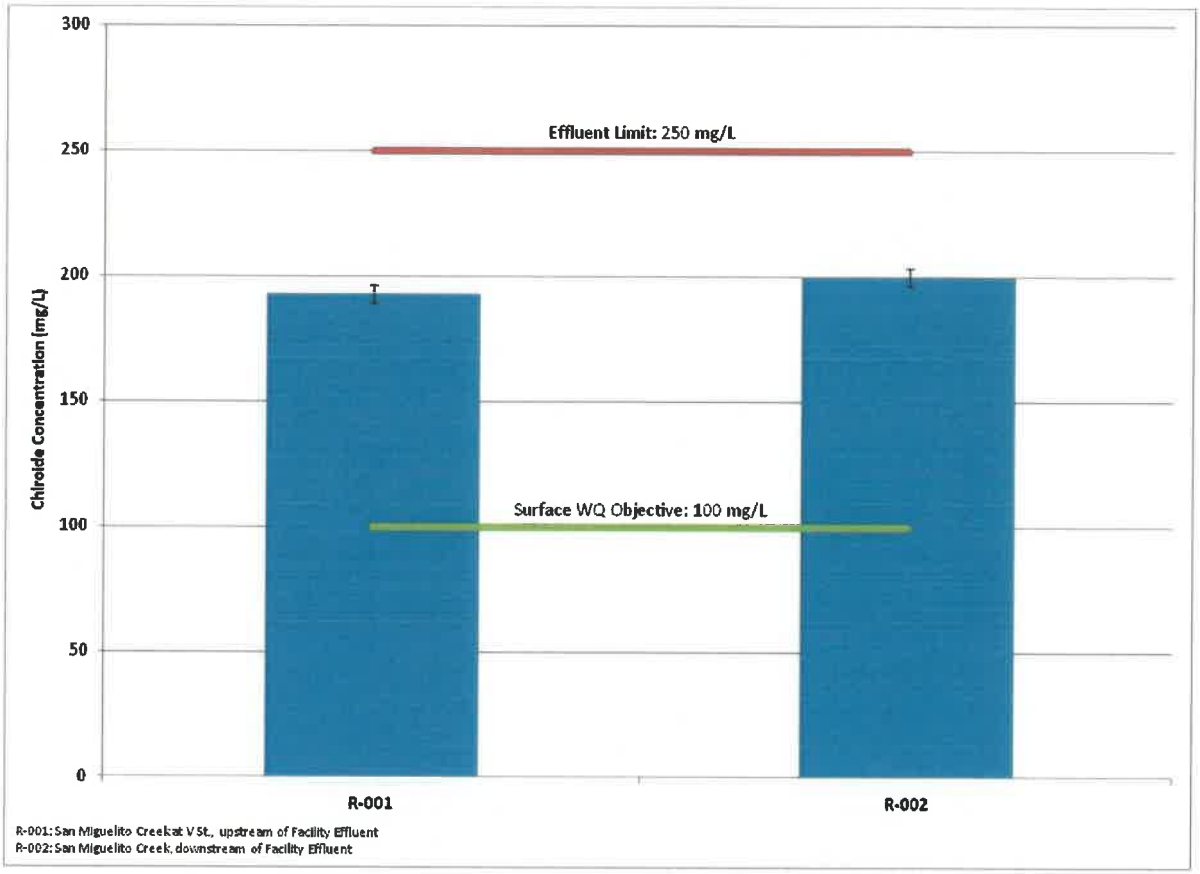

Figure 2-4. Chloride Concentrations in Receiving Waters
(Error bars are one standard error)

Sodium

Facility Effluent

The Facility's effluent average 12-month running mean for sodium is 209 mg/L with a maximum 12-month running mean of 258 mg/L. The Facility's sodium effluent limit is 270 mg/L and as illustrated in **Figure 2-5**, the Facility is able to meet this limit. Therefore, no reduction is needed to achieve compliance. However, an RPA was conducted and determined that sodium shows a reasonable potential to cause or contribute to an exceedance of the effluent limit.

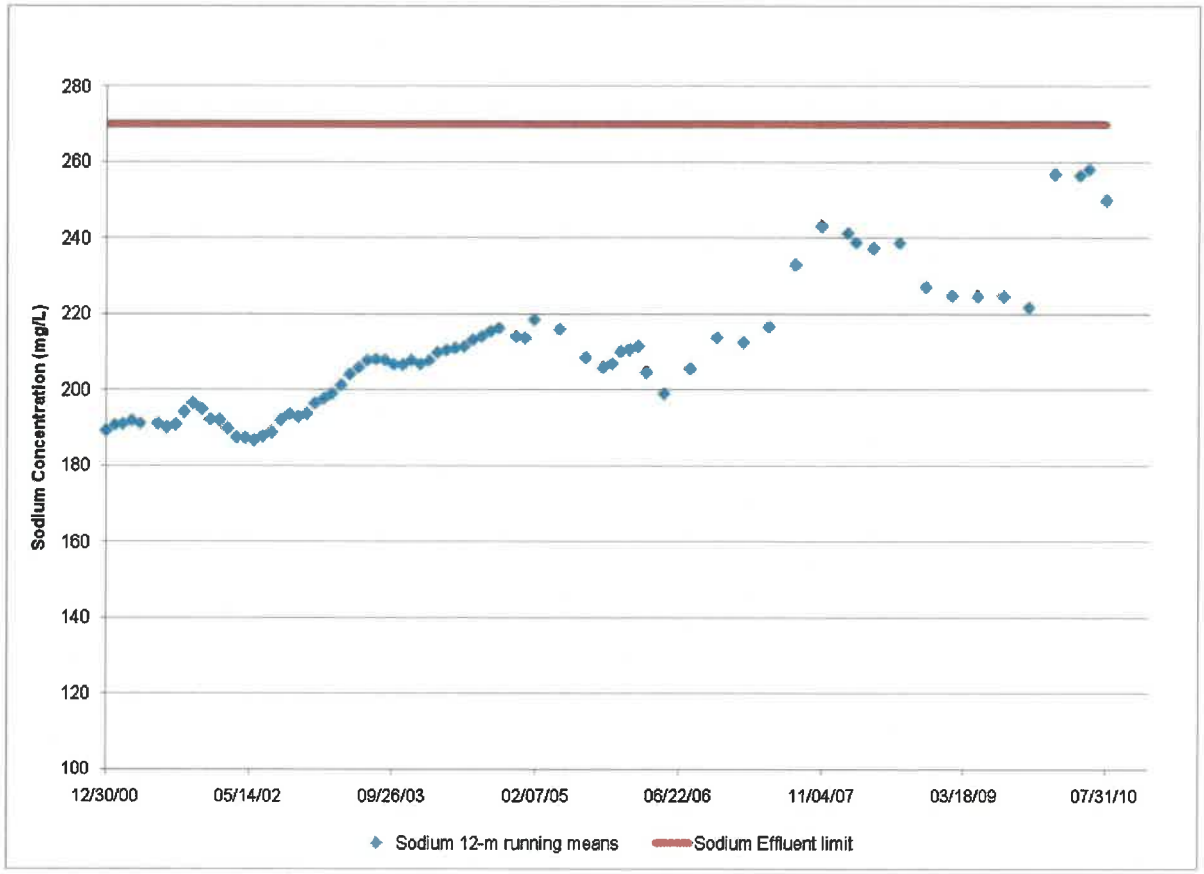

Figure 2-5. Facility Sodium 12-Month Running Mean in Comparison with the Effluent Limit

Receiving Waters

As illustrated in **Figure 2-6**, both upstream (R-001) and downstream (R-002) locations exceed the surface water quality objective of 100 mg/L. On average, downstream concentrations are approximately 20% higher than upstream concentrations. Concentrations at R-001 (San Miguelito Creek at V St., upstream of Facility effluent) indicate that background levels of sodium in Lompoc receiving waters are elevated prior to the contribution from the Facility's effluent.

