CITY OF VACAVILLE

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March 17, 2008 ESTABLISHED 1850

Mr. James Marshall
Senior Engineer
San Joaquin River Watershed
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6144

SUBJECT: **Renewal of Waste Discharge Requirements for City of Vacaville Easterly Wastewater Treatment Plant (Order No. R5-2008-XXXX, NPDES No. CA0077691)**

Dear Mr. Marshall:

The City of Vacaville ("City") appreciates the opportunity to provide comments on the Tentative Waste Discharge Requirements ("Tentative Order")[1] and Time Schedule Order ("TSO") for the City's Easterly Wastewater Treatment Plant ("EWWTP"), issued on 8 February 2008. Our comments on the Tentative Order are provided below.

As a preliminary matter, the City remains concerned with the Regional Water Quality Control Board's ("Regional Water Board") timing in releasing the Tentative Orders and the anticipated schedule for Board consideration.[2] The City most recently provided extensive comments on this issue in its response to the Preliminary Draft Order issued 19 December 2007. For the sake of efficiency, the City will not repeat all of those comments here and instead incorporates by reference the City's comments dated January 25, 2008.

I. TERTIARY TREATMENT REQUIREMENTS

The Tentative Order proposes to include seasonal requirements for Title 22 tertiary level (or equivalent) treatment. In addition, the Regional Water Board has noticed two alternative

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1 The City's comments are on the WORD version of the Tentative Order electronically provided to the City. Because this version includes strike-out and underlines of changed text, the page numbers referenced herein may not directly match the .PDF version posted on the Central Valley Regional Water Quality Control Board's website.

2 As the Regional Water Board is aware, and as indicated in previous comments, many issues in this Tentative Order are currently under consideration in Contra Costa Superior Court. The City respectfully requests that any formal action by the Regional Water Board be suspended until the Court has ruled. Until the Court has ruled on all of the relevant issues, the requirements contained in the Tentative Order may be subject to modification.

options in the "Tertiary Treatment Options Enclosure" that was issued along with the Tentative Order and TSO. The City has closely evaluated the seasonal requirements as contained in the Tentative Order as well as the two options contained in the "Tertiary Treatment Options Enclosure." Based on our review, the City believes that out of the three alternatives presented, the approach contained in the Tentative Order is the best alternative as it more than adequately protects beneficial uses, and avoids extreme and unnecessary expense and design and operational difficulties. Our comments on each option are provided here.

1. Seasonal Requirements for Title 22 Tertiary Level (or Equivalent) Treatment for 1 May – 31 October (Tentative Order at p. 12).

Although there is no evidence to indicate that actual contact recreational uses occur in the receiving water, seasonal filtration would provide protection in case the use should occur. Seasonal filtration is more than adequate to protect the receiving waters in question. It provides for a level of protection that the California Department of Public Health ("DPH") has determined to be appropriate. (See Letter to Kenneth D. Landau, Assistant Executive Officer, Central Valley Regional Water Quality Control Board, from Catherine S. Ma, Chief, North Coastal Region, Department of Health Services (March 22, 2002) regarding City of Vacaville Easterly Wastewater Treatment Plant (EWWTP) – Evaluation of Public Health Risks Final Revised Report, January 2002, submitted as Attachment 2 to the City of Vacaville Comments on the Preliminary Draft Order (Jan. 25, 2008).) For wet weather periods, DPH has determined that the City's existing treatment with disinfection to 23 MPN is adequate to protect public health. (*Ibid.*)

DPH based its conclusion on its review and concurrence in report findings contained in the City's *Evaluation of Public Health Risks Concerning Infectious Disease Agents Associated with Exposure to Treated Wastewater Discharge by the City of Vacaville, Easterly Wastewater Treatment Plant Final Revised Report* (EOA, Inc. dated August 2001, Revised January 2002 ("Health Risk Assessment"), incorporated herein by reference to the administrative record for this Order.) The Health Risk Assessment concluded "[t]he median probability of infection to swimmers for a single direct exposure to final disinfected EWWTP effluent in the winter and/or summer, based on Total Coliform as a microbial indicator organism, is on the order of 1 infection per 1,000,000." (Health Risk Assessment at p. 44.) This is a 10^{-6} risk of infection. USEPA considers the level of acceptable risk to be 8 illnesses per 1,000 recreation events. DPH staff thinking is that an annual risk of 10^{-4} may be a reasonable target level for recreational contact, and the effluent meets this goal. (*Ibid.*) In other words, the risk of infection from secondarily treated EWWTP effluent in summer or winter is considerably lower than USEPA and DPH's current acceptable level of risk.

The seasonal tertiary treatment requirements contained in the Tentative Order are the most consistent with DPH's recommendation and the findings contained in the Health Risk Assessment. (See also email from Catherine Ma (DHS-DDWEM) to Jeff Soller re: August 22nd conversation ("Attachment 1").) Furthermore, this option is straightforward for the City to

implement from both a design and operational standpoint. It allows the City to design and operate tertiary treatment facilities based on the period established in the Tentative Order, an advantage over the two alternative options because it removes the complexity of operators having to guess when filters may or may not need to be operated, and at what loading rates. Because these requirements are protective of public health and capable of being administered, they are the most reasonable and appropriate alternative presented, although some minor modifications are necessary.

To correct inconsistencies and to ensure that the seasonal requirements are properly reflected in all of the applicable permit provisions and fact sheet language, the following changes are appropriate:

- Provision VI.C.6.a. (p. 35):

  "Effective 1 May 2015, from 1 May – 31 October of each year, wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3, (Title 22), or equivalent."

- Attachment F—Fact Sheet (p. F-27):

  "The stringent disinfection criteria of Title 22 are appropriate when ~~since~~ the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation in the dry season. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order, however, wastewater must be treated to a level equivalent to that recommended by DPH."

- Attachment F—Fact Sheet (p. F-29):

  "Full compliance with the final effluent limitations for BOD, TSS, total coliform, and turbidity are not required by this Order until **~~1 June 2012~~ 1 May 2015**."

With the changes identified, the seasonal tertiary requirements would provide additional protection of public health beyond what currently exists. The City considers this a more acceptable alternative as compared to the other two options noticed in the "Tertiary Treatment Options Enclosure."

2. Year-Round Requirements for Title 22 Tertiary (or Equivalent) (Option 1 Tertiary Treatment Options Enclosure).

Option 1 of the "Tertiary Treatment Options Enclosure" would require the City to provide Title 22 tertiary treatment year-round for all of its effluent. The City is opposed to this option. As discussed above, DPH has determined that seasonal tertiary requirements for the period set forth in the Tentative Order are appropriate and protective for the existing beneficial uses during that time period. (See Section 1, ante.) Year-round requirements for Title 22 tertiary treatment would require the City to provide additional expensive treatment with no discernible benefit. For November-April, DPH has determined that the City's existing treatment and disinfection to 23 MPN is adequate to protect public health. (*Ibid.*) DPH's position is more than supported by the Health Risk Assessment by EOA, Inc.

Option 1 is untenable as it would require the City to build additional treatment capacity that is not necessary. The cost of building tertiary treatment for all flows would greatly exceed the estimated $40 million for adding seasonal tertiary treatment, without providing any discernible added benefit for the protection of public health.

Also, should the Regional Water Board decide to adopt Option 1 from the noticed Tertiary Treatment Options Enclosure, the Tentative Order would be deficient for failing to fully consider Water Code section 13241. The Tentative Order includes some evidence that the Regional Water Board has considered the necessary factors as required by Water Code section 13241 for seasonal tertiary treatment. (See Tentative Order at pp. F-26 – F-29.) However, the Tentative Order and the Tertiary Treatment Options Enclosure collectively provide no evidence that the Regional Water Board has considered Water Code section 13241 factors for year-round tertiary treatment. In summary, the City is opposed to year-round requirements for Title 22 tertiary treatment (or equivalent) and no such alternative could be adopted based on the existing record.

3. Seasonal Requirements for Title 22 Tertiary (or Equivalent) – With Requirement to Operate the Filters to the Maximum Extent Possible from 1 November – 30 April (Option 2 – Tertiary Treatment Options Enclosure).

Option 2 would propose to maintain the seasonal effluent limitation requirements in the Tentative Order and would add an additional requirement for the City to operate the tertiary filters between November 1 and April 30. The City does not support this option, for several reasons.

First, as already discussed, there is no need to run the tertiary filters during November 1 and April 30 to protect beneficial uses. Like Option 1, this proposed alternative is inconsistent with the recommendation and position expressed by DPH. In addition, this option attempts to specify the manner of treatment, which violates Water Code section 13360(a). DPH has clearly put forth its position that public health is protected if tertiary treatment is provided during May 1

through October 31, and is not necessary during the wet-weather periods. (See Attachment 1.) Thus, requiring that the tertiary filters be run during this period provides no discernible protection for beneficial uses.

