

March 30, 2017

California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

RE: Comment Letter – Proposed Revisions to the Clean Water Act Section 303(d) List for the Los Angeles Region and the 2016 Integrated Report

Attn: Jun Zhu,

Ventura Water, a department of the City of San Buenaventura (City), appreciates the opportunity to comment on the proposed revisions to the Clean Water Act Section 303(d) list for the Los Angeles Region and the 2016 Integrated Report (hereinafter “303(d) list”). The City’s Public Works Department is submitting a concurrent letter that discusses the overall proposed listings that impact the City generally. The specific focus of this comment letter by Ventura Water is on the Santa Clara River Estuary (SCRE) proposed listings. New constituents on the list for the SCRE include ammonia and pH. Constituents that are proposed to remain on the list of particular note include nitrate and toxicity.

Ventura Water specifically requests the Los Angeles Regional Water Quality Control Board (Regional Board):

- Reconsider proposed ammonia listing by recalculating the exceedances and using more recent data sets currently available to the Regional Board.
- Reconsider the proposed pH listing based on consideration of reference conditions data, which indicate that substantial fluctuations in estuarine pH values are typical, and consistent pH values that comply with water quality objectives are not biologically attainable within estuaries.
- Delist nitrate based on a recalculation using appropriate data and correct use of averaging periods for the data.
- Reevaluate toxicity listing once the data is appropriately aggregated and averaged.
- Reevaluate ChemA, Taxophene, and Indicator Bacteria listings once more recent data is taken into consideration.
- Address the issues identified in this letter and release a revised, proposed 303(d) list for another 60-day comment period prior to adoption.

Relevant Background Information. It is important to our overall comments on the 303(d) list to understand the context of the Santa Clara River and SCRE. Like many southern California rivers, the Santa Clara River has very minimal flows in the dry months leading to stagnant conditions in the SCRE that encourage algae growth and variations in both dissolved oxygen (DO) and pH due to the algae

respiration cycles, as is the case to some extent even in more natural estuaries where conditions have not been modified. The river ends in the SCRE, which experiences both open and closed mouth periods due to beach berm formation and periodic, typically wet weather breaches. The SCRE is wind-mixed and mostly uniform in water quality, especially during closed mouth conditions. The Ventura Water Reclamation Facility (VWRF) discharges approximately 8 million gallons per day (mgd) of disinfected, tertiary effluent first to wildlife/water quality ponds, and then to the SCRE. During dry weather, the tertiary treated flows can be the dominate supply of water to the SCRE to support wildlife species that utilize it. Species that utilize the SCRE include the following state and federally listed species: steelhead trout, tidewater goby, snowy plover, and California least tern.

Ventura Water has spent many years studying the SCRE both independently, and pursuant to requirements of its NPDES permits. Ventura Water has invested more than \$21,000,000 dollars in treatment process upgrades of the Ventura Water Reclamation Facility (VWRF) to improve the quality of the tertiary treated flows discharged to the SCRE. Ventura Water also currently recycles approximately 1 mgd for urban irrigation. Ventura Water is also currently working on implementing a potable reuse program that would divert up to 100% of its discharges to water reclamation uses, and identifying how much effluent can be diverted from the SCRE while still protecting its ecology and ecology-related beneficial uses and without "taking" (as that term is defined under the state and federal Endangered Species Acts, as applicable) any of the listed species that use or occupy the SCRE.

General Comments. Of particular concern to Ventura Water with regard to the proposed 303(d) list is that much of the data used to determine water quality impairment for the SCRE is older data that is not representative of current conditions. The Staff report states, "Data used as part of the 2016 Integrated Report were received through August 30, 2010." The report then goes on to later say, "All readily available data and information in the administrative record was considered in the development of the 2016 Integrated Report." These statements are at odds with each other as by choosing to only rely on data collected through 2010; quite clearly the 303(d) list was not developed with all readily available data as required by the Listing Policy. Significant plant improvements have been implemented since 2010. VWRF monitoring data since the plant upgrades are readily available and should be included within the 303(d) list determination analyses.