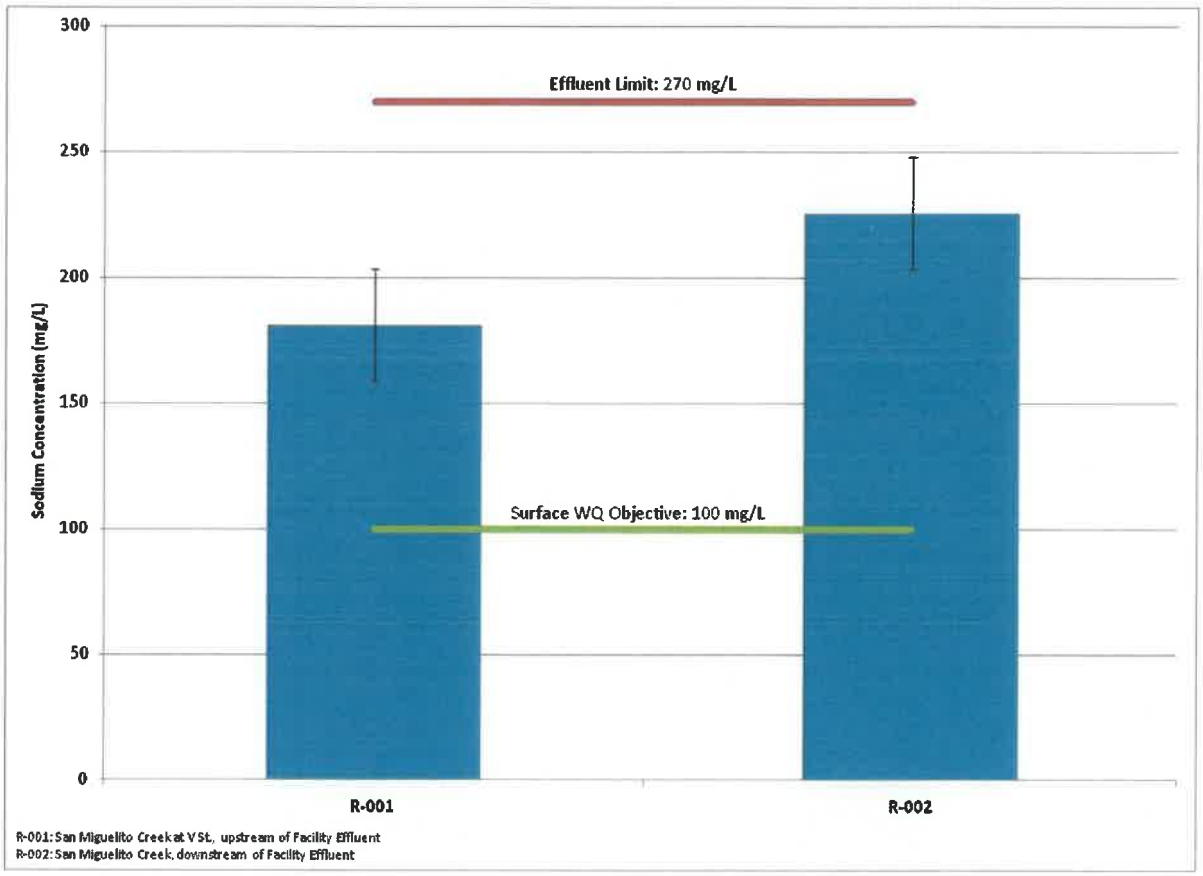

Figure 2-6. Sodium Concentrations in Receiving Waters
(Error bars are one standard error)

Sulfate

Facility Effluent

The Facility's effluent average 12-month running mean for sulfate is 372 mg/L and the maximum 12-month running mean is 420 mg/L. Effluent limits do not exist for sulfate, however Order No. R3-2006-0037 indicates that Facility discharges should not cause receiving water to exceed a sulfate surface water quality objective of 350 mg/L (annual mean value). In order to meet the surface water quality objective, Facility effluent would have to be reduced by 17%. The RPA confirmed that sulfate shows reasonable potential to exceed surface water quality objectives.

Receiving Waters

Sulfate concentrations in receiving waters were obtained from Facility monitoring. As illustrated in **Figure 2-7**, both upstream (R-001) and downstream (R-002) locations exceed the surface water quality objective of 350 mg/L. Sulfate concentrations are lower downstream of the Facility effluent. Elevated concentrations at R-001 (San Miguelito Creek at V St., upstream of Facility

Section 3

Source Identification

Existing data for source water and industries was compiled as a first step to identifying sources of salts to the Facility's influent. This data was used to conduct a preliminary mass balance which highlighted data gaps. To fill these gaps, additional monitoring was conducted in May and June 2010.

Next, a source identification was conducted to examine the relative contributions of three primary sources to the Facility influent: water supply, collection systems (i.e., residential and commercial source), and significant industrial users. Water supply data was obtained from municipal water treatment facilities in Frick Springs, City of Lompoc, VVCSD and VAFB. Additional data was collected to characterize collection systems and included the VVCSD and VAFB trunk lines and homogenous commercial and residential drainage areas. Additionally, significant industrial user[2] monitoring data was reviewed and included Fagerdala, the City of Lompoc Aquatic Center, In-Shape City, Raytheon, and Culligan. A description of each site is provided in **Table 3-1**.

This section identifies existing data, describes additional data collected, and provides a summary of sources by constituent.

EXISTING DATA COLLECTION

Municipal supply water, collection systems, industrial and Facility water quality data was compiled from a number of sources and included the following:

- Frick Springs Water Treatment Plant (Frick Springs WTP)
- City of Lompoc Water Treatment Plant (City WTP)
- VAFB Water Supply
- VVCSD Water Supply
- City of Lompoc Regional Wastewater Reclamation Facility (Facility)
- City of Lompoc Molybdenum Study (Mo Study)
- Significant Industrial User data (SIU), excluding VAFB

Table 3-1 provides a description of all the sites with salts data. This table encompasses both existing data and additional data collected. **Table 3-2** summarizes the data collected and identifies the general timeline of data collection and the source of data for each site. As shown in Table 3-2, data is available for the salts constituents (TDS, chloride, sodium, sulfate, boron) at the majority of sites. Additional data collected as part of this Salt Management Plan is referred to

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[2] According to the City of Lompoc Wastewater Ordinance, a "Significant Industrial User (SIU) means any IU that:
a. is subject to federal categorical pretreatment standards; or
b. discharges 25,000 gal/d or more of process wastewater (average annual daily flow); or
c. contributes a process wastestream which makes up five percent (5%) or more of the average dry weather hydraulic or organic loading capacity of the Wastewater Treatment Plant; or
d. has a reasonable potential, in the opinion of the Director, to adversely affect the Wastewater Treatment Plant (e.g., cause Interference, Pass-Through, or endangerment to employees of the Wastewater System)."

as "Salts Study" in the following tables. A summary of existing and additional data collected is provided in **Appendix A.**

ADDITIONAL DATA COLLECTION

Data gaps were identified once the existing data was compiled and analyzed. Data gaps included:

- Boron concentrations in VAFB and VVCSD water supply, industrial user effluent, and Facility influent;
- Chloride concentrations in industrial user effluent; and
- TDS, chloride, sodium, sulfate, boron concentrations in residential and commercial effluent.

To fill these gaps, wastewater was sampled from the Facility's influent and effluent, collection system focus areas (including VAFB and VVCSD), residential and commercial areas, and select significant industrial users. A residential site and commercial site were selected to represent and characterize these contributions to the wastewater stream. **Table 3-3** summarizes the additional sampling sites and methods that were conducted in May and June of 2010. The locations of sites are provided in **Figure 3-1** and a summary of monitoring results is provided in **Appendix B.**

SUMMARY BY CONSTITUENT

A mass balance was conducted for TDS, chloride, sodium, sulfate and boron in order to estimate salt contributions to the Facility influent. As illustrated in **Figure 3-2,** the primary inputs to the Facility include:

- municipal water supply (source water) from VVCSD, VAFB, and the City.
- residential water softeners. The mass balance assumes that approximately 8% of City of Lompoc residents and 20%~~40%~~ of VVCSD residents have self-regenerating water softeners. An example water softener calculation is provided in **Appendix C.**
- industrial activities. Industrial concentrations may include source water contributions in addition to industrial processes.
- "other" commercial and residential activities. This encompasses activities that may contribute to salts levels to the Facility influent beyond water supply and water softener discharges. This could include use of detergents by businesses and residents, etc.

It should be emphasized that several assumptions were made with respect to flows and concentrations for the different sources. Therefore, the loading contributions shown in the mass balance tables should be considered useful for planning purposes and identifying potentially significant versus insignificant sources.

Total Dissolved Solids (TDS)

A mass balance was conducted to determine primary sources of TDS loads to the Facility influent using available data. As indicated in **Table 3-4** and **Figure 3-3**, the primary contributor is water supply which makes up 88% of the load to the Facility influent. Contributions are further discussed in the sections below.

Water Supply

Water supply is the largest contributor to TDS loads in Facility influent. The City of Lompoc, which obtains its water supply through groundwater wells, makes up more than 68% of the total load to Facility influent. **Figure 3-4** provides a breakdown of the contributors to TDS within water supply.

Water Softeners

Self-regenerating w~~W~~ater softener use by City and VVCSD residents make up approximately 1%~~2%~~ of the Facility influent. VVCSD water softeners make up the majority of this load **(Figure 3-5)**.

Industrial

Cumulatively, industries comprise approximately 7% of the total loading to the Facility influent. Culligan is the largest contributor, making up 5% of the total load.

Other Activities

Eleven~~Ten~~ percent (11~~10%~~) of the loading is accounted for by "other" contributions to the Facility influent from residential and businesses activities in VVCSD, and VAFB.

Table 3-4. TDS Mass Balance

Source	Flow (MGD)	Conc. (mg/L)	Loading (lbs/day)	% of Facility Influent
Water Supply	-	-	**22,738**	**88%**
VVCSD, Well	0.5	798	3,357	13%
VAFB, Well	0.2	494	654	3%
VAFB, State Water Project Water	0.5	291	1,156	4%
City of Lompoc, Well [c]	2.5	842	17,571	68%
Residential Self-Regenerating Water Softeners [a], [e]	-	-	**341~~596~~**	**1~~2~~%**
VVCSD, Water Softeners	0.2	305	509	1~~2~~%
City of Lompoc Water Softeners	0.2	62	87	0.3%
City of Lompoc (Sum of Industrial, Res, Comm)	-	-	**1,919**	**7%**
Industrial [g]	-	-	1,919	7%
Fagerdala	0.01	3,571	312	1%
Aquatic Center	0.008	1,931	136	0.5%

Table 3-4. TDS Mass Balance

Source	Flow (MGD)	Conc. (mg/L)	Loading (lbs/day)	% of Facility Influent
Raytheon	0.02	953	131	0.5%
Culligan	0.2	1,081	1,315	5%
In-Shape City	0.002	1,297	25	0.1%
Commercial, Other [d], [f]	0.4	-	0	0%
Residential, Other [d], [f]	1.9	-	0	0%
Other	-	-	2,8082,553	1110%
VAFB, Other	0.3	206	1,102	4%
VVCSD, Other	0.6	576	1,7071,471	76%
Total Identified Sources	-	-	**27,806**	**107%**
Facility Influent [b]	**3.1**	**1,014**	**25,936**	-

[a] Estimated that 8% of Lompoc residents and 2040% of VVCSD residents have a self-regenerating water softener
[b] Wastewater effluent data from Frick Springs community into the Facility not available
[c] Water deliveries estimated using 2005 City of Lompoc Urban Water Management Plan. Water deliveries adjusted for losses (e.g. irrigation) per report studying water consumption habits for City of Lompoc (Source: Heaney et al. "Nature of Residential Water Use and Effectiveness of Conservation Programs")
[d] 0 loading denotes that the source water is the primary source of this constituent
[e] Estimated value. See Appendix C for water softener calculations
[f] Flows were estimated using best professional judgment and limited water delivery data
[g]
[h] Industrial concentrations may include source water contributions in addition to industrial processes