Second, operation of the filters on a year-round basis will increase the City's operation and maintenance cost, which has not been accounted for in the Tentative Order and its Fact Sheet. In addition, this alternative could require the City to include bypass from the tertiary treatment process when flows exceed filter capacity. From a more practical perspective, inclusion of the capability to bypass in the design of the tertiary filtration systems will add cost and complexity to the facility for the following reasons:

- Added complexity would be created to the facilities to create a diversion and control system that would limit the flows to the effluent filters during events in which the plant flows exceeded the hydraulic capacity of the filters. Since secondary effluent is produced at two locations in the plant, these complex diversion and control facilities would need to be provided at two locations. These systems would add capital costs to the project. The added complexity of the diversion and control systems would also introduce an additional failure mode to the facility thereby reducing its reliability.

- Operation of the facilities in this manner may result in the intermittent use of some hydraulic elements of the plant. Consequently, unless properly designed, effluent could be left in these conduits for extended periods of time leading to bacterial growth, which may adversely affect the performance of the effluent disinfection system.

Finally, this alternative would present serious implementation and enforcement difficulties for plant personnel and Regional Water Board staff. The City is uncertain as to what would be considered "to the maximum extent possible" in the minds of Regional Water Board staff. Such a permit provision is vague and open for various interpretations, which therefore creates tremendous ambiguity in determining compliance for both the City and Regional Water Board staff.

In summary, the City does not support either of the options noticed in the "Tertiary Treatment Options Enclosure." The only workable tertiary treatment requirement that has some basis towards protecting beneficial uses that might occur is the one set forth in the Tentative Order. Notwithstanding the City's consideration of seasonal requirements, the City has identified several revisions that would be necessary to clarify the application of seasonal tertiary treatment requirements.

II. COMPLIANCE SCHEDULES

The City supports the compliance schedules in the Tentative Order for disinfection requirements related to tertiary treatment and the discontinuance of "bypass" (blending)

practices.[3] The compliance schedules are as short as practicable and are supported by the information submitted by the City to the Regional Water Board in January. (See Memorandum to Dave Tompkins from Jeff Pelz, *Timeline for Construction of Upgrades at Easterly WWTP* (Jan. 24, 2008), submitted as Attachment 3 to the City of Vacaville Comments on the Tentative Order (Jan. 25, 2008).) This would allow the City to conduct facilities planning and the necessary treatment plant improvements for all projects (with perhaps the exception of nitrate) on the same time schedule, which would include the construction of effluent filtration facilities for 15 mgd, additional facilities to eliminate blending primary and secondary effluents during peak flow events, and the addition of denitrification facilities.

III. TIME SCHEDULE ORDER FOR COMPLIANCE WITH FINAL EFFLUENT LIMITATION FOR NITRATE

Regional Water Board staff proposes a TSO that would allow the City a certain amount of time to comply with the final effluent limitation for nitrate contained in the Tentative Order. In particular, the Tentative TSO would require compliance with the final effluent limitation by 1 April 2012 and would protect the City from the application of mandatory minimum penalties until that time. (Tentative TSO at p. 4.) In essence, the Tentative TSO would allow the City four years to add denitrification facilities to the EWWTP. As documented previously, the City believes that the shortest amount of time practicable that is necessary to plan for and add all upgrades associated with the terms of the Tentative Order (including denitrification facilities) is realistically seven years.

The City recognizes that the Regional Water Board is limited by statute on how much time it can allow in a TSO that would protect the City from the accrual of mandatory minimum penalties. The Regional Water Board is required to establish a "time schedule for bringing the waste discharge into compliance with the effluent limitation that is as short as possible, taking into account the technological, operational, and economic factors that affect the design, development, and implementation of the control measures that are necessary to comply with the effluent limitation. For the purposes of this subdivision, the time schedule may not exceed five years in length. ..." (Wat. Code, § 13385(j)(3)(C).) The City has demonstrated seven years is as short as possible considering all of the various factors for which the City can comply with the final effluent for nitrate. However, we are aware that the Board staff has concluded it cannot issue a permit with a compliance schedule based on the Basin Plan's "up to ten year" provisions, and here assume the Regional Water Board is limited to issuing a TSO that includes a maximum of five years.

Recognizing this conclusion, the City requests that at the very least the Regional Water Board revise the TSO to extend the compliance date, from 1 April 2012 to "Five years from the

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[3] The City does not concur that it is necessary or appropriate to disallow blending under the specific circumstances of this discharge. The City has addressed this issue in the Report of Waste Discharge as well as prior comments, and it is the subject of ongoing proceedings related to the 2001 permit.

effective date of this Order." Water Code section 13385(j)(3)(C) allows the Regional Water Board to issue a TSO that protects the City from the application of mandatory minimum penalties for up to five years in length. Thus, a schedule that is five years in length complies with Water Code section 13385(j)(3)(C).

IV. FINAL EFFLUENT LIMITATION FOR TOTAL TRIHALOMETHANES

The Tentative Order includes a final effluent limitation for total trihalomethanes ("THMs") set at 122 µg/L as a daily maximum. (Tentative Order at p. 12.) The total THMs effluent limitation should be removed, because there is no reasonable potential for effluent from the EWWTP to cause or contribute to a violation of the applicable water quality criterion. For this criterion, the Tentative Order incorrectly uses the maximum effluent concentration from the EWWTP to determine reasonable potential. Because THM compounds are volatile and thus attenuated through the Old Alamo Creek channel, reasonable potential should be determined for the terminus of Old Alamo Creek, immediately prior to its confluence with New Alamo Creek. This location is appropriate because, under the Tentative Order, the municipal ("MUN") beneficial use first applies at New Alamo Creek and does not apply to Old Alamo Creek. When data from this location are evaluated against the total THM criterion, there is no reasonable potential. The approach we propose for determining reasonable potential here is not inconsistent with state or federal regulations. The total THMs criterion used by the Regional Water Board is not a CTR criteria subject to the state's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* ("SIP"). Thus, it is not necessary to use effluent concentrations alone to determine reasonable potential. The Tentative Order needs to be revised to eliminate the final effluent limitation for total THMs. To address this issue appropriately in the Fact Sheet, we recommend the Fact Sheet be revised as follows:

> "The THM compounds are volatile and thus are attenuated through the Old Alamo Creek channel where the total THM MCL is not applicable because MUN is not a designated use. The first downstream location where the total THM MCL is applicable is New Alamo Creek. Therefore, for the purposes of assessing reasonable potential, the MEC for total THMs was determined for the monitoring station located at the terminus of Old Alamo Creek, immediately prior to its confluence with New Alamo Creek, and ~~5.943 µg/L, based on 386 samples. The MEC for total THMs~~ was 23.7~~113~~ µg/L, based on 3~~36~~ monthly samples. Chloroform samples collected over the same period contained a maximum concentration of 19~~79~~ µg/L at this location, and an average concentration of 11.8~~45~~ µg/L. Total THMs in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the USEPA primary MCL for total THMs in the first downstream water body where this MCL is applicable. Therefore, an effluent limitation for total THMs is not required by this Order. ~~No chloroform has been detected in the background receiving water (New Alamo Creek). The lowest detection level of the receiving water chloroform~~

> ~~concentrations at RSW-003 is <0.5 µg/L; therefore, some assimilative capacity for chloroform is available. The minimum available dilution credit of 1.1 was used in developing of the WQBEL for total THMs for the protection of the applicable MUN use at New Alamo Creek, resulting in a WQBEL of 167 µg/L as an average annual effluent limitation for total THMs. However, the Regional Water Board finds that based on Facility performance, the Discharger can reliably meet a more stringent performance-based effluent limit. Therefore, granting of the dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity for human health water quality criteria and could violate the Antidegradation Policy. For this reason, a performance-based effluent limitation is included in this order that is calculated in the same way that interim limits are calculated (see Section IV.E.1 below). A maximum daily effluent limitation for total THMs of 122 µg/L is included in this Order.~~"

Also "…and the final effluent limitations for total trihalomethanes,…" on p. F-42 and "total trihalomethanes" from p. F-51 should be deleted.

Furthermore, we request that the fact sheet language regarding risk levels, pp. F-30 – F-31, be deleted as follows because the 1-in-a-million cancer risk level is not used by DPH in setting maximum contaminant levels ("MCLs"). If it were, then the total THM MCL would be 6.7 µg/L – equal to the sum of the individual constituent criteria that are based on a 1-in-a-million cancer risk level. The fact that DPH issued an MCL of 80 µg/L is largely due to working with a risk level greater than 10^{-6}.