The SCRE has also been heavily regulated by the VWRF's NPDES permits. Many of those permit requirements have become more stringent since 2010, with the application of technology based limitations. By Ventura Water's estimation, many of constituents on the proposed 303(d) list are not appropriate given recent water quality data.

Lastly, based on current data and the State Water Resources Control Board's "Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List" ("Listing Policy")¹ requirements to aggregate the data by appropriate reach or area and to use appropriate averaging periods, Ventura Water disagrees with some of the constituent listings and requests recalculation of exceedances. This letter addresses the proposed 303(d) listings and presents current data for each proposed SCRE impairment listing.

Ammonia Comments

The new ammonia listing cites that it is based on 4 exceedances out of 42 samples based on un-ionized ammonia concentrations using data collected from 1997 to 2010. While this meets the technical, formulaic requirements for number of exceedances set forth in the Listing Policy Table 3.1 for placing a waterbody on the 303(d) list, the methods and data used to calculate the exceedances are not clear. To calculate the concentration of un-ionized ammonia, total ammonia must be converted to un-ionized ammonia using site specific pH and temperature conditions within the SCRE at the time of the ammonia sampling. No conversion calculations for total ammonia were provided in the data set provided in the fact sheet; therefore, it is difficult to determine which pH and temperature data were used to correlate to corresponding total ammonia data. An accurate analysis should ideally connect pH, temperature, and ammonia data with a reasonable averaging criteria or statistical determination if multiple data points were used. Ventura Water requests recalculation of the exceedances based on current total ammonia data as well as proper calculations of un-ionized ammonia that take into account temperature and pH conditions that occurred, or should have been expected during the total ammonia sampling events.

More specifically, closer inspection of the 1997 through 2010 data set used to determine the 4 exceedances indicates that the pH data used to calculate un-ionized ammonia was potentially data retrieved from a continuous monitoring, multiparameter Sondes (2009-2010) deployed for the City's Phase 1 Estuary Study (Stillwater Sciences 2011), among other data. The only total ammonia data collected as part of the Phase 1 study were collected on 6 days in 2009 and 2010. Corresponding pH and temperature were collected along with these samples. However, Ventura Water is concerned that these data do not represent the SCRE as a whole, specifically after the improvements to the VWRf (after November 2011). Moreover, only total ammonia is shown in that data set, and the data set does not include the calculation of un-ionized ammonia. Monthly grab sample temperature and pH data for the receiving water exists for some of the monitoring years cited (1997 - 2010), but grab data is not reliable for purposes of determining the one-hour maximum values for temperature and pH.

In light of the aforementioned issues with the methods that appear to have been used to calculate un-ionized ammonia using a 1997 to 2010 data set, Ventura Water requests the Regional Board provide the

¹ California State Water Resources Control Board, "Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List," Adopted September 30, 2004, Amended February 3, 2015.

calculation for the un-ionized ammonia, and update the calculation as appropriate to include more recent and more valid total ammonia, pH, and temperature assumptions from other data sets readily available to the Regional Board. Based on Ventura Water's more recent monitoring results, all of which constitute data readily available to the Regional Board, it does not appear that the SCRE un-ionized ammonia water quality objective is likely to have been exceeded a sufficient number of times to warrant a listing. Ventura Water requests the Regional Board utilize the data submitted to it by Ventura Water more recently than 2010 to assure that the evaluation of receiving water conditions in the SCRE is reasonably representative of current conditions.

The Regional Board imposed stringent ammonia limits and a time schedule to attain those limits on VWRP discharges of tertiary treated flows in both its 2008 and 2013 NPDES permits. To comply with these limits and to better control nitrates, Ventura Water invested more than \$21 million in a VWRP plant improvement project to implement nutrient removal in its biological processes. This treatment upgrade project undertaken to meet the stringent NPDES permit ammonia effluent limits came online in November 2011. Since then, VWRP NPDES permit effluent limits for ammonia, including its water quality based effluent limits, have only been exceeded once, indicating that ammonia conditions in the SCRE have changed since November 2011, and the data relied upon in developing the proposed 303(d) list is not representative of conditions within the SCRE.