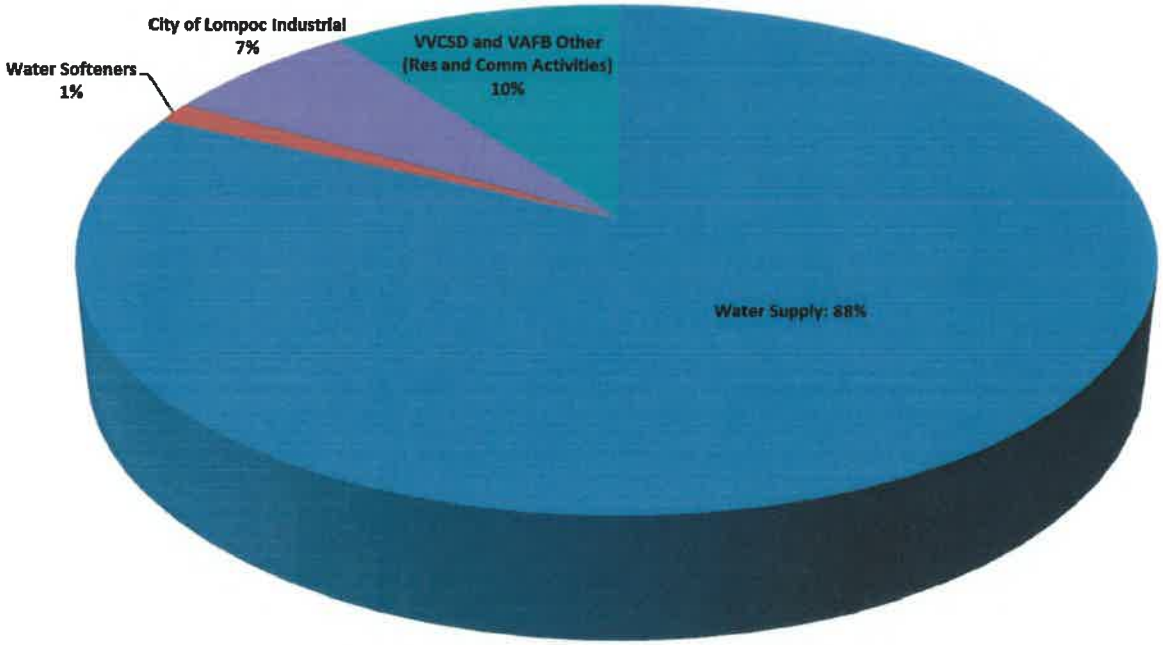

Figure 3-3. Relative Contributions of TDS to Facility Influent

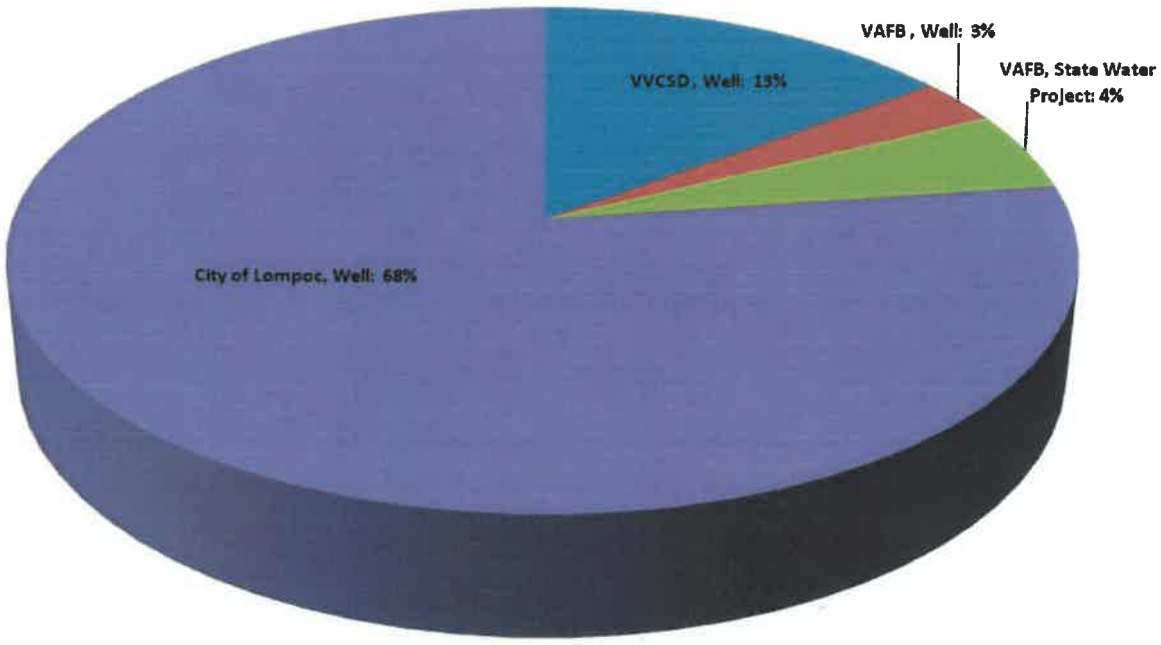

Figure 3-4. Sources of TDS within Water Supply

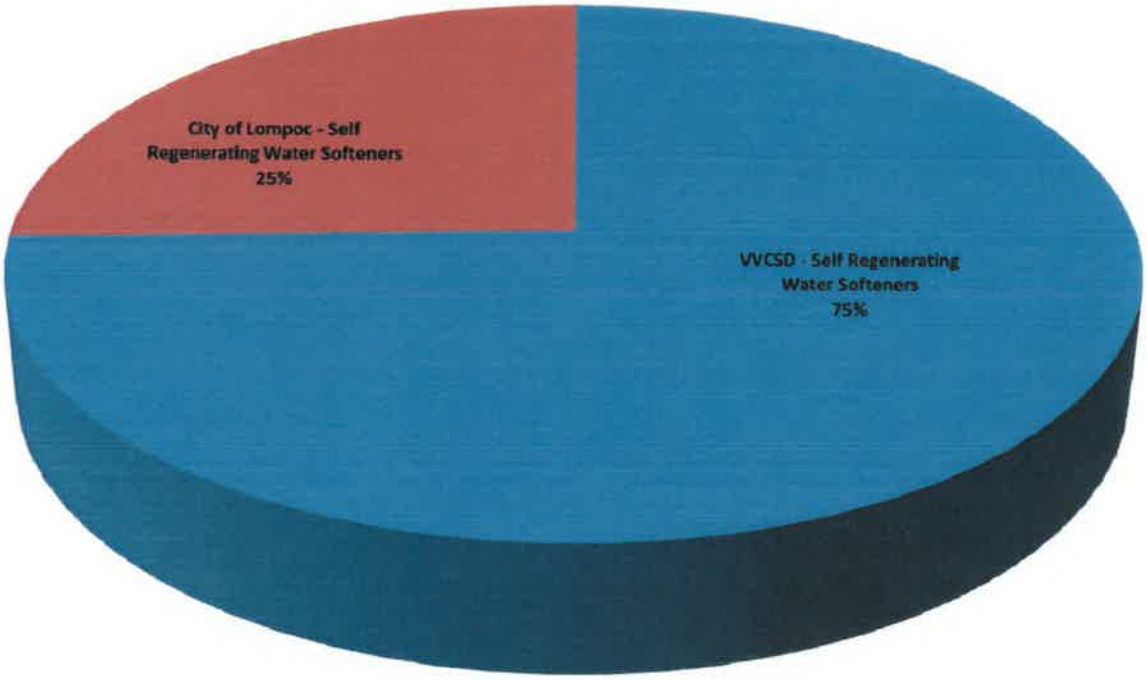

Figure 3-5. Sources of TDS from Residential Self-Regenerating Water Softeners

Chloride

A mass balance was conducted to determine the primary sources of chloride loads to the Facility influent using available data. As indicated in **Table 3-5** and **Figure 3-6**, the largest contributor of chloride loads is water supply.

Water Supply

Water supply makes up almost 70% of the chloride in Facility influent. Of the water supply sources, the City's supply accounts for 62% of the total water supply contribution to chloride loading (**Figure 3-7**).

Water Softeners

Self-regenerating w~~W~~ater softeners account for approximately 3%~~5%~~ of chloride loads to Facility influent. As illustrated in **Figure 3-8**, VVCSD water softeners make up the majority of this load~~more than 85% of the water softener loading~~.

Industrial

Industries contribute less than 10% of chloride to the Facility influent. Culligan makes up the majority of this loading and contributes approximately 6% of the total chloride loading to Facility influent.

Other Activities

Residential and commercial activities in the City, VVCSD and VAFB are accounted as "Other." These activities comprise nearly 50%~~more than 40%~~ of the chloride loading.