> "This cancer potency factor is equivalent to a chloroform concentration in drinking water of 1.1 µg/L (ppb) at the 1-in-a-million cancer risk level with an average daily consumption of two liters of drinking water over a 70-year lifetime. ~~This risk level is consistent with that used by the DHS to set de minimis risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels, and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water.~~"

V. GROUNDWATER LIMITATIONS AND MONITORING REQUIREMENTS

The Tentative Order contains groundwater limitations for total coliform, ammonia, total dissolved solids ("TDS"), nitrate + nitrite (as N) and pH that are improper for several reasons. In general, the Tentative Order fails to provide proper justification for the imposition of all the groundwater limitations. The Regional Water Board is required to support decisions with specific findings and must relate evidentiary findings to the ultimate order. In particular, the Regional Water Board must "set forth findings to bridge the analytic gap between the raw evidence and ultimate decision or order." (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515; see also *In re Petition of the City and County of San Francisco, et al.,* SWRCB Order No. WQ 95-4 (Sept. 21, 1995) at pp. 4-5.) The Tentative Order

does not satisfy these requirements for the imposition of groundwater limitations. It does not, for example, explain why the numeric criteria used to derive groundwater limitations are relevant and appropriate to the situation at hand. The Fact Sheet concludes that the limits are appropriate because "there is little ability for attenuation in the shallow permeable vadose zone beneath this facility." (Tentative Order at pp. F-54 – F-55.) There is no evaluation to determine if the numeric criteria applied here are relevant to the groundwater limits.

Moreover, the Tentative Order would apply the groundwater limits in the shallow groundwater. (Tentative Order at pp. F-54 – F-55.) We submit that the beneficial uses, which the limits are intended to protect, do not actually occur in the shallow groundwater. In this regard, consideration must be given to the appropriate and reasonable point of compliance and any mixing zone.

At the very least, the groundwater limitations should not apply until such time that the City has the opportunity to collect additional data, characterize the natural background, determine the most appropriate groundwater limits, and demonstrate that the lowering of groundwater is consistent with Resolution 68-16. (See *In the Matter of the Petition of Sacramento County (Boys Ranch Wastewater Treatment Facility)*, Order WQO 2003-0014 (Sept. 16, 2003) ("Boys Ranch Order") at p. 3 ["Groundwater monitoring was not previously conducted at the site; therefore, data are not available to establish the most appropriate groundwater limits."]; and see also *In the Matter of the Review on own Motion of Waste Discharge Requirements Order No. 5-01-044 for Vacaville's Easterly Wastewater Treatment Plant* Order WQO 2002-0015 (Oct. 3, 2002) ("Vacaville Order") at p. 60.) Also, the collection of additional data will allow the City and Regional Water Board to consider the groundwater's assimilative capacity for the constituents in question. (Boys Ranch Order at p. 6.)

Thus, we recommend that the groundwater limitation language be revised as follows:

"5. Effective immediately, the Discharger shall comply with the provisions contained in VI.C.2.c., VI.C.2.d., and VI.C.2.e.. These study requirements shall apply in lieu of the groundwater limits specified in V.B.1 through V.B.4, or any adjustment of such limits, including consideration of point of compliance or mixing zones until such time that the Discharger completes the requirements specified in VI.C.2.c., VI.C.2.d., and VI.C.2.e. and achieves BPTC, as applicable.

In addition, certain groundwater constituent concentration values are inappropriate and should be removed, as discussed below.

TDS (pp. 19, F-54): The City is very concerned with the TDS groundwater limit for several reasons. First, the groundwater limitation is being derived from the agricultural water quality goals as contained in *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1* (1985) ("UN Report"). (Tentative Order at p. F-54.) However, the Tentative Order fails to apply the agricultural water

quality goal for TDS as intended in the UN Report. "The UN Report makes it clear that site-specific considerations are important in assessing irrigation water suitability." (*In the Matter of the Own Motion Review of City of Woodland*, Order WQO 2004-0010 (June 7, 2004) at p. 7.) Because the agricultural water quality goals in the UN Report are not intended to be interpreted as absolute values, the Regional Water Board must consider site-specific factors such as rainfall, soil quality and type, rainfall, etc. before applying the values as contained therein. If such information is not readily available, it is appropriate to require a study to obtain the relevant information before adopting groundwater limitations based on the agricultural water quality goals. Such a process is consistent with the State Water Board's conclusions in Order WQO 2004-0010. (*Id.* at pp. 7-9.) Because the Tentative Order fails to properly justify the imposition of a groundwater limitation set at 450 mg/L for TDS, the limitation needs to be removed from the Tentative Order.

Also, the City is concerned with its ability to comply with the proposed groundwater limitation for TDS. The TDS concentrations in four of the five existing monitoring wells have always been greater than 450 mg/L, and TDS concentrations in MW-1 have been greater than 450 mg/L with the exception of sporadic measurements in 2001-2005. (See Attachment 4 to the City of Vacaville Comments on the Preliminary Draft Order (Jan. 25, 2008) LSCE Figure 3.) Additionally, the existing monitoring well network does not include a well that is consistently up-gradient of the EWWTP and therefore representative of ambient groundwater quality to determine natural background levels. Without a well that is consistently up-gradient, it is difficult to determine compliance with the proposed groundwater limitation for TDS.

At the very least, the groundwater limit should be removed until the City can conduct appropriate studies to determine the appropriate TDS limit considering site-specific factors and until the City can determine what constitutes natural background for TDS in the groundwater.

pH (pp. 19, F-54): Like TDS, the Tentative Order includes a groundwater limit for pH based on the agricultural water quality goals contained in the UN Report. Thus, the groundwater limit for pH should be suspended until the Regional Water Board considers a number of site-specific factors to determine the appropriate applicable level of pH for groundwater near the EWWTP.

Ammonia (pp. 19, F-54): The City also objects to the ammonia groundwater limitations contained in the Tentative Order. The Tentative Order purports to implement the narrative taste and odor objective by including an ammonia groundwater limitation of 1.5 mg/L. (Tentative Order at pp. F-54 – F-55.) According to the Tentative Order, the ammonia groundwater limitation is based on a study contained in the Journal of Applied Toxicology by Amoore and Hautala. (Tentative Order at p. F-55; Amoore & Hautala, *Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution* (1983), Journal of Applied Toxicology, Vol. 3, No. 6, p. 272, Attachment 2 hereto.) The City is very concerned with the use of this study to interpret the narrative taste and odor objective for groundwater because the ammonia groundwater limitation in the Tentative Order is not consistent with the intent and purpose of the referenced

article. The purpose of the Journal article is to provide quantitative data on odor thresholds of potentially hazardous chemical vapors and gases. The intent is to merely identify at what concentration the chemical is identified for industrial health and safety specialists to further determine if threshold limit values are exceeded.[4] The ammonia value in the article is the "concentration of the substance in water, which will generate the air [odor threshold] concentration in the headspace of a stoppered flask." (*Id.* at p. 282.) There is nothing in the article that represents, suggests or implies that ammonia at such concentrations in water will impair municipal or domestic uses of groundwater due to adverse odors. Thus, the Tentative Order improperly takes a numeric criterion developed for an unrelated purpose and applies it to groundwater.

The use of a numeric criterion that is developed for an unrelated purpose has already been determined by the State Water Board to not be appropriate. In the previous permit issued to Vacaville (Order No. 5-01-044), the Regional Water Board adopted a receiving water limit for ammonia based on an interpretation of the narrative taste and odor objective. The receiving water limit was subsequently challenged and part of the City's appeal to the State Water Board. In its precedential decision, the State Water Board found that the Regional Water Board's use of the European Union's standard was inappropriate because it was used in a manner that was not consistent with its intent. (Vacaville Order WQO 2002-0015 at p. 47.) Here, the Tentative Order again attempts to interpret the narrative taste and odor objective by using a value for ammonia that was developed for an unrelated purpose. Because the proposed use is inconsistent with the numeric value that was developed for ammonia in the aforementioned article, and because the value identified has not been developed in accordance with Porter-Cologne (e.g., Wat. Code, § 13241), the groundwater limitation for ammonia should be removed from the Tentative Order.

Total Coliform (p. 19): The total coliform groundwater limitation should be expressed as fecal coliform which is a much more reliable indicator of sewage contamination as compared to total coliform. Total coliforms are present throughout the environment and would likely result in false positive data that would not correlate with any actual effect of EWWTP effluent.

Groundwater Related Studies (pp. 28-29): The City is also concerned with some of the provisions and time schedules contained in the Groundwater Monitoring Workplan, Groundwater Water Quality Characterization and Best Practical Treatment or Control (BPTC) study requirements. In particular, there are compliance dates in the studies directly linked to adoption of the Tentative Order by the Regional Water Board. The City believes that most of the compliance dates in these study provisions are more appropriately linked to Executive Officer approval of some of the internal reports, especially where approval is necessary before

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[4] The threshold limit value ("TLV") is a registered trademark of American Conference of Governmental Industrial Hygienists ("ACGIH"). The TLV is defined as the time-weighted average concentration for a normal 8-hour work-day and 40-hour work-week, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect. (*Odor as an Aid to Chemical Safety*, etc., Journal of Applied Toxicology, *supra*.

proceeding forward with next steps. To address these concerns, we recommend the following revisions to the three study requirements.