The receiving water standards for the SCRE (used to establish the NPDES effluent limitation) are set based on un-ionized ammonia for saltwater criteria. The limits used to determine the 303(d) listing are the same criteria that are used to calculate limits in the NPDES permit (1999 Update of Ambient Water Quality Criteria for Ammonia):

- One Hour Concentration = 0.233 mg/l unionized ammonia, based on fish spawning, and
- 4 day average of 0.035 mg/L of unionized ammonia

The total ammonia NPDES effluent limit calculated to meet this water quality objective is total ammonia of 1.07 mg/l average monthly and 1.17 mg/l max daily in the summer. Limits in the winter months are slightly higher. The limits were determined in accordance with EPA standards by considering the 50th and 90th percentile pH and temperature for considering chronic and acute toxicity.

As shown in Figure 1 below, the total effluent ammonia from 2012 to 2016 only exceeded 1 mg/l once out of 59 samples, thus not exceeding the Listing Policy's binomial distribution null hypothesis Table 3.1 criteria for listing a constituent on the 303(d) list (i.e., would need at least 5 exceedances). Similarly, the receiving water samples from 2012 to 2016 only exceeded 1 mg/l total ammonia twice out of 60 samples, so also not meeting the Table 3.1 criteria for listing a constituent on the 303(d) list.

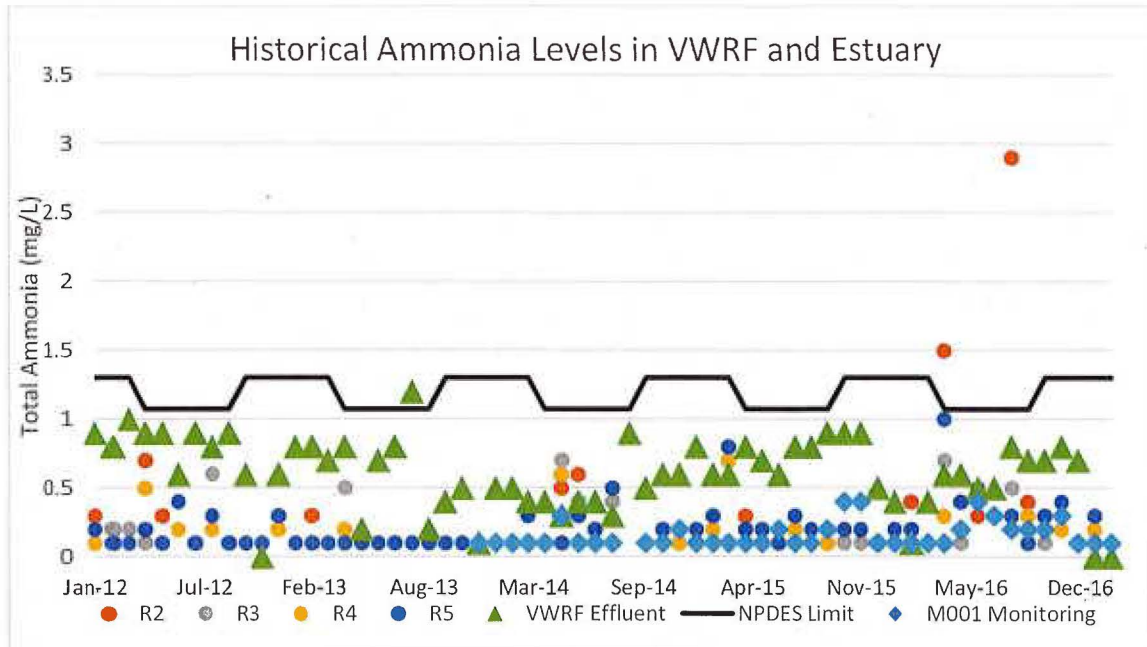
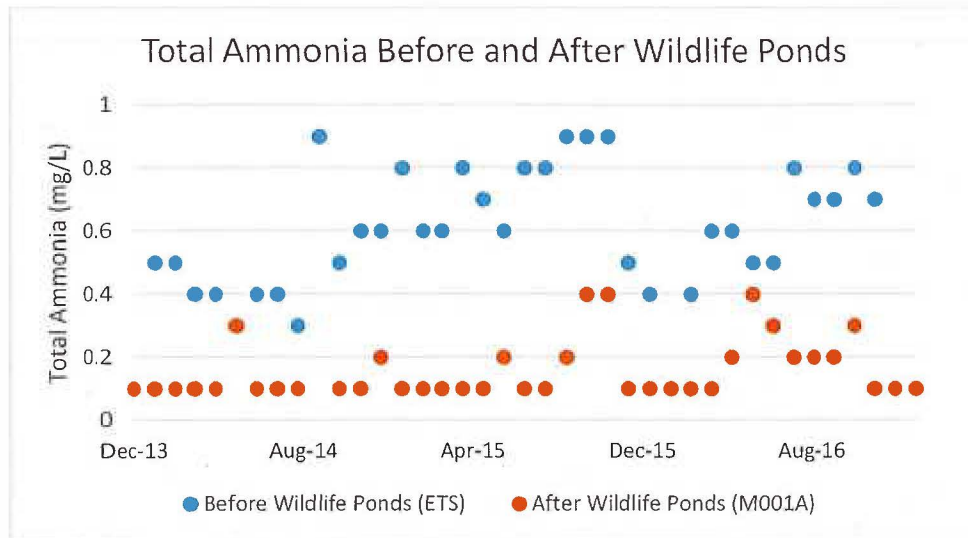


