

Central Valley Regional Water Quality Control Board
30/31 May 2013 Board Meeting

Response to Written Comments on
Tentative Waste Discharge Requirements for
City of Redding
Stillwater Wastewater Treatment Plant
Shasta County

At a public hearing scheduled for 30/31 May 2013, the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) will consider adoption of tentative Waste Discharge Requirements (NPDES No. CA0082589) for the City of Redding's Stillwater Wastewater Treatment Plant. This document contains responses to written comments received from interested parties in response to the Tentative Order. Written comments from interested parties were required to be received by the Central Valley Water Board by 22 April 2013 in order to receive full consideration. Comments were received prior to the deadline from:

1. City of Redding (Discharger) (received 22 April 2013)
2. Central Valley Clean Water Association (CVCWA) (received 22 April 2013)

Written comments from the above interested parties are summarized below, followed by the response of Central Valley Water Board staff.

DISCHARGER (CITY OF REDDING) COMMENTS

DISCHARGER COMMENT #1 – Footnote removal

The Discharger requests Footnote number 2 in Table 6 (page 12) be removed as it is not applicable to the table contents.

RESPONSE:

Water Board staff agree and has amended the tentative permit by deleting Footnote 2 in Table 6 (located Section IV.A.1.a).

DISCHARGER COMMENT #2 – Total Coliform Effluent Limitation

- a. The Discharger states that the proposed permit does not provide an effluent limitation for total coliform organisms for the first 3 years of the permit. The Discharger further points out numerous locations in the permit that should reference a 30-day median limitation.
- b. In addition, the Discharger states that the new total coliform effluent limit of 23 MPN/100 mL as a 7-day median may put the City in risk of noncompliance.

However, on 2 May 2013, the Discharger submitted notification to the Water Board stating that the City “*no longer contests the inclusion of a 7-day median for effluent total coliform.*” Further, the notification states, “*the City is confident that the proposed limits for total coliform will be consistently met.*”

RESPONSE:

- a. The Discharger’s comment brought attention to an error in the tentative permit that states the final effluent limitations for total coliform organisms begin on the “first day of the fourth year following the effective date” of the Order. This statement is incorrect as the final total coliform effluent limitations are effective *immediately* (upon the adoption date or effective date of the new permit). Therefore, the statement in Section IV.1.e has been modified as follows:

- e. Total Coliform Organisms.** ~~Beginning on the first day of the fourth year following the effective date of this Order, and thereafter,~~
eEffluent total coliform organisms shall not exceed:
- i. 23 most probable number (MPN) per 100 mL, as a 7-day median; and
 - ii. 240 MPN/100 mL, more than once in any 30-day period.
 - iii. 500 MPN/100 mL, as a daily maximum.

Due to the removal of the above language, no further modifications to the permit are necessary (relating to a “30-day median limitation”), as requested by the Discharger.

- b. The existing 2007 permit has a total coliform organism effluent limitation of “23 MPN/100 mL as a 30-day median.” The proposed permit has modified the 23 MPN/100 mL limit to a *7-day median* rather than a 30-day median. This change was done to satisfy Department of Public Health recommendations, as discussed in the Fact Sheet (Section IV.C.3.xii). A review of the past effluent monitoring data for total coliform organisms indicate the Discharger should be able to maintain compliance with the new total coliform effluent limitations.

Furthermore, the Discharger is subject to Water Reclamation Requirements Order No. 98-016. The Discharger is the “Water Recycler,” producing recycled water for property owned by the Discharger and for property owned by a contracted “User” of the recycled water. Recycled water may be applied to these properties from April through October. Order No. 98-016 subjects the recycled water to a total coliform organism limitation of 23 MPN/100 mL as a *7-day median*. There is no additional treatment for the effluent being discharged as

“recycled water” (i.e. the recycled water being produced and used for irrigation is the same quality of effluent being discharged to the receiving water under the NPDES permit). The Discharger has routinely supplied recycled water under Order No. 98-016 over the past permit cycle and has maintained compliance with the 23 MPN/100 mL as a 7-day median limitation for the recycled water. Compliance history with Order No. 98-016 provides further support of the Discharger’s ability to maintain compliance with the new total coliform effluent limitation.