Groundwater Monitoring Workplan (p. 28):

> "Additionally, ~~the background monitoring wells may have been influenced by previous disposal or treatment practices or influenced by the effluent discharge to Old Alamo Creek.~~ the existing network of monitoring wells does not include a well that has been consistently upgradient of facility operations and/or a well that clearly represents ambient groundwater quality conditions. As a result, site-specific background groundwater quality has not been formally determined. Within 6 months the following adoption of the Order,.... Within 9 months following Executive Officer approval of the Groundwater Monitoring Work Plan, the Discharger shall submit a Well Installation Report."

Groundwater Water Quality Characterization (p. 29): To reflect the additional requirement for a Well Installation Report, the Groundwater Water Quality Characterization study must be revised accordingly, as suggested here:

> "The Discharger shall commence quarterly monitoring activities in any new monitoring wells upon construction according to the MRP (Attachment E). ~~;~~ ~~a~~After 2 years of quarterly collection of monitoring data, the Discharger shall characterize natural background quality of monitored constituents in a Groundwater Water Quality Characterization technical report, to be submitted within ~~36~~ 27 months following the construction of new monitoring wells ~~adoption of this Order~~."

Best Practical Treatment or Control (BPTC) (p. 29): The Tentative Order would require the City to submit a BPTC work plan within 48 months from adoption of the Order. However, the Regional Water Board's approval of the various studies and work plans necessary for the development of the BPTC work plan is not guaranteed or specified on any time schedule. As such, it would be more appropriate if submittal of the BPTC work plan was tied directly to the Regional Water Board's approval of the Groundwater Water Quality Characterization Technical Report. To accommodate this change in scheduling, we recommend the BPTC study language be revised as follows:

> "If the groundwater monitoring results show that the discharge of waste is threatening to cause or has caused groundwater to contain waste constituents in concentrations statistically greater than background water quality, the Discharger shall submit, within ~~42~~ 6 months of the Regional Water Board's approval of the Groundwater Water Quality Characterization Technical Report ~~following adoption of this Order~~, a BPTC Evaluation Work Plan that sets forth.... The schedule to complete the evaluation shall be as short as practicable, and shall not

exceed 1 year following the Regional Water Board's approval of the BPTC Evaluation Work Plan."

We also recommend that the BPTC study requirement be revised to include additional language that clarifies next steps following completion of the comprehensive technical evaluation. The following language is consistent with other BPTC study language found in other Regional Water Board permits.

"Following completion of the comprehensive technical evaluation, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated component with respect to BPTC and minimizing the discharge's impact on groundwater quality. Where deficiencies are documented, the technical report shall provide recommendations for necessary modifications (*e.g.*, new or revised salinity source control measures, WWTP component upgrade and/or retrofit) to achieve BPTC and identify the source of funding and proposed schedule for modifications. The schedule shall be as short as practicable but in no case shall completion of the necessary modifications exceed four years past the Executive Officer's determination of the adequacy of the comprehensive technical evaluation, unless the schedule is reviewed and specifically approved by the Regional Water Board. The technical report shall include specific methods the Discharger proposes as a means to measure processes and assure continuous optimal performance of BPTC measures. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

Task	Compliance Date
1 - Submit BPTC evaluation work plan and schedule for comprehensive evaluation	**Within 6 months** after Executive Officer approval of the Groundwater Quality Characterization Technical Report.
2 - Commence comprehensive evaluation	**30 days** following Executive Officer approval of Task 1.
3 - Complete comprehensive evaluation	As established by Task 1or 2 years following Task 2, whichever is sooner
4 - Submit technical report: comprehensive evaluation results	**60 days** following completion of Task 3.
5 - Submit annual report, if applicable, describing the overall status of BPTC implementation and compliance with groundwater limitations over the past reporting year	To be submitted in accordance with the MRP

VI. OTHER COMMENTS ON TENTATIVE ORDER LIMITATIONS

Specific comments on various provisions of the Tentative Order are provided below in order as they appear in the Tentative Order. We have suggested alternative language where appropriate and applicable.

Facility Information

Facility Information, Facility Design Flow (p. 1): "Dry weather flow" should be changed to "Average Dry Weather Flow." Similar changes are required on pp. F-1, F-12, and footnote #2, Table F-3. (Tentative Order at pp. F-12 and F-13.)

Findings

Water Quality-based Effluent Limitations (p. 2): This paragraph states: "The Regional Water Board has considered the factors listed in CWC Section 13241 in establishing these requirements." However, nowhere in the Tentative Order, Fact Sheet, or attachments is there an evidentiary basis to support this statement. A mere statement of "consideration" does not equate with complying with CWC Section 13241 requirements; rather, the factors need to be assessed by Regional Water Board staff and staff's findings from the assessment must be disclosed. This has not been done.

Average Daily Discharge Flow (Dry Weather) (p. 13): It must be recognized that average dry weather flow (ADWF) is not a daily flow within the dry weather period; rather, it is the average of daily flows for the three driest months of the year. Defining ADWF as an average daily discharge flow during dry weather, as done here, is inconsistent with the ADWF design flow for this facility. The following edit should be made:

> b. "**Average Daily Discharge Flow (Dry Weather).** The average daily flow over three consecutive dry weather months ~~Average Daily Discharge Flow~~ shall not exceed 15 mgd."

Table 7 (pp. 13-15): The Tentative Order currently has the table on pages 13-14 and the following table on page 15 both identified as "Table 7."

Table 8 (p. 15): Add "ADWF" to footnote 1 of Table 8.

Interim Effluent Limitations and Compliance Schedules (pp. 15, 36, F-20 – F-23): The Tentative Order makes final effluent limitations for cyanide, chlorodibromomethane, and dichlorobromomethane immediately enforceable on the CTR sunset date of May 18, 2010. The City's Infeasibility Analysis provides justification for a time schedule beyond May 18, 2010 to

achieve compliance with final effluent limitations for these constituents. The time schedule extends beyond May 18, 2010 to, among other actions, continue addressing the MUN beneficial use designation in New Alamo Creek, which is the basis for limitations for these constituents, and site-specific objective development. The City requests the following statement be added to page 15, item 3.a. to explicitly acknowledge the Infeasibility Analysis and need for compliance schedule beyond May 18, 2010:

> "The Discharger's Infeasibility Analysis, dated February 2007, provides justification for a compliance schedule and meets the requirements of Section 2.1 of the SIP. The justification in the Infeasibility Analysis provides for a time schedule for the Discharger to comply with new limitations for cyanide, chlorodibromomethane, and dichlorobromomethane after May 18, 2010. Allowance of an additional compliance schedule beyond the date specified above may be granted in a subsequent enforcement order, as the Regional Water Board deems appropriate."

Similar language has been included in other recently adopted orders.

Bacteria (p. 16): This receiving water limitation is unnecessary because the effluent bacteria limitations are sufficiently restrictive to prohibit the discharge from ever being able to cause an exceedance of the Basin Plan's fecal coliform bacteria objective. At a minimum, the City requests that the monitoring requirement for bacteria be removed from Table E-5 on page E-7/E-8.

Salinity Reduction Goal (p. 30): To ensure that the salinity reduction goal maintains its character as a goal and cannot be misconstrued as a substantive permit requirement, the City requests the following revision:

> "The Discharger shall provide to the Regional Water Board annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to Old Alamo Creek. The Regional Water Board finds that an annual average salinity goal of 864 µmhos/cm as electrical conductivity is a reasonable intermediate goal ~~that can be met during~~ for the term of this Order. The goal is based on the weighted average electrical conductivity of the City of Vacaville's water supply (i.e. 364 µmhos/cm in 2006), plus an increment of 500 µmhos/cm for typical consumptive use."

Other Special Provisions (p. 35): The statement "..., or equivalent" does not alter the fact that this special provision prescribes the manner of treatment, which is outside the Regional Water Board's legal authority. Water Code section 13360 prohibits the Regional Water Board from specifying the "design, location, type of construction, or particular manner in which compliance may be had" for meeting waste discharge requirements. (Wat. Code, § 13360(a).) The language as expressed here clearly equates to specifying design and/or the manner of compliance because

it specifies the type of treatment necessary for compliance. At most, the Regional Water Board can specify effluent limitations or waste discharge requirements for certain pollutants that may be associated with the type of treatment specified. To ensure that the Regional Water Board does not exceed its statutory authority, the City requests the following revision:

a. "Effective 1 May 2015, from 1 May – 31 October for each year, the treated wastewater shall comply with final effluent limitations for BOD, TSS, turbidity, and total coliform organisms (Effluent Limitations IV.A.1.a., IV.A.1.e., IV.A.1.f.)~~be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DPH reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3, (Title 22), or equivalent~~."