Figure 1 Historical Effluent and Receiving Water Ammonia Monitoring

The effluent compliance point for all constituents except for flow in the 2013 NPDES permit for the VWRF is station M001, which is located at the Effluent Transfer Station (ETS) right before discharge into the wildlife ponds. Station M001A is located downstream of the wildlife ponds. It is only used for compliance with flow, but ammonia levels have been monitored there, starting in December 2013. Total ammonia actually drops from the compliance point to M001A as water passes through the wildlife ponds, likely due to a combination of volatilization and vegetative uptake. Therefore, the ammonia concentrations in the discharges into the SCRE are well below the permit standards that were set up to meet the ammonia receiving water quality objectives for saltwater, which are more stringent than freshwater standards. The comparison of ETS versus M001A data is shown in Figure 2.



In light of the treatment plant upgrades implemented to reduce ammonia, and the fact that more recent data indicates only 1 exceedance in 59 samples, Ventura Water requests recalculation of the exceedances for ammonia and reconsideration of the listing decision based on the more recent data set currently available to the Regional Board.

It is important to understand that many estuaries exhibit wide daily variations in pH mediated by algae as the result of daily photosynthesis and nighttime respiration (Park et al 1958).² Beyond potential connections between algal productivity with the multiple nutrient sources to the SCRE (e.g., VWRf, agricultural runoff, groundwater, riverine, VWRf, ocean exchanges), algal growth and pH variations in the SCRE are exacerbated by physical factors as well (e.g., shallow waters, lack of consistent riverine flows, intermittent breaching and limited tidal exchange with the ocean). Consideration of the estuarine conditions likely to induce large pH swings is supported by recent monitoring data fully available to the Regional Board that shows that the VWRf plant tertiary treated flows are always in compliance with pH effluent limits (shown as a black dot on Figure 3). However, despite the very steady and compliant pH values for the tertiary treated flows, the receiving water does experience wide swings in pH as shown in Figure 3 below even when data collected from 2012 through 2016 is analyzed. However, it is important to note that the receiving water pH data is collected by grab samples (via boat) in the SCRE, likely at

similar times of day and therefore does not necessarily reflect actual conditions in the estuary over the course of the day or the month.