Table 3-5. Chloride Mass Balance

Source	Flow (MGD)	Conc. (mg/L)	Loading (lbs/day)	% of Facility Influent
Water Supply	-	-	**3,233**	**69%**
VVCSD, Well	0.5	157	756	16%
VAFB, Well	0.2	103	136	3%
VAFB, State Water Project Water	0.5	87	347	7%
City of Lompoc, Well [c]	2.5	96	1,995	43%
Residential Self-Regenerating Water Softeners [a], [d]	-	-	**134~~234~~**	**3~~5~~%**
VVCSD, Water Softeners	0.2	120	100~~200~~	2~~4~~%
City of Lompoc, Water Softeners	0.2	24	34	1%
City of Lompoc (Sum of Industrial, Res, Comm)	-	-	**1,537**	**33%**
Industrial [f]	-	-	441	9%
Fagerdala	0.01	1033	90	2%
Aquatic Center	0.008	620	44	0.9%

Table 3-5. Chloride Mass Balance

Source	Flow (MGD)	Conc. (mg/L)	Loading (lbs/day)	% of Facility Influent
Raytheon	0.02	119	16	0.3%
Culligan	0.2	234	285	6%
In-Shape City	0.002	287	6	0.1%
Commercial, Other	0.4	79	245	5%
Residential, Other	1.9	53	862	18%
Other	-	-	1,1671,067	2523%
VAFB, Other	0.3	319	263	6%
VVCSD, Other	0.6	20	904804	1917%
Total Identified Sources	-	-	**6,082**	**130%**
Facility Influent [b]	**3.1**	**183**	**4,681**	-

[a] Estimated that 8% of Lompoc residents and 2040% of VVCSD residents have a self-regenerating water softener
[b] Wastewater effluent data from Frick Springs community into the Facility not available
[c] Water deliveries estimated using 2005 City of Lompoc Urban Water Management Plan. Water deliveries adjusted for losses (e.g. irrigation) per report studying water consumption habits for City of Lompoc (Source: Heaney et al. "Nature of Residential Water Use and Effectiveness of Conservation Programs"
[d] Estimated value. See Appendix C for water softener calculations
[e] Flows were estimated using best professional judgment and limited water delivery data
[f] Industrial concentrations may include source water contributions in addition to industrial processes

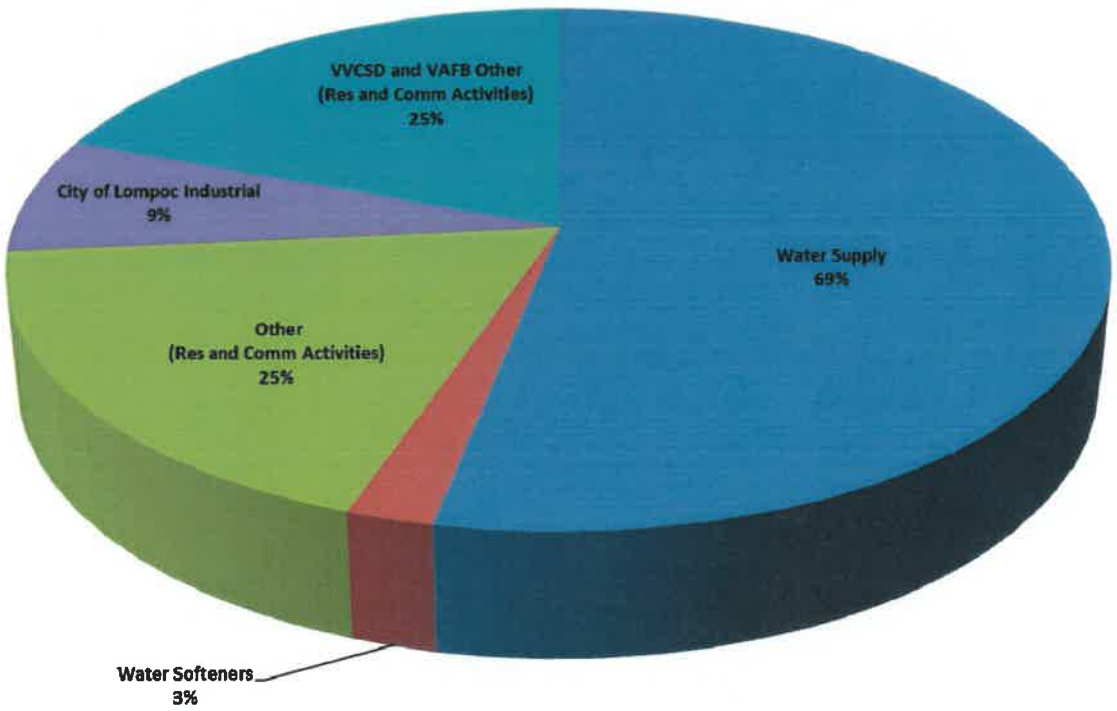

Figure 3-6. Relative Contributions of Chloride to Facility Influent

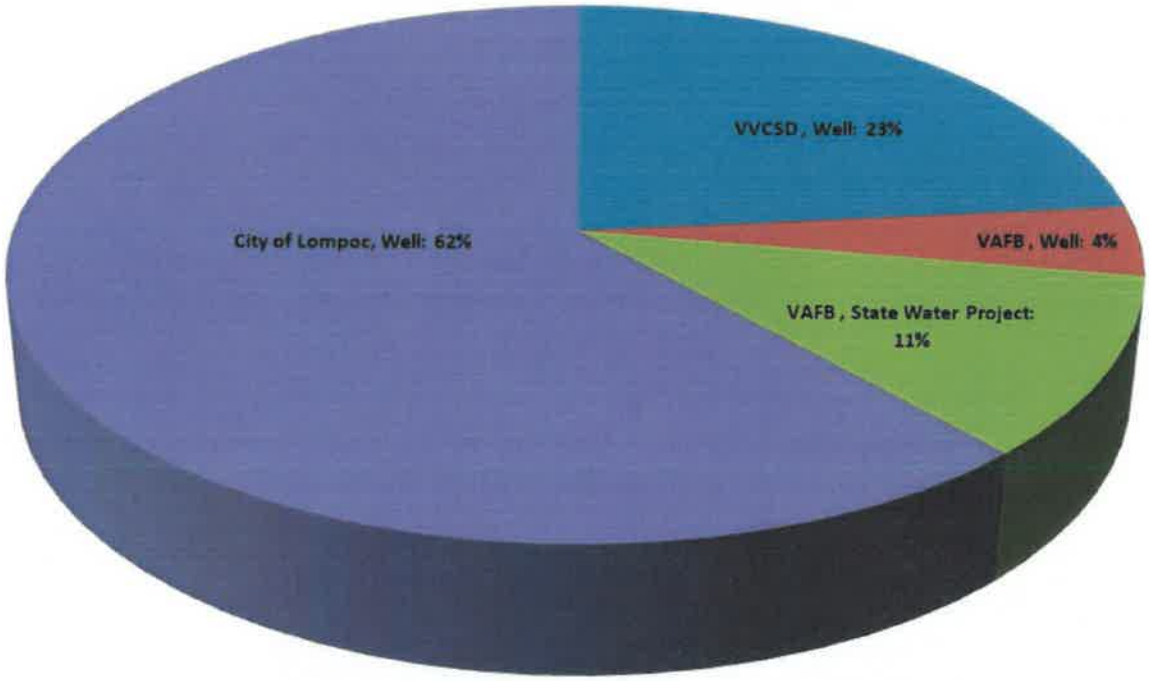

Figure 3-7. Sources of Chloride within Water Supply

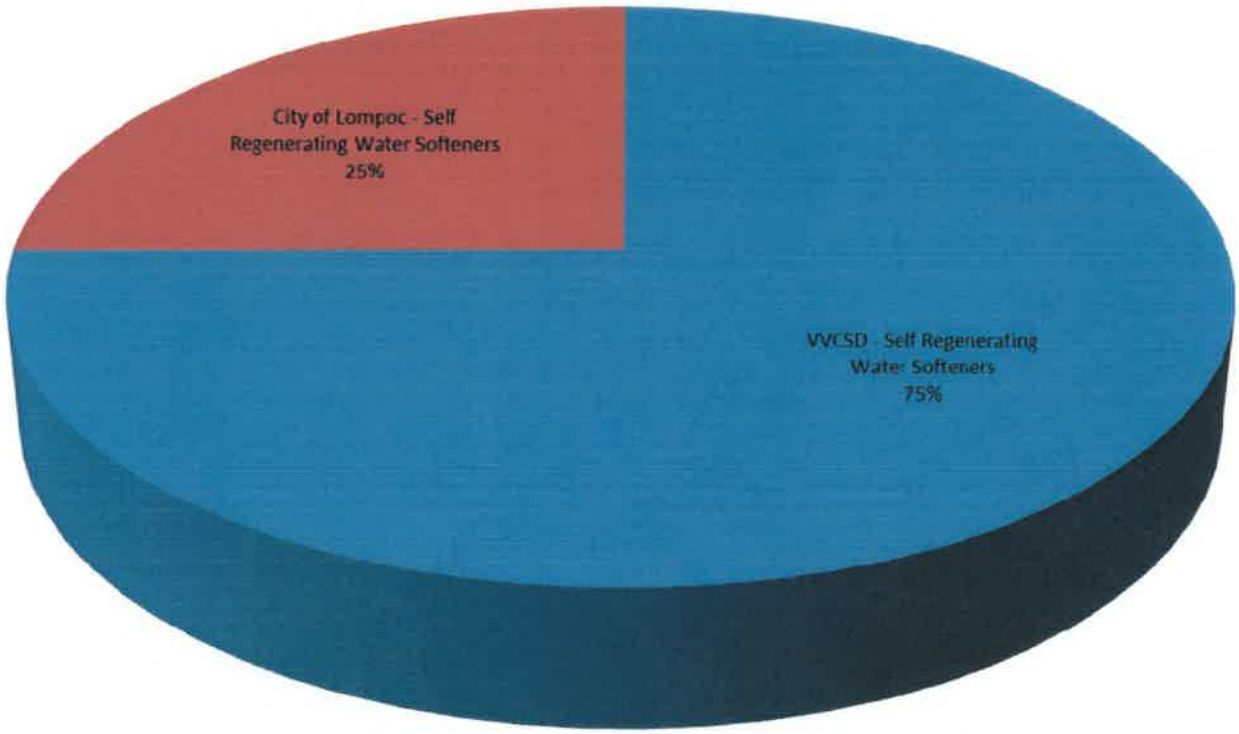

Figure 3-8. Sources of Chloride from Residential Self-Regenerating Water Softeners

Sodium

Similar to TDS and chloride, water supply is identified as the largest contributor of sodium to Facility influent. Relative contributions of sodium to Facility influent are provided in **Table 3-6** and **Figure 3-9**.