Compliance Schedules (p. 35): For the same reasons expressed immediately above, the City requests the following revision:

a. **"~~Title 22~~ Disinfection Requirements and Discontinuance of Bypass (blending) Practices.** The Discharger shall comply with the following time schedule to ensure compliance with Sections VI.C.6.a. and Discharge Prohibitions III.B. of this Order:"

Also, the City requests the following statement be added to the bottom of page 35, as footnote #3 to ensure consistency throughout the Tentative Order:

"The Discharger's Infeasibility Analysis provides justification for a time schedule to comply with the limitations for cyanide, chlorodibromomethane, and dichlorobromomethane after May 18, 2010. Allowance of an additional compliance schedule beyond May 18, 2010 may be granted in a subsequent enforcement order, as the Regional Water Board deems appropriate."

Monitoring and Reporting Program

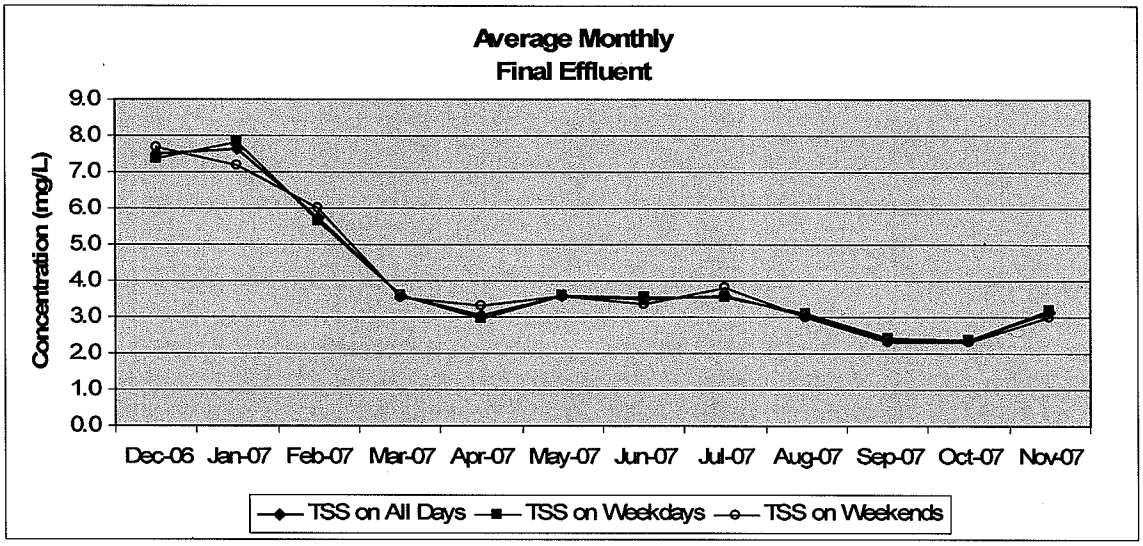
Table E-3 Effluent Monitoring (p. E-3): The City requests that the frequency of monitoring for effluent BOD and TSS be reduced from 1/day to 5 days/week, as follows.

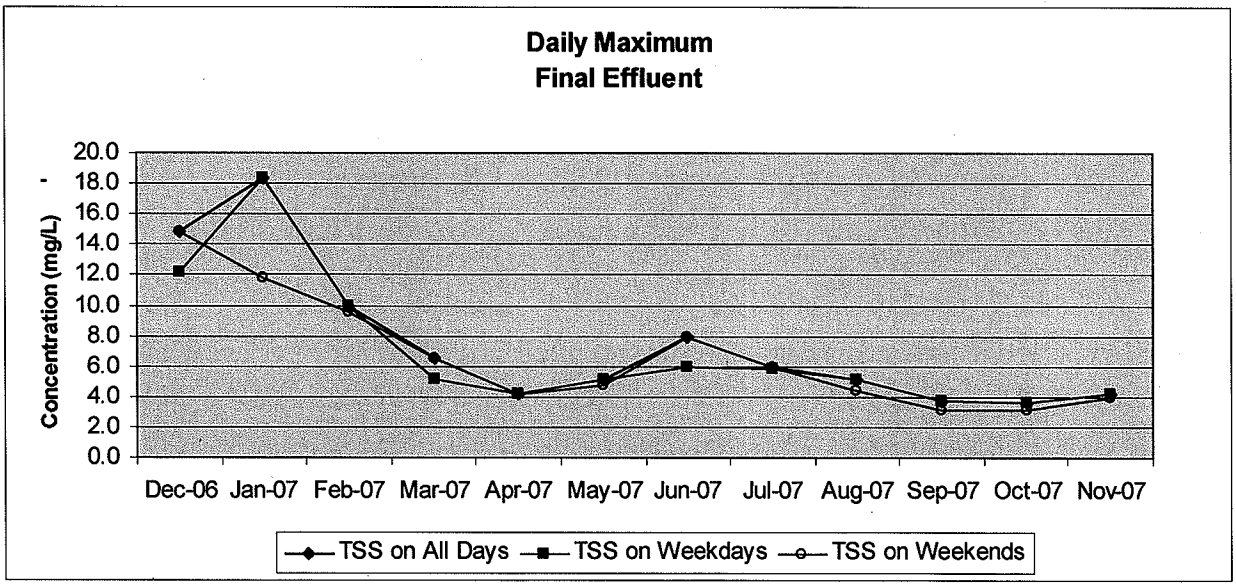
Table E-3. Effluent Monitoring

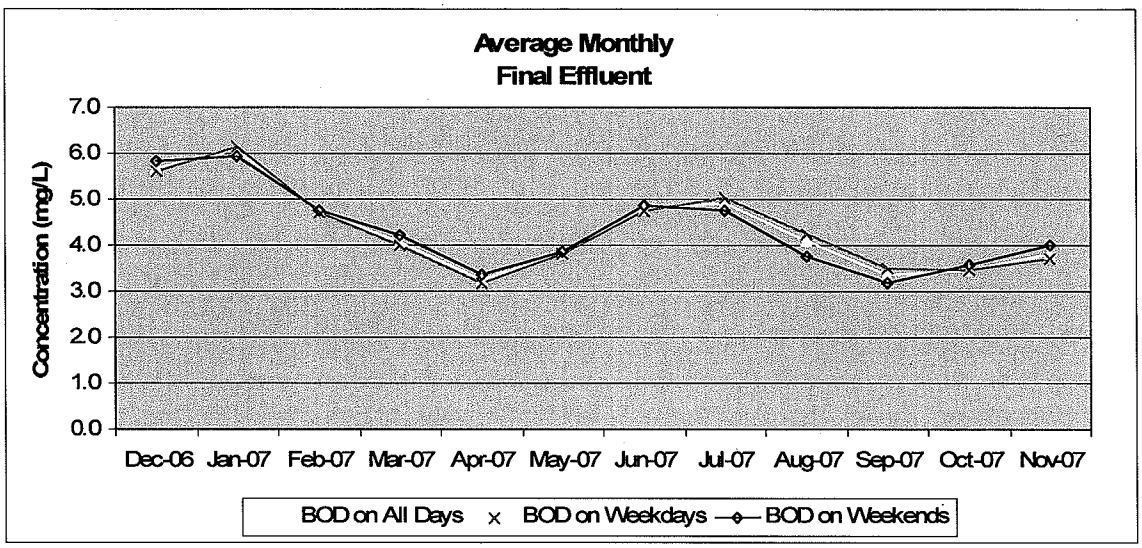
Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Total Residual Chlorine[1]	mg/L	Grab	Continuous	
Turbidity[2]	NTU	Meter	Continuous	
Temperature	°F	Meter	Continuous	

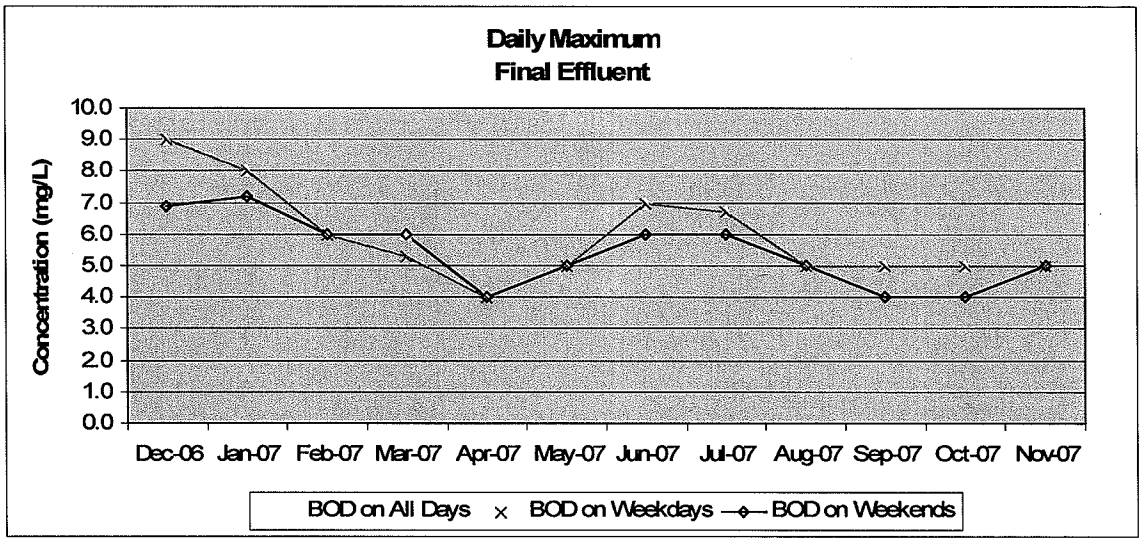
pH	pH units	Meter	Continuous	
BOD 5-day 20°C	mg/L	24-hr Composite[8]	~~1/day~~5 day/week	
Total Suspended Solids	mg/L	24-hr Composite[8]	~~1/day~~5 day/week	

This request is justified by the fact that the levels of these parameters in the treated effluent are very consistent from day to day over short periods of time, and do not change on weekends in a manner that would justify 7 day/week monitoring as demonstrated in the graphics provided below.