The receiving water data collected could theoretically meet the Listing Policy formulaic criteria. However, the determination whether to list should not be considered in a vacuum, but rather must also take into account the “type of waterbody (Bay and Harbors, Coastal Shoreline, *Estuary*, Lake/reservoir...)” being considered for impairment.³ One way to take into account the type of waterbody considered for a 303(d) listing is to consider “reference conditions” as defined in Section 7 of the Listing Policy to understand the characteristics of estuarine water bodies that are least impaired by human activities to determine attainable biological conditions for such waterbodies in southern California. As discussed earlier, studies of pH variation in estuaries reveals that wide swings in pH due to the presence of algae constitute reference conditions for typical estuaries.

The proposed listing does not appropriately demonstrate that the high pH was a result of waste discharge as required in the Los Angeles Region Basin Plan (Basin Plan).⁴ As stated in the Fact Sheets and according to the Basin Plan, “The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges.”⁵ However, it was not demonstrated for the SCRE that the elevated pH levels were a result of waste discharge as opposed to natural causes. Therefore, the Regional Board should either provide evidence that the elevated pH was a result of waste discharge and detail that in the Fact Sheets or, if not such evidence exists, the Regional Board should remove this proposed listing.

Ventura Water requests reconsideration of the proposed pH listing for the SCRE based on consideration of reference conditions data, which indicate that substantial fluctuations in estuarine pH values are typical, and consistent pH values that comply with water quality objectives are not biologically attainable within estuaries.

³ Listing Policy § 6.1.2.2B (emphasis added).

⁴ Water Quality Control Plan Los Angeles Region R4 Basin Plan.

⁵ Basin Plan at 3-35.