Water Supply

Water supply is the largest contributor of sodium to Facility influent. The City's water supply makes up 77% of the total water supply sodium loading (**Figure 3-10**).

Water Softeners

Self-regenerating w~~W~~ater softeners make up approximately 4~~7~~% of the total sodium loading to the Facility influent. As indicated in **Figure 3-11**, VVCSC water softeners make up the majority of this load~~comprise 85% of the total water softener sodium load~~.

Industrial

Industries comprise less than 10% of the total load to the Facility influent. Culligan makes up the majority of the load, contributing 7% of sodium to the total load to the Facility influent.

Other Activities

Other City, VAFB, and VVCSD activities are estimated to contribute more than ~~approximately~~ a fourth (25%) of the total sodium load to Facility influent.

Table 3-6. Sodium Mass Balance

Source	Flow (MGD)	Conc. (mg/L)	Loading (lbs/day)	% of Facility Influent
Water Supply	-	-	**3,660**	**75%**
VVCSD, Well	0.5	127	535	11%
VAFB, Well	0.2	68	89	2%
VAFB, State Water Project Water	0.5	57	227	5%
City of Lompoc, Well [c]	2.5	135	2,808	57%
Residential Self-Regenerating Water Softeners [a]	-	-	**205~~361~~**	**4~~7~~%**
VVCSD, Water Softeners	0.2	185	154~~309~~	3~~6~~%
City of Lompoc, Water Softeners	0.2	37	52	1%
City of Lompoc (Sum of Industrial, Res, Comm)	-	-	**1,031**	**21%**
Industrial [g]	-	-	474	10%
Fagerdala	0.01	877	77	2%
Aquatic Center	0.008	457	32	0.7%
Raytheon	0.02	239	33	0.7%
Culligan	0.2	270	328	7%

Summary of Common Findings

Several conclusions can be drawn across constituents:

- As illustrated **Table 3-9**, water supply is consistently the largest contributor of salt loading to the Facility, with the exception of boron.

Table 3-9. Summary of Mass Balance Findings by Constituent

Source	Constituent				
	TDS	Chloride	Sodium	Sulfate	Boron
Water Supply	88%	69%	75%	107%	34%
City, VVCSD, and VAFB Activities					
Residential Water Softeners	1% ~~2%~~	3% ~~5%~~	4% ~~7%~~	n/a	n/a
Industrial	7%	9%	9.7%	6%	2%
Other Activities	11% ~~10%~~	49% ~~46%~~	30% ~~26%~~	24%	45%

n/a: not applicable

- "Other Activities" (e.g., undefined contributions from residential and commercial activities) is consistently the second largest contributor of salts to the Facility influent with the exception of boron.
- Water softeners in the City make up a small percentage of loading (4~~7~~% or less).
- Industries contribute less than 10% of salts loading.

Section 4

Source Reduction Options

This section builds on the previous sections which laid out the reductions needed to meet effluent limits and surface water quality objectives and identified the relative sources to salts loading in Facility influent. A summary of necessary reductions is provided in **Table 4-1**. As indicated in the previous section, the water supply is estimated to be the most significant source of salts to the Facility followed by other activities, industries, and VVCSD water softeners.

Table 4-1. Estimated % Reductions Needed

Constituent	Estimated % Reduction Needed to Meet Effluent Limit	Estimated % Reduction Needed to Meet Surface Water Quality Objective
TDS	7%	15%
Chloride	0%	61%
Sodium	0%	54%
Sulfate	n/a	43%
Boron	n/a	17%

n/a: not applicable

Source reduction options that address necessary reductions and the main sources of salts loadings are discussed below.

WATER SUPPLY OPTIONS

Several options that address water supply's contribution to salts are reviewed below for their applicability and feasibility.

Water Treatment Plant Modifications

City of Lompoc

The current source of drinking water for the City of Lompoc is groundwater that contains high levels of hardness (greater than 700 mg/L). To make this water supply suitable for potable uses the City treats the water using a lime-soda softening process to reduce the hardness to approximately 300 mg/L. The soda-lime process involves addition of chemical salts, most, but not all of which, are precipitated and removed in the process. Thus some additional salt is added to the water supply during treatment. The average TDS concentration in Lompoc final drinking water is approximately 800 mg/L.

Converting water treatment from the soda-lime hardness removal process to reverse osmosis (RO) would reduce both the salts and hardness concentrations in the drinking water. A portion of the water supply could be treated by RO and blended with the remainder to achieve a desired level of salts and hardness in the final product water. The water treatment plant currently produces approximately 5 MGD at an O&M cost of approximately $1.4 million per year, including chemicals and sludge disposal. The resulting cost per million gallon treated is

approximately $767/MG To produce final water with a hardness of 300 mg/L and a TDS of 400 mg/L using RO would require RO treatment of approximately 3.2 MGD. The annual O&M cost for 3.2 MGD of RO treatment would be approximately $1,400/mg or $2.55 million per year. The amortized cost of construction for 3.2 MGD of RO treatment for 20 years at 5% interest would be approximately $1.3 million per year. Thus the total cost for RO water treatment would be approximately $3.85 million/year, which would be approximately 2.75 times the cost of current chemical water treatment.

Another option may be to reduce or eliminate soda-lime water softening process. The disadvantage of this approach may be an increase in water softener installation.

Vandenberg Village Community Service District (VVCSD)

VVCSD's well water data reflects the quality of the water prior to treatment. Part of VVCSD's well water treatment includes the addition of sodium hypochlorite as a disinfectant (Personal communication, Martin Damwyk, VVCSD Operations and Maintenance). This may partially account for the contribution of VVCSD's "other" contribution to chloride and sodium loading.

The hardness of VVCSD's source water is fairly high at more than 300 mg/L. As a result, it is estimated that between 40 – 60% of VVCSD residents own a water softener. To address the hardness of water supplied to residents, VVCSD recently contracted with Procorp Enterprises LLC (Procorp) to perform a pilot test of Crystalactor (Pellet Reactor) water softening technology on VVCSD's source water. Pilot testing included two trials: one trial with soda ash as the chemical treatment and the second trial with sodium hydroxide (Procorp Enterprises, 2010). **Table 4-2** summarizes these results of the trials which generally resulted in a decrease in hardness and increase in salts.

Table 4-2. Pilot Test Results

Constituent	Soda Ash (Trial 1) % Change	Sodium Hydroxide (Trial 2) % Change
Hardness	- 73%	- 64%
Calcium	- 90%	- 77%
Manganese	- 88%	--
Iron	- 47%	- 27%
TDS	+ 3%	- 5%
Sodium	+ 42%	+ 50%

--: reduced to non-detectable levels

To determine the overall potential benefit of this technology, the mass balance described in Section 2 was modified to account for a hypothetical decrease in water softener use and changes in TDS and sodium levels in VVCSD's water supply. In this scenario, water softener use was decreased from 40% to 10%. **Tables 4-3 and4-4** provides the results of the mass balance scenarios for TDS and sodium, respectively.

Table 4-3. Projected TDS Levels in Response to Pilot Test Results

Source	Current Scenario		With Soda Ash		With Sodium Hydroxide	
	Conc. (mg/L)	Loading lbs/day	Conc. (mg/L)	Loading lbs/day	Conc. (mg/L)	Loading lbs/day
Water Softener	305	509	76	32	76	32
Well Water	798	3,357	1,000	4,164	760	3,164
TOTAL	n/a	3,866	n/a	4,196	n/a	3,196

n/a: not applicable

Table 4-4. Projected Sodium Levels in Response to Pilot Test Results

Source	Current Scenario		With Soda Ash		With Sodium Hydroxide	
	Conc. (mg/L)	Loading lbs/day	Conc. (mg/L)	Loading lbs/day	Conc. (mg/L)	Loading lbs/day
Water Softener	185	309	69	29	69	29
Well Water	127	535	320	1,332	190	791
TOTAL	n/a	844	n/a	1,303	n/a	820

n/a: not applicable

Of the two scenarios depicted in the tables above, sodium hydroxide may be a feasible option for the overall reduction in salts. The sodium hydroxide scenario increases sodium in well water, but is offset by the decrease associated with a reduction in water softener use. It should be noted however, that soda ash was more effective at reducing hardness and calcium.

According to Procorp's report, the total project is estimated to cost $1.5 million with a simple payback of 2.5 years. The report further estimates that the daily cost of using the Crystalactor technology is 39 cents per household compared with the cost of water softening estimated at $1-2 per day.

Given the potential to reduce salts to the Facility influent, VVCSD has indicated that they may investigate grants or other funding mechanisms to fund full-scale implementation of this technology.

Source Water Alternatives

The State Water Project (SWP) has been evaluated as an alternative source of water for the City of Lompoc and determined to be infeasible for several reasons. Lompoc voters have twice rejected the delivery of SWP water. Lompoc voters first rejected the delivery of SWP water in 1979, when they voted not to participate in the extension of the SWP pipeline to Santa Barbara County. In 1991, Lompoc voters again rejected water from the SWP when they voted not to participate in the construction of the Coastal Branch Aqueduct. Given this historic opposition to using SWP water, the Lompoc City Council would not likely assume the financial burdens associated with the delivery of SWP water without the support of the voters. Moreover, there are no changes in circumstance to back the view that the voters are now willing to accept SWP as an alternative source of supply.

Even if the voters of Lompoc were prepared to make the necessary financial commitment, the SWP is currently over-allocated. According to State Water Project Delivery Reliability Report 2005, the SWP is able to deliver sufficient water to meet the maximum annual delivery amounts that are currently under contract (4.173 million acre-feet of water) in only 25% of the years studied. It is estimated to be able to deliver only 3.5 million acre-feet of water in 50% of the years studied, and it is estimated to be able to deliver 2.7 million acre-feet in 75% of the years studied.