Moreover, requiring daily monitoring of these constituents significantly increases the City's laboratory staffing on the weekends and notably increases the City's permit monitoring costs.

Constituent	*Increased Frequency*	*Old Freq*	*New Freq*	*Increased Annual Monitoring Costs*[1]
BOD	X	5/wk	Daily	$4,680
TSS	X	5/wk	Daily	$3,120

[1] Cost does not include increased cost for City staffing.

Further, the daily frequency requirement does not consider occasional invalidated samples caused by composite autosampler pump breakdowns or power outages, or provide an opportunity to replace a sample with poor seed or glucose/glutamic acid results.

Table E-3 Effluent Monitoring – Bromoform, Total THMs, Diazinon, and Chlorpyrifos (p. E-3): There is no reasonable potential for bromoform and no effluent limitation for bromoform. Therefore, it should be removed from the monitoring requirements. Based on comments provided above, total THMs also should be removed from this table. Similarly, neither diazinon nor chlorpyrifos have ever been detected in the EWWTP effluent. Therefore, the requirement to monitor these constituents quarterly also should be removed from Table E-3.

Table E-3 Effluent Monitoring – Oil and Grease (p. E-3): There is no reasonable potential for Oil and Grease, based on over 300 consecutive non-detected results in weekly effluent monitoring since 2001. Therefore, the requirement to monitor for oil and grease monthly should be reduced to quarterly or semi-annual, or removed altogether from Table E-3.

Table E-3 Effluent Monitoring – Nitrate (p. E-3): Absent and until construction of new denitrification facilities, levels of nitrate in the effluent are unlikely to change. As such, weekly monitoring for nitrate is excessive and the City requests that the monitoring frequency be changed to monthly for at least the first 3 years of the Tentative Order. At the end of the third year, the City is uncertain as to how additional monitoring for nitrate will provide useful information because at that point the City would be in the process of building new facilities. Thus, we recommend that the MRP be revised to include a footnote for nitrate to Table E-3 that states as follows: "After the first three years of monitoring, the monitoring frequency for nitrate (as N) shall be semi-annually until denitrification facilities have been fully constructed and are operational."

Acute Toxicity Testing Monitoring Frequency (p. E-4): The Tentative Order changes the acute toxicity monitoring frequency in the current NPDES permit from monthly to weekly without justification and with no discussion in the Fact Sheet. A review of the discharger acute toxicity bioassay results with fathead minnow for the last three years (January 2005 through December 2007) and for all of the readily available acute toxicity bioassay results (since April 2001) show no exceedance of the acute toxicity effluent limitations in any of the 93 acute bioassay tests (i.e., as a single test results or as the median of three tests).

In setting toxicity monitoring frequencies, the EPA has been concerned with detecting toxic events when the toxicity occurrence rate is 10-30% (USEPA 2007 and 2004)[5,6]. With 20 sampling events, there is an 88-99% probability of detecting one toxic event when the toxicity occurrence rate is 10-30%. Thus, *"[t]he permit should establish a monitoring frequency with a permit clause that would allow a decrease in the testing frequency after at least 20 observations (e.g., 20 independent toxicity test results) are measured and are deemed not toxic (i.e., below the effluent limit or numeric monitoring triggers as specified in the permit) within a four-year*

[5] USEPA. *EPA Region 9 and 10 Toxicity Training Tool* (Sept. 2007).

[6] USEPA. *National Whole Effluent Toxicity (WET) Implementation Guidance under the NPDES Program,* Office of Wastewater Management (2004) Washington, DC. EPA 832-B-04-003.

period ... " (USEPA 2004)[2]. EPA Regions 9 and 10 state this slightly different as *"[t]he EPA recommends that the permit contain a monitoring schedule that increases or decreases in frequency depending on the results of WET testing after a least 20 test have been completed under consistent treatment operations."* (USEPA 2007)[1].

The 93 acute bioassay test results indicate a 99.99%-100.00% probability that acute toxicity is not occurring at a 10%-30% occurrence rate. Since the South Plant was commissioned in November 2004, there have been over 38 monthly acute bioassay tests performed, thus meeting the threshold of 20 test with consistent treatment performance. Furthermore, the increased monitoring frequency is not consistent with other recently adopted permits (see below):

Acute toxicity monitoring provisions in NPDES permits for wastewater treatment plants recently adopted by the Central Valley Regional Water Quality Control Board.

Wastewater Treatment Plant	ADWF (mgd)	Receiving Water	Acute Monitoring Frequency	Permit Adoption Date
City of Davis WWTP	7.5	Tributaries to Yolo Bypass	monthly	Oct-07
Yuba City WWTF	10.5	Feather River	monthly	Oct-07
City of Anderson WPCP	2	Sacramento River (Shasta Dam to Colusa Basin Drain)	quarterly	Dec-07
City of Brentwood WWTP	5	Marsh Creek	monthly	Jan-08
City of Atwater WWTF	6	Atwater Drain	quarterly	Jun-07
City of Redding Stillwater WWTF	4	Sacramento River (Shasta Dam to Colusa Basin Drain)	quarterly	Jun-07
El Dorado Irrigation District EDHWWTP	4	Carson Creek tributary to Cosumnes River	every two months	Jun-07

Thus, there is no concern for acute toxicity in the discharger's effluent that might have gone unnoticed for lack of more frequent monitoring and, furthermore, the increased monitoring frequency from monthly to weekly monitoring will not provide meaningful new information and is not consistent with other recently adopted permits.

Moreover, requiring weekly monitoring of acute toxicity significantly increases the City's permit monitoring costs.

Constituent	*Increased Frequency*	*Old Freq*	*New Freq*	*Increased Annual Costs*
Acute Toxicity	X	1/month	1/week	$7,800

Based on this information, the City requests that the frequency be changed from weekly to quarterly. At the very least, the frequency should be decreased to monthly for acute toxicity.

Acute Toxicity Test Failure (p. E-4): The requirement to "re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure" will be difficult to comply with because test organisms are often not available for testing with only 7 days notice. Instead, the City recommends that language be revised to require "re-sample and retest as soon as

possible, not to exceed 14 days following notification of test failure." This would allow adequate time to acquire and validate health of test organisms.

Chronic Toxicity Testing Monitoring Frequency (p. E-5): The Tentative Order changes the chronic toxicity monitoring frequency in the current NPDES permit from quarterly to monthly without justification or discussion in the Fact Sheet. The Tentative Order already contains a sensitive whole effluent numeric monitoring trigger, in chronic toxicity units, (>1.0 TUc) based on the no observed effect concentration ("NOEC") and has provisions for both accelerated monitoring (every 2 weeks) and the initiation of a toxicity reduction evaluation ("TRE"), as needed. Furthermore, the City has performed 12 quarterly chronic toxicity bioassays since the South Plant was commissioned in November 2004. Thus, continued quarterly monitoring will provide more than 20 sample results under consistent treatment performance before the next permit renewal as recommended by USEPA[1,2], will continue to identify toxic events should they occur, and will require both accelerated monitoring and a TRE if toxicity is persistent. More frequent monitoring for chronic toxicity is not warranted and is not consistent with other recently adopted permits.

Chronic toxicity monitoring provisions in NPDES permits for wastewater treatment plants recently adopted by the Central Valley Regional Water Quality Control Board.