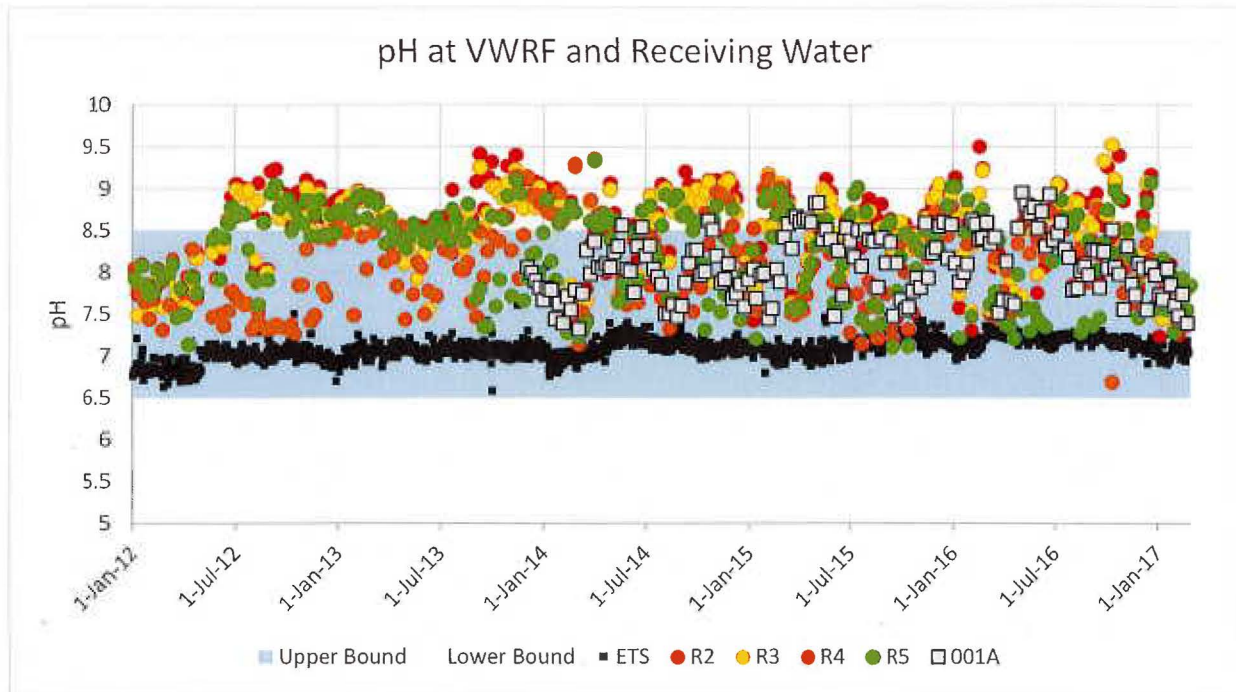


Figure 3 pH at VWRF and Receiving Water Locations

Nitrogen and Nitrate Comments

Nitrogen/nitrate (collectively "nitrate") was originally listed on the 303(d) list adopted in 2012. The nitrate listing is based on receiving water samples collected between 2002 and 2007. Given that Ventura Water implemented a nitrification and denitrification project in November 2011, nitrate data collected before 2011 is no longer representative of SCRE conditions, and is therefore not reliable for determining current SCRE exceedance estimates. In reviewing receiving water data collected monthly from 2012 through 2016 (60 sample dates), which is submitted to the Regional Board as part of NPDES reporting and is therefore readily available data under the Listing Policy, there were only 5 days during which SCRE water quality exceeded the nitrate receiving water quality objective of 10 mg/l. Because the SCRE is wind-mixed and fairly uniform (Phase 1 Estuary Subwatershed Study, Stillwater 2011), we would argue that on any given day, sampling at a given location is strongly influenced by conditions at other nearby locations. The Listing Policy states:

"Based on these evaluations of the water body setting, the Regional Water Boards should aggregate the data by appropriate reach or area. ... To be considered temporally independent, samples collected during the averaging period shall be combined and considered one sampling

event. ... If the averaging period is not stated for the standard, objective, criterion, or evaluation guideline, then the samples collected less than 7 days apart shall be averaged."⁶

As shown in Figure 4 below, exceedances in multiple locations occurring in the SCRE on the same sampling date should be considered a single event because the multiple sampling results are designed to provide a spatial representation of the estuary during any particular event of exceedance. According to the binomial distribution null hypothesis (Listing Policy Table 3.1), the listing requirement for 60 to 71 data points is 6 exceedances, which is more than the current 5 exceedances demonstrated by the more recent data set developed after Ventura Water's implementation of treatment plant and treatment process upgrades.

Section 4 of the Listing Policy states that a water segment shall be removed from a 303(d) listing if the water meets the water quality standards. Using Policy Table 4.1, the null hypothesis indicates that for 60 to 71 data points, if there are 5 exceedances or less, then the water segment can be delisted. **Based on current data, the number of exceedances (5) meets the delisting criteria, and given that VWRP already has an NPDES permit limit for nitrate, Ventura Water requests recalculation of the exceedances based on current data and correct use of averaging periods for the data (data collected on the same day to be averaged). Ventura Water requests that based on this recalculation, nitrate be removed from the 303(d) list for the SCRE.**

⁶ Listing Policy, pp. 23, 24.