This over-allocation in the SWP led former director Tom Hannigan to adopt an informal policy barring any new SWP contracts. The policy has not been modified by any subsequent director (Personal communication, Nancy Quan, Supervising Engineer State Water Project Analysis Office). Water may be currently obtained from the SWP only through transfer of existing entitlement.

The SWP's future ability to meet its existing contractual demands will be increasingly difficult. Court rulings restricting diversions from the Sacramento-San Joaquin River Delta for the protection of endangered delta smelt will continue, at least for the near term, to impair the SWP's ability to meet existing contract demands. In addition, studies on climate change suggest that warmer temperatures have a significant impact in the seasonal timing of runoff. Warmer temperatures result in more rain and less snow. This will severely impact the SWP's ability to store water for peak summer needs.

Given the formidable challenges confronting the SWP to meet its contractual commitments to its existing customers, it is unlikely that Lompoc would be able to obtain a SWP contract and even if it did, the reliability of that supply is inadequate to constitute a viable alternative supply to groundwater.

OTHER ACTIVITES OPTIONS

Other activities were identified as the primary contributor to boron in Facility influent. A recommendation that targets this source is provided below.

Conduct Boron Source ID

The mass balance estimates that the "other" activities are the primary sources of boron to the Facility influent. One option may be for the Facility to undertake a source identification effort to further identify boron sources. In the meantime, the relatively large contribution of other activities may be explained by the fact that domestic washing agents commonly include borate compounds (ISO, 1990). To address this likely contributor, the Facility will promote awareness of detergents that include borax compounds as a primary ingredient and promote the use of borax-free detergents. This may be accomplished through the *Waste Sense* newsletter and/or through the Facility website.

INDUSTRIAL OPTIONS

Significant Industrial Users (SIUs) Outreach

SIUs make up less than 10% of the salts loading to the Facility. SIUs are addressed through the City's municipal code which has established local limits (**Table 4-5**). The Pretreatment Program works closely with SIUs to address processes that contribute to salts.

Culligan is consistently the largest industrial contributor. Depending on the constituent, Culligan's salts loading to Facility influent ranges from 2 to 7%. Since mid-2008, Culligan has implemented improvements that significantly reduce their flow. Culligan has two complete and separate recycle systems in place. These systems recycle water to recharge portable water softeners until the TDS reaches a certain point. At this point, the water is stored onsite until it can be hauled offsite (approximately five times a month). Culligan is committed to implementing RO in the near future to further reduce its salts contribution to Facility influent.

An estimated 7% reduction in TDS is needed to ensure Facility compliance with the TDS effluent limit. An RO system could bring the Facility within 2% of meeting the effluent limit since Culligan contributes approximately 5% of the TDS loading to Facility influent.

The Facility will continue to work with SIUs, Culligan in particular, to reduce their salts loadings where possible.

Table 4-5. Local Limits for Significant Industrial Users

SIU	Permit Limits*		
	TDS	Chloride	Sodium
In-Shape City: Lompoc	1,200	250	270
City of Lompoc Aquatics Center	1,800	250	270
Culligan Water Conditioning of Lompoc	1,100	250	270
Raytheon	1,538	250	270
Vandenberg Air Force Base	1,100	250	270

*maximum daily average

WATER SOFTENER OPTIONS

Self regenerating water softeners are often targeted in source control strategies to reduce salts in wastewater influent. In the case of the City of Lompoc, a relatively small percentage of residents have a water softener (~8%). However, it is estimated that 15 to 20% ~~40 to 60%~~ VVCSD's residential population has self-regenerating water softeners. A reduction in water softener use would target TDS, chloride and sulfate loads. A ban on water softeners could reduce water softener use by more than 50%. Since the relative contribution of waters softeners to TDS loading is approximately 1%~~2%~~, a 50% reduction in water softener use would not entirely meet TDS reduction needs, but it could help the City and VVCSD to meet effluent limits and surface water quality objectives in combination with other reduction options.

An effective outreach effort should target water softener retrofits/exchanges in VVCSD. One option may be for the Facility to investigate partnership opportunities with VVCSD to reduce water softener use.

Public Education & Outreach

The Facility will continue its public education and outreach initiative to promote awareness regarding the water quality impacts of salinity and promote voluntary removal of water softeners. The Facility has provided the public with information on the impacts of salts and water softeners in past editions of their newsletter, *Waste Sense*. This publication is also available on the Facility website as an educational material.

The Facility will expand upon existing efforts by creating a fact sheet and webpage that address the salinity issue in the City; what the public's contribution and/or role is in the issue; and what the public can do to reduce their impact. Outreach efforts will target homeowners in VVCSD that may possess older inefficient timer-based water softeners.

Water Softener Ban Ordinance

Based on a finding, if appropriate, by the Central Coast Regional Water Quality Control Board, may be for the City to pass an ordinance that prohibits new residential water softeners. Under the current Health and Safety code 116786, communities are able to ban the installation of new residential water softeners. The City will investigate pursuing an ordinance depending on the results of the outreach to residents.

FACILITY OPTIONS

Several large-scale options exist that address the treatment or disposal of Facility effluent. These options are discussed below.

Microfiltration/Reverse Osmosis (MF/RO) Wastewater Treatment

The concentration of salts in wastewater effluent could be reduced through additional treatment using the MF/RO process, which is a two-stage membrane separation process that relies on applied pressure to force water through semi-permeable membranes while restraining the passage of particulate, ionic, and high molecular weight constituents. MF/RO treatment can remove approximately 90% of the TDS in the influent stream, including sodium, chloride and sulfate ions. However, MF/RO is only moderately effective at removing boron ions (less than 50% removal). To achieve a desired level of TDS or specific ion reduction in the effluent, only a portion of the wastewater flow would need to receive MF/RO treatment. For example, treatment of 20% of the wastewater flow with MF/RO could achieve a TDS reduction of approximately 18%. The capital cost for MF/RO treatment and brine disposal would be in the range of $9.5 million for each 1 MGD capacity. The annual operation and maintenance (O&M) cost for MF/RO treatment would be in the range of $2,000 per year for each million gallons treated. Thus the annual O&M cost for a 1 MGD MF/RO treatment system, which would be 20% of the current Facility capacity of 5 MGD, would be in the range of $730,000 per year and the amortized capital cost at 5% interest over 20 years would be approximately $762,000 per year. The costs would be proportionately higher for a larger capacity system.

Ocean Outfall Discharge

Impacts of salts in wastewater effluent on surface receiving waters (San Miguelito Creek and Santa Ynez River) could be eliminated completely by relocating the discharge from these surface waters to an ocean outfall. Conversion to an ocean discharge would require construction of a 9-

mile (approximate) transmission pipeline and associated pumping station and an ocean outfall. Capital cost of these facilities likely would be in the range of $20 to $30 million, which would represent an amortized annual cost $1.6 to 2.4 million per year at 5% interest over 20 years. The environmental impacts of an ocean outfall discharge would need careful study from the standpoints of both the ocean impacts and the impacts of removing the discharge from San Miguelito Creek and Santa Ynez River, which are effluent dominated waterways in the dry season.

Groundwater Discharge

Converting effluent discharge from surface water to groundwater would eliminate impacts on surface water but would shift potential impacts to the groundwater. Groundwater discharge could take the form of a groundwater recharge project, using either infiltration basins or injection wells, designed to supplement or replenish the groundwater supply for municipal and agricultural uses. A groundwater recharge project would need to comply with treatment and other requirements established by the California Department of Public Health (CDPH) on a case-by-case basis.

Groundwater recharge without fresh water dilution would likely require full advanced treatment, which would include MF/RO followed by advanced oxidation (AO), which includes UV + peroxide treatment to remove trace organic constituents. The capital cost for a 5 MGD MF/RO/AO system would likely exceed $50 million and annual O&M cost would likely exceed $4 million/year.

Groundwater recharge using infiltration basins with fresh water dilution (blending) was identified as an alternative use of recycled water in a Recycled Water Feasibility Study completed by the City in September 2010. The study indicates that blending rates required for groundwater recharge are not explicitly stated by CDPH, but are determined on a case-by-case basis. Past experience with other agencies indicates that CDPH would likely require a minimum 30:70 ratio, where 30% is recycled water and 70% is approved fresh water. The quality requirements for blended recharge would be at least Title 22 disinfected tertiary recycled water. The Facility was recently upgraded to provide this level of treatment. The need to provide additional advanced treatment, such as removal of total organic carbon (TOC), is not known at this time.

Water Recycling

The City of Lompoc currently practices recycling of treated wastewater effluent on a very limited scale. Periodic uses include dust control, compaction, and irrigation of City landscaping. The City is currently considering the development of a recycled water system to provide potential groundwater recharge and reduce the need for potable water by shifting allowable demands from potable to recycled water including irrigation, cooling towers, and industrial/commercial uses. The City completed a Recycled Water Feasibility Study in September 2010 in which it was concluded that:

1. Potential recycled water demand for non-potable uses is approximately1.5 MGD.
2. The Facility has the system capacity that could supply recycled water to meet the 1.5 MGD demand for non-potable uses throughout the City, if it is determined to be economically feasible.

3. The economic feasibility of delivering Facility recycled water into the City of Lompoc will be function of the payback period required by the City.

If the City determines that a recycled water system is economically feasible and decides to implement a system, the volume of water recycled, whether 1.5 MGD or some lesser volume, would be eliminated from the surface water discharge. Thus the mass of salt discharged to San Miguelito Creek and Santa Ynez River would be reduced, but the concentration of salt in the discharge would not be changed.

SUMMARY OF OPTIONS

The effectiveness and feasibility of each option is provided in **Table 4-6**. Several options are identified as effective and implementable and include: VVCSD WTP modification, borax-free detergent outreach, significant industrial user outreach, residential water softener removal program, and water recycling.