Wastewater Treatment Plant	ADWF (mgd)	Receiving Water	Chronic Monitoring Frequency	Permit Adoption Date
City of Davis WWTP	7.5	Tributaries to Yolo Bypass	Quarterly	Oct-07
Yuba City WWTF	10.5	Feather River	Quarterly	Oct-07
City of Anderson WPCP	2	Sacramento River (Shasta Dam to Colusa Basin Drain)	Annually	Dec-07
City of Brentwood WWTP	5	Marsh Creek	Quarterly	Jan-08
Lodi White Slough WPCF	7.0–8.5	Sac-San Joaquin Delta	Quarterly	Sep-07
City of Atwater WWTF	6	Atwater Drain	Quarterly	Jun-07
City of Redding Stillwater WWTF	4	Sacramento River (Shasta Dam to Colusa Basin Drain)	Annually	Jun-07
El Dorado Irrigation District EDHWWTP	4	Carson Creek tributary to Cosumnes River	Quarterly	Jun-07

The Fact Sheet further fails to recognize the City's active participation in and support for the Regional Water Board's Surface Water Ambient Monitoring Program ("SWAMP") study titled: "*Transport of Pyrethroid Pesticides to the Sacramento-San Joaquin River Delta: Sources, Seasonality, and Toxicity*", which is currently in progress. The goal of this study is to assess the potential for aquatic life beneficial use impairment in the Sacramento-San Joaquin River Delta due to the occurrence and toxicity of pyrethroid pesticides. The primary objective of this Sacramento-San Joaquin River Delta assessment is to determine if pyrethroid pesticides occur at potentially toxic concentrations within the ambient waters of the Delta and tributary waterways.

For this study, which in and of itself is an increase in effluent toxicity monitoring, the City's effluent from the EWWTP is being tested for chronic toxicity using the most sensitive species,

Hyalella azteca, coupled with concurrent pyrethroid pesticides monitoring and testing of the effluent. Results from this study will identify if any pyrethroid pesticides, if detected in the effluent, may contribute effluent toxicity, and if so, whether pyrethroids are likely responsible for that toxicity.

Finally, monthly monitoring for chronic three-species toxicity would significantly increase the City's permit monitoring costs.

Constituent	*Increased Frequency*	*Old Freq*	*New Freq*	*Increased Annual Costs*
Three-species chronic tox.	X	1/quarter	1/month	$9,600

Based on the information presented here, the City requests the monitoring frequency for chronic three-species testing be changed from monthly to quarterly and the City's voluntary commitment of participation in the SWAMP study be credited.

Table E-5 Receiving Water Monitoring Requirements (p. E-8): Monitoring for fecal coliform in the receiving water should be removed because, based on total coliform effluent limitations, the discharge could not cause an exceedance of the 400 MPN/100 mL limitation.

Monitoring Location RSW-001, RSW-002, RSW-003, and RSW-004 (p. E-8): The City requests the following clarifying edit: "1. The Discharger shall monitor the receiving waters ~~Old Alamo Creek~~ at RSW-001, RSW-002, RSW-003, and RSW-004 as follows:"

Table E-6 Receiving Water Monitoring Requirements-Groundwater Wells (p. E-9): The City requests the following edits to Table E-6. Neither pH nor ammonia have objectives applicable to groundwaters, thus they should be deleted from the table. Also, the monitoring of fecal coliform organisms in lieu of total coliform organisms provides a better indicator of the potential presence of pathogens that may be a result of groundwater contamination.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	feet	Grab	Quarterly	
Groundwater Elevation[1]	feet	Grab	Quarterly	
~~pH~~	~~pH units~~	~~Grab~~	~~Quarterly~~	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Quarterly	
TDS	mg/L	Grab	Quarterly	
~~Total Coliform Organisms~~	~~MPN/100ml~~	~~Grab~~	~~Quarterly~~	
Fecal Coliform Organism	MPN/100ml	Grab	Quarterly	
Nitrate (as N)	mg/L	Grab	Quarterly	
~~Ammonia, Total (as NH_4)~~	~~mg/L~~	~~Grab~~	~~Quarterly~~	

1 Groundwater elevation shall be used to calculate the direction and gradient of groundwater flow. Elevations shall be measured to the nearest one-~~hundredth~~tenth of a foot from mean sea level. The groundwater elevation shall be measured prior to purging the wells.

Fact Sheet

Bypass (Blending) (p. F-3): The text under this heading has been deleted. The heading should also be deleted.

Compliance Summary (p. F-5): The City requests the following clarification:

> "The City of Vacaville previously accrued MMPs that were assessed by ACLC No. R5-2004-0522 and ACLC No. 5-01-0521 for violations from 1 January 2000 to 31 March 2004 in the total amount of eighty-four thousand dollars ($84,000). These cases are now closed. Most violations were for chlorine residual, settleable solids, total coliform and pH limits. Since April 2004, the City accrued similar effluent violations. Also, the influent monitoring structure had not operated for over three years in violation of the permit requirement to monitor influent flows. The influent monitoring structure, a flume, was installed as part of the recent construction project to expand the treatment plant but was not providing consistent flow measurement. The flume was modified and has been providing influent flow measurements since ~~was temporarily repaired in~~ October 2007. The City has provided documentation that these interim modifications have resulted in accurate, reliable and repeatable influent flow measurements. Further, the City has taken appropriate actions to ensure that permanent modifications will be completed by end of summer 2008."

Discharge Prohibitions (p. F-11): The word "Order" has been inadvertently deleted from the last sentence.

Assimilative Capacity/Mixing Zone (p. F-15): It appears that the information presented in the Flow Science dye study report has been misinterpreted. To clarify the Flow Science report and its findings, the following edits are required:

a. **"Assimilative Capacity/Mixing Zone.** The City completed an effluent dilution analysis, prepared by Flow Science to better assess the fate and dilution of the facility's effluent in its receiving waters. The analysis evaluated the fate and dilution of the effluent under a range of seasonal conditions. Based on results of the dilution dye study, and using the SIP's equation for calculating dilution ratios for the EWWTP discharge (i.e., long-term harmonic mean receiving water flow divided by long-term mean arithmetic effluent discharge rate), the dilution ratio is determined to be 0.62:1. ~~and protective of all scenarios, the minimum dilution available at the confluence of Old Alamo and New Alamo Creeks is 1.1 to 1.0~~. Therefore, a dilution credit of ~~1.1~~ 0.62 was used in this order when establishing effluent limitations for the protection of MUN at New Alamo Creek.

Due to periods of no flow in Old Alamo Creek upstream of the discharge, no dilution has been allowed for setting effluent limitations for protection of beneficial uses applicable to Old Alamo Creek (i.e. AGR, PRO, IND, REC-1, REC-2, WARM, WILD and NAV)."

Chlorodibromomethane (pp. F-21 – F-22): The following revisions are requested:

"The CTR includes a chlorodibromomethane criterion of 0.41 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. This compound is volatile and thus is attenuated through the Old Alamo Creek channel where the CTR criterion is not applicable, and the first downstream location where the CTR criterion is applicable is New Alamo Creek. Therefore, for the purposes of assessing reasonable potential, the MEC was determined for the monitoring location located at the terminus of Old Alamo Creek, immediately prior to its confluence with New Alamo Creek, which was 2.3~~1~~4 µg/L, based on 33~~6~~ samples. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for chlorodibromomethane in New Alamo Creek, the first downstream location where the CTR criterion is applicable."

The City also requests the following edits to the last paragraph.

"This Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final chlorodibromomethane effluent limitations. The interim effluent limitations are in effect through **17 May 2010**. As part of the compliance schedule for chlorodibromomethane, the Discharger shall develop a pollution prevention program in compliance with CWC section 13263.3(d)(3) and submit an engineering treatment feasibility study. The Discharger has demonstrated in its Infeasibility Report that additional time may be required beyond 17 May 2010 to comply with final effluent limits for chlorodibromomethane. Based on the Discharger's performance in implementing its pollution prevention plan and submittal of an engineering treatment feasibility study, the Regional Board may consider at a future date issuance of a Time Schedule Order to provide additional time to comply with final effluent limits for chlorodibromomethane."

Dichlorobromomethane (pp. F-22 – F-23): City requests the following edits:

"The CTR includes a dichlorobromomethane criterion of 0.56 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. This compound is volatile and thus is attenuated through the Old Alamo Creek channel where the

> CTR criterion is not applicable, and the first downstream location where the CTR criterion is applicable is New Alamo Creek. Therefore, for the purposes of assessing reasonable potential, the MEC was determined for the monitoring location located at the terminus of Old Alamo Creek, immediately prior to its confluence with New Alamo Creek, which was 5.943 µg/L, based on 336 samples. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dichlorobromomethane in New Alamo Creek, the first downstream location where the CTR criterion is applicable."

The City also requests the following edits to the last paragraph.

> "This Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final dichlorobromomethane effluent limitations. The interim effluent limitations are in effect through **17 May 2010**. As part of the compliance schedule for c dichlorobromomethane, the Discharger shall develop a pollution prevention program in compliance with CWC section 13263.3(d)(3) and submit an engineering treatment feasibility study. The Discharger has demonstrated in its Infeasibility Report that additional time may be required beyond 17 May 2010 to comply with final effluent limits for dichlorobromomethane. Based on the Discharger's performance in implementing its pollution prevention plan and submittal of an engineering treatment feasibility study, the Regional Board may consider at a future date issuance of a Time Schedule Order to provide additional time to comply with final effluent limits for dichlorobromomethane."