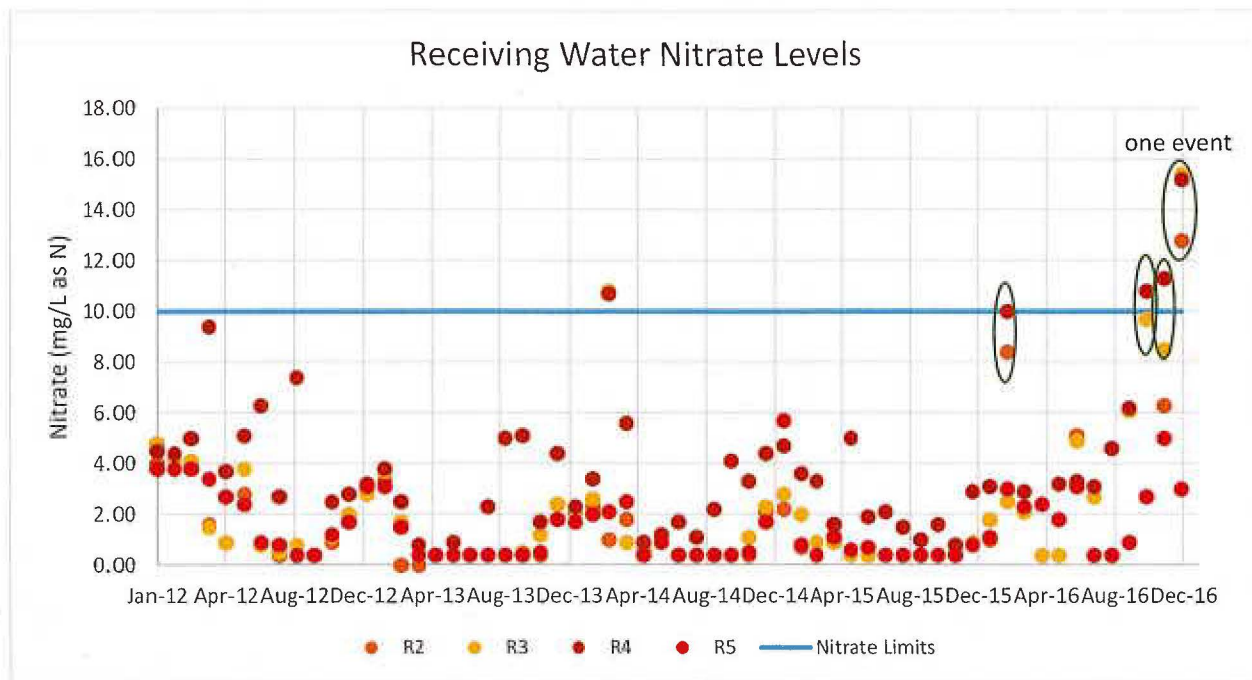


Figure 4 Receiving Water Nitrate Levels

Toxicity Comments

The City monitors chronic toxicity using Selanstrum for both effluent and receiving water. Using readily available data collected by Ventura Water from 2012 – 2016 and submitted to the Regional Board, the VWRf tertiary treated flows consistently met toxicity criteria of 1 TUc for the 60 samples, as shown in Figure 5. However, receiving water monitoring data does not similarly show consistent and full attainment of toxicity criteria. The receiving water monitoring locations have a data set of 25 sample dates. **Using the argument presented above that the data should be aggregated and appropriate averaging should be used, Ventura Water requests that each sampling event (day) be considered separately and the data points be averaged.**

To meet the Listing Policy Table 4.1 requirements for delisting, with 26 data points there would need to be 2 or fewer exceedances of toxicity objectives for the SCRE. Even considered as single events, there have been more than 2 exceedances of a 1 TUc, although those exceedances are unrelated to toxicity of tertiary treated flows, which did not show exceedances. Therefore, it does not appear that delisting the SCRE for toxicity would be appropriate at this time, even though toxicity exceedances are unrelated to VWRf tertiary treated flows. **However, Ventura Water requests this listing be reevaluated once the data is appropriately aggregated and averaged.**