Table 4-6. Summary of Options by Effectiveness and Implementability

Option	Effectiveness[1]					Ease of Implementation/ Feasibility[2]
	TDS	Chloride	Sodium	Sulfate	Boron	
City WTP Modifications	H	H	H	H	M	L
VVCSD WTP Modifications	M	M	M	L	L	M
Source Water Alternatives	H	H	H	H	H	L
Conduct Boron Source ID	L	L	L	L	M	H
Significant Industrial Users	M	M	M	L	L	M
Residential Water Softeners	M	M	M	L	L	H
MF/RO Wastewater Treatment	H	H	H	H	M	L
Ocean Outfall Discharge	H	H	H	H	H	L
Groundwater Discharge	H	H	H	H	H	L
Water Recycling	H	H	H	H	H	M

1: Answers the question: Could the reduction strategy meet the Facility's % reduction needs
H: High - the strategy, on its own, could resolve much of the Facility's reduction needs
M: Medium - the strategy will partially assist in meeting needed % reductions
L: Low - the strategy will do little to assist the Facility in meeting % reductions

2: Answers the question: How feasible is the reduction strategy? Takes into account cost and ease of implementation
H: High - cost effective strategy that is relatively easy to implement
M: Medium - semi cost effective strategy; may be some challenges to implementation
L: Low - strategy may be cost prohibitive and/or significant hurdles exist to implementation

Section 5

Proposal to Proceed

As eluded to in Sections 2 and 3, the sources of salts to Facility influent is comprised of both controllable and uncontrollable (water supply) sources. The amount of controllable sources varies by constituent and ranges from 19 to 60% of the loading to the Facility influent. With the exception of chloride, the percentage of controllable sources is less than 50%. Uncontrollable sources also vary by constituent and ranges from 34 to 107% of the loading to the Facility influent. For the majority of the salts constituents (all but boron), 70% of the loading can be attributed to uncontrollable sources. Given that much of the Facility's salt originates from source water, limited source reduction options exist. As indicated in the previous section, switching the source water to an alternative water source is not a viable alternative.

The Facility will evaluate the actions outlined in the table below to address the level of salts from controllable sources and reflect the proportion of uncontrollable sources:

Step	Timeframe
Partner with VVCSD to evaluate mechanisms to reduce salts contribution of water softeners. The first step may be to encourage the voluntary disconnection of water softeners through education and outreach	End of 2011
Further examine the feasibility to modify VVCSD's municipal water treatment processes to reduce salts	End of 2011
Evaluate the need to conduct a source ID to further identify sources of boron and chloride to Facility influent	Mid 2012
Conduct education and outreach that targets sources of chlorides and boron (i.e., encourage use of borax-free detergents)	End of 2013
Evaluate effectiveness of VVCSD water softener outreach to residents within the Facility service area. Pursue water softener ban ordinance, if necessary	Mid 2013
Pass water softener ban, if necessary	Mid 2014
Implement recycled water system, if feasible	End 2015

EXHIBIT 9

California Home

CA.GOV CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

California Integrated Water Quality System Project (CIWQS)

ESMR At-A-Glance Report

[VIEW PRINTER FRIENDLY VERSION] [EXPORT THIS REPORT TO EXCEL]

SEARCH CRITERIA: [REFINE SEARCH] [NEW SEARCH] [GLOSSARY]
Reporting Year 0

DRILLDOWN HISTORY: [GO BACK TO ESMR AT-A-GLANCE LIST]
Report Quarterly SMR (MONNPDES) report for Q1 2019

General Information

Agency	Facility	Reporting Period	Due Date	Date Received	Certified By
Lompoc City	Lompoc Regional WRP	01/01/2019 to 03/31/2019	05/01/2019	04/03/2019	Brian Stevens

Monitoring Locations

Name	Type	Lat/Long	Associated Discharge Point	Receiving Water	Description(+)
BIO-001	Internal process monitoring for ELGs	None	None	N/A	Biosolids at the last point in the biosolids handling process where representati
EFF-001	Effluent Monitoring	None	001	N/A	At a point where representative samples of tertiary treated wastewater effluent
GW-001	Groundwater Monitoring	None	None	N/A	At the groundwater well located at the center of the southern perimeter of the F
GW-002	Groundwater Monitoring	None	None	N/A	At the groundwater well located at the western perimeter of the Facility propert
GW-003	Groundwater Monitoring	None	None	N/A	At the groundwater well located at 1641 West Central Avenue.
INF-001	Influent Monitoring	None	None	N/A	Influent wastewater prior to treatment and following all significant inputs to t
RSW-001	Receiving Water Monitoring	None	None	Chino Creek Reach 1	A location upstream from Discharge Point No. 001 at V Street and Central Avenue.
RSW-002	Receiving Water Monitoring	None	None	Chino Creek Reach 1	A location downstream approximately 20 yards from Discharge Point No. 001.

Total Monitoring Locations: 8

No Discharge Dates

Discharge Point Name	Description(+)	Dates of No Discharge	Comments

[Export This Section to Excel]

Data Summary-Analytical

Monitoring Point	Parameter	Analytical Method	Qualifier	Result	Units	Sample Date	MDL	ML	RL	Comments
EFF-001	Acute Toxicity	Fathead Minnow Larval Survival and Growth Test	=	100	% survival	02/13/2019	None	None	None	None
EFF-001	Acute Toxicity	Fathead Minnow Larval Survival and Growth Test	=	0	Pass/Fail (Pass = 0, Fail = 1)	02/13/2019	None	None	None	None
EFF-001	Boron, Total	Standard Method (19th) 4500-B B: Boron by Curcumin Method	=	0.34	mg/L	03/06/2019	None	None	None	None
EFF-001	Chloride	Standard Method (19th) 4500-Cl C: Mercuric Nitrate Method	=	183	mg/L	01/25/2019	None	None	None	None
EFF-001	Chronic Toxicity	Green Algae GrowthTest	=	1	Pass/Fail (Pass = 0, Fail = 1)	01/16/2019	None	None	None	None
EFF-001	Chronic Toxicity	Green Algae GrowthTest	=	1.16	TUc	01/16/2019	None	None	None	None
EFF-001	Chronic Toxicity	Green Algae GrowthTest	=	4	TUc	02/20/2019	None	None	None	None
EFF-001	Chronic Toxicity	Green Algae GrowthTest	=	1	Pass/Fail (Pass = 0, Fail = 1)	02/20/2019	None	None	None	None
EFF-001		Data Unavailable	=	43	Pt-Co Color Unit	01/23/2019	None	None	None	None

	Color, Pt-Co (unfiltered)									
EFF-001	Hardness, Total (as CaCO3)	Data Unavailable	=	284	mg/L	03/11/2019	None	None	None	None
EFF-001	Nitrate, Total (as N)	Data Unavailable	=	7.2	mg/L	03/06/2019	None	None	None	None
EFF-001	Nitrite, Total (as N)	Data Unavailable	=	0.1	mg/L	03/06/2019	None	None	None	None
EFF-001	Nitrogen, Total Organic (as N)	Data Unavailable	=	0	mg/L	01/16/2019	None	None	None	None
EFF-001	Oil and Grease	HEM and SGT-HEM by Extraction and Gravimetry, Rev. A	=	0	mg/L	01/16/2019	None	None	None	None
EFF-001	Phosphorus, Total (as P)	Data Unavailable	=	4.96	mg/L	03/05/2019	None	None	None	None
EFF-001	Sodium, Total	Standard Method (19th) 3111 B: Metals, Direct Air-Acetylene Flame	=	201	mg/L	01/28/2019	None	None	None	None
EFF-001	Sulfate, Total (as S)	Data Unavailable	=	333	mg/L	03/06/2019	None	None	None	None
EFF-001	Total Dissolved Solids (TDS)	Standard Method (19th) 2540 C: Total Diss. Solids at 180 deg.	=	940	mg/L	01/16/2019	None	None	None	None
RSW-001	Acute Toxicity	Data Unavailable	=	100	% survival	01/16/2019	None	None	None	None
RSW-001	Acute Toxicity	Data Unavailable	=	0	Pass/Fail (Pass = 0, Fail = 1)	01/16/2019	None	None	None	None
RSW-001	Ammonia, Total (as N)	Standard Method (19th) 4500-NH: Nitrogen (Ammonia)	=	0.01	mg/L	01/15/2019	None	None	None	None
RSW-001	Ammonia, Unionized (as N)	Data Unavailable	=	0.0001	mg/L	01/15/2019	None	None	None	None
RSW-001	Boron, Total	Data Unavailable	=	0.092	mg/L	03/04/2019	None	None	None	None
RSW-001	Chloride	Standard Method (19th) 4500-Cl C: Mercuric Nitrate Method	=	25	mg/L	01/15/2019	None	None	None	None
RSW-001	Color, Pt-Co (unfiltered)	Data Unavailable	=	55	Pt-Co Color Unit	03/22/2019	None	None	None	None
RSW-001	Dissolved Oxygen	Standard Method (19th) 4500-O G:Diss. O by Membrane Electrode	=	10.15	mg/L	01/15/2019	None	None	None	None
RSW-001	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	=	5000	MPN/100 mL	01/07/2019	None	None	None	None
RSW-001	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	=	2400	MPN/100 mL	01/14/2019	None	None	None	None
RSW-001	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	=	5000	MPN/100 mL	01/22/2019	None	None	None	None
RSW-001	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	=	2400	MPN/100 mL	01/27/2019	None	None	None	None
RSW-001	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	>	16000	MPN/100 mL	02/04/2019	None	None	None	None
RSW-001	Hardness, Total (as CaCO3)	Data Unavailable	=	68	mg/L	01/15/2019	None	None	None	None
RSW-001	Nitrate, Total (as N)	Data Unavailable	=	0.01	mg/L	01/15/2019	None	None	None	None
RSW-001	Sodium, Total	Standard Method (19th) 3111 B: Metals, Direct Air-Acetylene Flame	=	9	mg/L	01/15/2019	None	None	None	None
RSW-001	Sulfate, Total (as S)	Inorganic Anions by Ion Chromatography	=	231	mg/L	03/04/2019	None	None	None	None
RSW-001	Temperature	Data Unavailable	=	11.2	Degrees C	01/15/2019	None	None	None	None
RSW-001	Total Dissolved Solids (TDS)	Standard Method (19th) 2540 C: Total Diss. Solids at 180 deg.	=	118	mg/L	01/15/2019	None	None	None	None
RSW-001	Turbidity	Standard Method (19th) 2130 B: Turbidity by Nephelometric Method	=	35.3	NTU	01/15/2019	None	None	None	None
RSW-001	pH	Standard Method (19th) 4500-H+ B: pH by Electrometric Method	=	7.71	SU	01/15/2019	None	None	None	None
RSW-002	Acute Toxicity	Data Unavailable	=	100	% survival	01/16/2019	None	None	None	None
RSW-002	Acute Toxicity	Data Unavailable	=	0	Pass/Fail (Pass = 0, Fail = 1)	01/16/2019	None	None	None	None
RSW-002	Ammonia, Total (as N)	Standard Method (19th) 4500-NH: Nitrogen (Ammonia)	=	0.28	mg/L	01/15/2019	None	None	None	None
RSW-002	Ammonia, Unionized (as N)	Data Unavailable	=	0.001	mg/L	01/15/2019	None	None	None	None
RSW-002	Boron, Total	Standard Method (19th) 4500-B B: Boron by Curcumin Method	=	0.322	mg/L	03/04/2019	None	None	None	None
RSW-002	Chloride	Standard Method (19th) 4500-Cl C: Mercuric Nitrate Method	=	104	mg/L	01/15/2019	None	None	None	None
RSW-002	Color, Pt-Co (unfiltered)	Data Unavailable	=	39	Pt-Co Color Unit	01/15/2019	None	None	None	None
RSW-002	Dissolved Oxygen	Standard Method (19th) 4500-O G:Diss. O by Membrane Electrode	=	8.92	mg/L	01/15/2019	None	None	None	None
RSW-002	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	=	500	MPN/100 mL	01/07/2019	None	None	None	None
RSW-002	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	=	3000	MPN/100 mL	01/14/2019	None	None	None	None