Pathogens, first paragraph (p. F-27): The Regional Water Board does not have the statutory authority to prescribe treatment, either directly or indirectly by comparison. It is limited to prescribing waste discharge requirements. Therefore, the City requests the following edit: "The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level that complies with the total coliform organism effluent limitations included in this Order ~~equivalent to that recommended by DHS~~."

Also, "DHS" should be changed to "DPH" throughout the Tentative Order.

Salinity, EC (p. F-30): To provide clarification, we recommend that the Tentative Order be revised as follows:

> "The average effluent EC was 992 µmhos/cm, with a range from 647 µmhos/cm to 1320 µmhos/cm for 1095 samples and typically exceeds the 700 µmhos/cm agricultural water quality goal, which is a screening value. ~~applicable water quality objectives for EC~~."

Salinity, TDS (p. F-32): The following edit is requested:

> "The average TDS effluent concentration was 636 mg/L and a ranged from 570 mg/L to 690 mg/L for 36 samples collected by the Discharger. The discharge exceeds the 450 mg/L agricultural water quality goal, which is a screening value. ~~These concentrations exceed the applicable water quality objectives~~."

Chloroform (p. F- 42): The City requests the following edits:

> "USEPA has reserved the National Ambient Water Quality Criteria for water and fish for chloroform and is developing ~~a~~ new ~~limitation~~ criteria. Until ~~a limitation is~~ criteria are developed specifically for chloroform, the federal MCL for total trihalomethanes (chloroform, bromoform, dichlorobromomethane and chlorodibromomethane) will be used as the basis for determining reasonable potential and WQBEL for trihalomethane in New Alamo Creek, the first downstream location where the federal MCL applies. The discharge does not have reasonable potential to cause or contribute to an exceedance of the water quality criteria for total THMs in New Alamo Creek; therefore, no limitation for total THMs is included in this Order.". ~~limit at of 133.3 167 µg/L."~~

Bromodichloromethane and Dibromochloromethane (p. F-42): The Tentative Order includes effluent limits for these two total trihalomethanes by using the terms, chlorodibromomethane and dichlorobromomethane, which are the same compounds. To ensure consistency, we recommend that the heading and the text be revised as follows.

> "**~~Bromodichloromethane and dibromochloromethane~~**
> **Chlorodibromomethane and dichlorobromomethane.** The MUN designation for Old Alamo has been removed and the City has since completed a dilution evaluation for compliance in New Alamo Creek. Based on the Discharger's dilution study, the harmonic mean ~~minimum~~ dilution determined for ~~in~~ New Alamo Creek at the confluence with Old Alamo Creek is 0.62:1~~1.1~~:1. This dilution credit has been used when calculating the new effluent limitation for ~~bromodichloromethane and dibromochloromethane~~ chlorodibromomethane and dichlorobromomethane, which has resulted in less stringent effluent limitations."

Surface Water, second paragraph (p. F-43): The following edit is required:

> "This Order includes effluent limitations that will requires Title 22 tertiary treatment or equivalent to achieve compliance, which is a high level of treatment that is considered best practicable treatment or control (BPTC) for most constituents in the wastewater and will result in attaining water quality standards applicable to the discharge."

Interim Effluent Limitations (p. F-48): The following edit is required:

> "Table 6 summarizes the calculations of the interim effluent limitations for cyanide, ~~carbon tetrachloride,~~ chlorodibromomethane, and dichlorobromomethane:"

BOD, TSS, Turbidity, and Total Coliform Organisms (p. F-48): The following edit is required:

> "The establishment of tertiary limitations was previously required for this discharge; however, … Full compliance with the final effluent limitations for BOD, TSS, total coliform, and turbidity are not required by this Order until 1 May 2015 ~~1 June 2012~~."

Groundwater, #6 and #7 (pp. F-52 – F-53): The statement "pH, which ranged 6.4-7.9 standard units in the domestic wastewater, has the ability to degrade groundwater quality at this site because there is little potential for buffering in the shallow permeable vadose zone" is unsupported by any site-specific evidence and, therefore, represents mere speculation at this time. Moreover, the Order already requires a groundwater study and thus the utility of this paragraph is questionable. As such, it should be deleted. Similarly, the statement "Ammonia has the potential to degrade groundwater quality because there is little ability for ammonia attenuation in the shallow permeable vadose zone at this site" is unsupported by any site-specific evidence and, therefore, represents mere speculation at this time. For the same reason stated above for pH, this paragraph should be deleted.

Influent Monitoring (p. F-55): The following edit is required because aluminum is not included in Table E-1, nor is it appropriate to include it in this table: "Previous required monitoring of antimony, arsenic, thallium, 4,4'-DDD, and … ~~Aluminium is added to influent monitoring because aluminium is commonly found in raw wastewater~~."

Other Special Provisions, a. (p. F-69): This Order cannot legally prescribe treatment; rather, it can only specify permit limitations. In addition, Title 22 requirements are not applicable to surface water discharges. Therefore, the following edit is required:

a. "**Effective 1 May 2015**, ~~pursuant to CDPH reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22),~~ wastewater discharged to Old Alamo Creek from 1 May through 31 October must meet the final effluent limitations for total coliform bacteria specified in this Order. ~~be oxidized, coagulated, filtered, and adequately disinfected; or equivalent~~. Special Provision VI.C.6.a requires that effluent discharges to Old Alamo Creek meet the final total coliform bacteria effluent limitations ~~requirements of Title 22, or equivalent,~~ for the protection of the REC-1, REC-2, and AGR beneficial uses."

Table F-11 (p. F-70): The following edits are requested by the City, consistent with comments made above:

Table F-11: New Permit Requirements and Compliance Schedule Restrictions

New Requirement	Compliance Schedule Restrictions	Compliance Schedules Allowed
Treated wastewater shall comply with final effluent limitations for BOD, TSS, turbidity, and total coliform organisms (Effluent Limitations IV.A.1.a., IV.A.1.e., IV.A.1.f. ~~Title 22 Tertiary Treatment, or equivalent, requirements~~ (Special Provisions VI.C.6.a.)	Basin Plan allows up to 10 years in the permit	Compliance Schedule in the permit with full compliance by 1 May 2015
~~Title 22 Tertiary Treatment, or equivalent, e~~Effluent limitations – BOD, TSS, turbidity, and total coliform organisms (Effluent Limitations IV.A.1.a., IV.A.1.e., IV.A.1.f.)	~~Basin Plan allows up to 10 years in the permit~~	~~Compliance Schedule in the permit with full compliance by 1 May 2015~~
Bypass Prohibition (Discharge Prohibitions III.B.)	Basin Plan allows up to 10 years in the permit	Compliance Schedule in the permit with full compliance by 1 May 2015
New CTR effluent limitations – cyanide, chlorodibromomethane, and dichlorobromomethane (Effluent Limitations IV.A.1.a. and IV.A.2.a.)	SIP allows up to 18 May 2010 in the permit	Compliance Schedule in the permit with full compliance by 18 May 2010, future enforcement order may be necessary to provide schedule justified by Discharger
New non-CTR effluent limitations – nitrate (Effluent Limitations IV.A.1.a. and IV.A.2.a.)	Basin Plan ~~requires immediate compliance, time schedule required in separate enforcement order~~ allows up to 10 years in the permit	~~Time Schedule Order with full compliance required by 1 May 2013~~ Compliance Schedule in the permit with full compliance by 1 May 2015

Second paragraph (p. F-71): The following edit is required:

> "This Order includes two compliance schedules, one compliance schedule for the ~~Title 22~~ disinfection requirements and the discontinuance of bypass (blending) practices, and one compliance schedule for the new CTR effluent limitations."

Summary

In closing, the City appreciates the opportunity to provide comments on the Tentative Order. However, the City must reiterate its concern with regard to the Regional Water Board's timing in issuing the Tentative Order. As expressed previously, the issuance of the City's renewed NPDES permit prior to completion of the legal processes currently underway is inefficient and premature. Because of the pending litigation, we request the Regional Water

Board refrain from any further action on the City's permit for the EWWTP. All of the above comments and recommendations are, of course, subject to the position of the City in that case. Should the Regional Water Board determine to proceed, the City requests a meeting with staff to discuss the many complex issues associated with the Tentative Order. We believe that such a discussion is necessary and warranted considering the many issues raised above.

If you have any questions with regard to these comments, please do not hesitate to call me at (707) 469-6412, or Jacqueline McCall at (707) 469-6416.

Sincerely,

David K. Tompkins, P.E.
Assistant Director of Public Works

Attachments:

1. Email from Catherine Ma (DHS-DDWEM) to Jeff Soller re: August 22nd conversation
2. Amoore & Hautala, *Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution* (1983), Journal of Applied Toxicology, Vol. 3, No. 6, p. 272

cc: Ken Landau, Central Valley Regional Water Quality Control Board