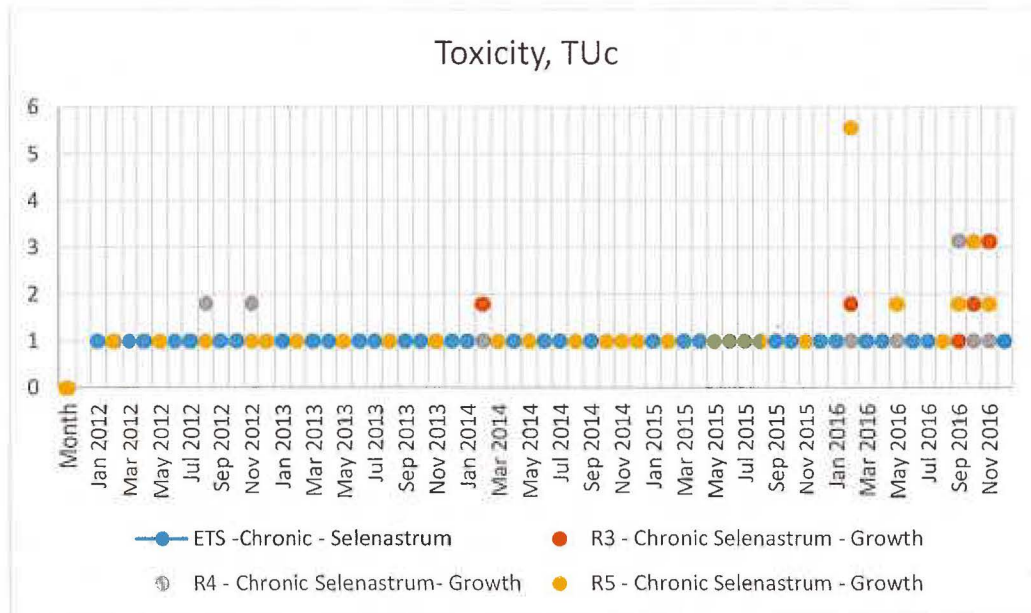


Figure 5 Effluent and Receiving Water Toxicity

ChemA

ChemA is being included on the 303(d) list without any supporting data. The reasons for its listing are that the U.S. EPA approved a TMDL for the estuary in 2011. However, no data, historic or otherwise, were used to support the continued placement on this list. **Ventura Water requests that recent data be taken into consideration when assessing the placement of ChemA on the 303(d) list.**

Toxaphene

Similar to ChemA, toxaphene was included on the 303(d) list due to its TMDL status with the U.S. EPA, circa 2011. No new information or data was brought forward to support the status on the list. Based on data collected semiannually by the VWRF, toxaphene has not even been detected in either the effluent or the receiving water in recent memory. **Ventura Water requests that recent readily available data be taken into consideration when assessing the placement of toxaphene on the 303(d) list.**

Indicator Bacteria

Similar to ChemA and toxaphene, indicator bacteria was included in the 303(d) list due to its TMDL status with the U.S. EPA, circa 2011. No new information or data was brought forward to support the

status on the list. **Ventura Water requests that recent data be taken into consideration when assessing the placement of indicator bacteria on the 303(d) list.**

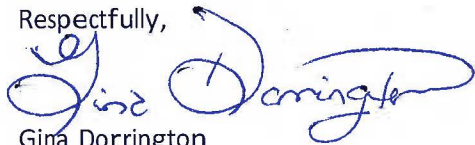
Summary/Conclusion

Ventura Water appreciates the opportunity to comment on the proposed 303(d) list. Based on the analysis presented above using more recently collected, readily available data that properly represents existing conditions in the SCRE (2012 - 2016), our findings include:

- Appropriate ammonia data were not considered in the proposed listing and current data do not meet the Listing Policy criteria for 303(d) listing.
- A listing for pH is not warranted in light of reference conditions for pH within estuaries, which indicates that steady state pH values in compliance with water quality objectives are not biologically attainable even in high functioning estuaries.
- Nitrate should be delisted based on relevant Listing Policy criteria.
- Toxicity is unrelated to VWRF discharges of tertiary treated water to the SCRE, and the listing should be reevaluated once the data is appropriately aggregated and averaged.
- Chem A, Toxaphene, and Indicator Bacteria listings did not include recent data and should be reevaluated based on current data.

It is important to note the City has been conducting studies on the SCRE since 2009 per the special studies requirements in the NPDES permits for the VWRF. These studies analyze the existing discharge impacts/benefits to aquatic habitat, and evaluate alternatives that include a reduction in discharge, improvement in discharge water quality, or a combination of both, for the purpose of improving aquatic habitat. These studies are site specific, taking into account the listed species using or occupying the SCRE, and the associated physical/chemical parameters that contribute to site specific aquatic habitat conditions. The results of the studies will be presented in the Phase 3 Estuary Studies Report (expected January 2018), and will provide a detailed understanding of the SCRE and information relevant to the 303(d) listing process.

Respectfully,



Gina Dorrington

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City of San Buenaventura