RSW-002	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	>	140	MPN/100 mL	01/22/2019	None	None	None	None
RSW-002	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	=	80	MPN/100 mL	01/28/2019	None	None	None	None
RSW-002	Fecal Coliform	Standard Method 9221 E: Fecal Coliform	>	2400	MPN/100 mL	02/04/2019	None	None	None	None
RSW-002	Hardness, Total (as CaCO3)	Data Unavailable	=	204	mg/L	01/15/2019	None	None	None	None
RSW-002	Nitrate, Total (as N)	Data Unavailable	=	2.54	mg/L	01/15/2019	None	None	None	None
RSW-002	Sodium, Total	Standard Method (19th) 3111 B: Metals, Direct Air-Acetylene Flame	=	106	mg/L	01/15/2019	None	None	None	None
RSW-002	Sulfate, Total (as S)	Data Unavailable	=	305	mg/L	03/04/2019	None	None	None	None
RSW-002	Temperature	Data Unavailable	=	16.9	Degrees C	01/15/2019	None	None	None	None
RSW-002	Total Dissolved Solids (TDS)	Standard Method (19th) 2540 C: Total Diss. Solids at 180 deg.	=	556	mg/L	01/15/2019	None	None	None	None
RSW-002	Turbidity	Standard Method (19th) 2130 B: Turbidity by Nephelometric Method	=	23.8	NTU	01/15/2019	None	None	None	None
RSW-002	pH	Standard Method (19th) 4500-H+ B: pH by Electrometric Method	=	7.28	SU	01/15/2019	None	None	None	None

Total Analytical Data Points: 60

[Export This Section to Excel]

Data Summary-Calculated

Monitoring Point	Parameter	Analytical Method	Qualifier	Result	Units	Sample Date	Comments
EFF-001	Chloride	12-Month Average	=	195	mg/L	03/31/2019	None
EFF-001	Oil and Grease	Monthly Average (Mean)	=	0	mg/L	03/31/2019	None
EFF-001	Sodium, Total	12-Month Average	=	208	mg/L	03/31/2019	None
EFF-001	Total Dissolved Solids (TDS)	12-Month Average	=	988	mg/L	03/31/2019	None
RSW-001	Flow	Daily Average (Mean)	=	0.00583	MGD	01/15/2019	None
RSW-002	Flow	Daily Average (Mean)	=	3.36	MGD	01/15/2019	None

Total Calculated Data Points: 6

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1057357	03/13/2019	Chronic Toxicity	Chronic Toxicity 4-Day Average (Mean) limit is 1 TUc and reported value was 4 TU	Source of effect is unknown. Test program is underway, Have checked for AMPA and Glyphosate, all have come back ND	Discharger	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
Bioassay.pdf	None	369 KB
Chronic Toxicity 1-16-19.pdf	None	462 KB
Chronic Toxicity 3-13-19.pdf	None	494 KB
Glyphosate, AMPA.pdf	Glyphosate and AMPA added as part of our Chronic Toxicity Study	341 KB
Upstrm dwnstrm Boron Sulfate.pdf	None	852 KB

Total Attachments: 5

Cover Letter

File Name
Cover Letter DMR 1st Qtr 2019.pdf
Cover Letter Regional Brd. 1st Qtr 2019.pdf

Total No. of Cover Letter Files: 2 **Cover Leter Text: No**

The current report was generated with data as of: 07/10/2019
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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Date: April 4th 2019

Division of Water Quality
NPDES Unit, 15-35A
Attn. DMR Processing Center
PO Box 100, Sacramento, CA 95812-1000

Facility Name:	Lompoc Regional Wastewater Reclamation Plant			
Address:	1801 West Central Avenue			
	Lompoc, CA 93436			
Contact Person:	Brian Stevens			
Job Title:	Acting Wastewater Operations Supervisor/CPO			
Phone Number:	(805) 875-8402			
WDR/NPDES Order Number:	Order No. R3-2011-0211, NPDES Permit CA 0048127			
WDID Number:	#3 420105001, Place ID 227315			
Type of Report (circle one):	**Monthly**	**Quarterly**	**Semi-Annual**	**Annual**
Month(s) (circle applicable months*):	**JAN** **FEB** **MAR** **APR** **MAY** **JUN** **JUL** **AUG** **SEP** **OCT** **NOV** **DEC** ***Annual Reports** (circle the first month of the reporting period)			
Year:	2019			
Violation(s) (Place an X by the appropriate choice):	☐ **No**		☑ **Yes**	
If Yes is marked complete a-g: **a) Parameter(s) in Violation:**	Chronic toxicity			

b) Section(s) of WDR/NPDES Violated:	IV.A.1 (p. 12); Att. F.IV.D - Table IV-F12-Final Effluent Limitations (pp. F-38).
c) Reported Value(s)	1.18 TUc; 4 TUc
d) WDR/NPDES Limit/Condition:	1.0 TUc maximum
e) Dates of Violation(s) Reference page of report/data sheet	1/16/19, 2/20/19
f) Explanation of Cause(s): Attach additional information as needed	Source of effect is unknown.
g) Corrective Action(s): Attach additional information as needed	Resampled on 2/20/19, Result of 4.0 TUc Continuing to monitor. Test program per p. E-6, Sec. V.B is underway. Cause of toxicity is unknown
COMMENTS	

If you have any questions or require additional information, please contact Robert Archer at the number provided above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Brian R. Stevens, Acting Operations Supervisor/CPO

cc: Brad Wilkie, Utilities Director
California Department of Health Services

Attachment: Wastewater Reclamation Plant Discharger Self-Monitoring Report

Date: April 4th 2019

California Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401

Facility Name:	Lompoc Regional Wastewater Reclamation Plant
Address:	1801 West Central Avenue
	Lompoc, CA 93436
Contact Person:	Brian Stevens
Job Title:	Acting Wastewater Operations Supervisor/CPO
Phone Number:	(805) 875-8402
WDR/NPDES Order Number:	Order No. R3-2011-0211, NPDES Permit CA 0048127
WDID Number:	#3 420105001, Place ID 227315
Type of Report (circle one):	**Monthly** **Quarterly** **Semi-Annual** **Annual**
Month(s) (circle applicable months*):	**JAN** **FEB** **MAR** **APR** **MAY** **JUN** **JUL** **AUG** **SEP** **OCT** **NOV** **DEC** ***Annual Reports** (circle the first month of the reporting period)
Year:	2019
Violation(s) (Place an X by the appropriate choice):	☐ **No** ☑ **Yes**
If Yes is marked complete a-g: **a) Parameter(s) in Violation:**	Chronic toxicity

b) Section(s) of WDR/NPDES Violated:	IV.A.1 (p. 12); Att. F.IV.D - Table IV-F12-Final Effluent Limitations (pp. F-38).
c) Reported Value(s)	1.18 TUc; 4 TUc
d) WDR/NPDES Limit/Condition:	1.0 TUc maximum
e) Dates of Violation(s) Reference page of report/data sheet	1/16/19, 2/20/19
f) Explanation of Cause(s): Attach additional information as needed	Source of effect is unknown.
g) Corrective Action(s): Attach additional information as needed	Resampled on 2/20/19, Result of 4.0 TUc Continuing to monitor. Test program per p. E-6, Sec. V.B is underway.
COMMENTS	

If you have any questions or require additional information, please contact Robert Archer at the number provided above.

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Sincerely,

Brian R. Stevens
Acting Operations Supervisor/CPO

cc: Brad Wilkie, Utilities Director
California Department of Health Services

Attachment: Wastewater Reclamation Plant Discharger Self-Monitoring Report