DISCHARGER COMMENT #3 – Effluent limitations for Diazinon and Chlorpyrifos

The Discharger states the effluent limitations for diazinon and chlorpyrifos are average monthly limitations, however, the monitoring requirement for these parameters is only required on an annual basis. The Discharger is concerned about the potential reporting and compliance determination issues related to a discrepancy between the averaging period for the monthly limitations and the frequency of the required monitoring (e.g. annual).

RESPONSE:

The diazinon and chlorpyrifos limitations are monthly limitations; therefore any sampling performed during a defined one-month period will be used in determining compliance with the monthly limitations. The Discharger may always sample more frequently if they so choose, however, the annual monitoring frequency for diazinon and chlorpyrifos has been determined appropriate given that the Discharger has not reported any detectable concentrations of these parameters during past sampling events.

DISCHARGER COMMENT #4 – Discussion of Aldrin and Alpha-BHC

The Discharger states that aldrin and alpha-BHC are discussed in the permit in a manner that suggests that there is reasonable potential and that limits are proposed. The Discharger requests that the tentative permit be revised to remove these discussions, “namely those found on Page 8 and in Attachment G.”

RESPONSE:

Water Board staff agree. References to aldrin and alpha-BHC have been removed from Finding M. on page 8 and Attachment G has been amended accordingly.

DISCHARGER COMMENT #5 – Reclamation Monitoring Requirements

The tentative permit requires daily total coliform sampling when the Discharger is supplying recycled water to users. The Discharger request that the tentative permit be

revised to maintain the current weekly total coliform monitoring requirements during periods of reclamation, as the increase in monitoring frequency will cause economic impacts that may result in the discontinuation of supplying recycled water to their contracted User for irrigation of fodder crops. The Discharger states, "Title 22 does not require daily coliform sampling of reclaimed water used for the irrigation of pasture for animals not producing milk for human consumption."

RESPONSE:

Water Board staff agree. The recycled-water monitoring program in the proposed permit has been amended to reflect a once per week monitoring frequency for total coliform organisms. The Reclamation Discharge Monitoring rationale in Fact Sheet section VI.E.4 has also been modified as follows:

Reclamation discharge monitoring for total coliform organisms is required to evaluate compliance with Water Reclamation Requirements Order No. 98-016, or its update. in accordance with chapter 3, division 4, Title 22, CCR, Section 60321.

DISCHARGER COMMENT #6 – Receiving Water Limitation A(11) Salinity

The Discharger requests the following receiving water limitation be removed from the tentative permit:

"11. Salinity. Electrical conductivity shall not exceed 230 µmhos/cm (50 percentile) or 235 µmhos/cm (90 percentile) at Knights Landing above Colusa Basin Drain, based upon previous 10 years of record."

The Discharger states that they have no way to determine compliance with this limitation and that the permit does not include a basis for this limitation.

RESPONSE:

The receiving water limitation is directly based on a water quality objective contained in the Basin Plan. The water quality objective is applicable to the reach of the Sacramento River that the Discharger discharges into. Receiving water limits are required parts of permits. The rationale for the receiving water limitation is provided in the Fact Sheet section V. The discharge contributes to the electrical conductivity of the Sacramento River. Compliance determination for the receiving water limit is based partly on the Discharger's effluent and receiving water monitoring and partly on monitoring conducted by others.

DISCHARGER COMMENT #7 – Monitoring Location RSW-001

The Discharger requests that the upstream receiving water monitoring location (RSW-001) be revised to a new location approximately 2,600 feet upstream of the discharge outfall. The current RSW-001 monitoring location is located approximately 100 feet upstream of the discharge outfall. The Discharger states that the current monitoring location poses access issues and safety concerns for sample collectors.

RESPONSE:

Water Board staff support identifying an accessible and representative upstream monitoring location that minimizes sampling hazards, however, the Discharger's proposed location does not provide for a representative sample of background receiving water quality for the discharge location.

The Discharger's outfall is located approximately 3,000 feet downstream of the City of Anderson WWTP's outfall. The Discharger proposes to monitor upstream "background" receiving water quality ½ mile upstream of the Stillwater WWTP discharge location and *outside the influence* of the City of Anderson's effluent discharge. Water Board staff disagree that the proposed sampling location will provide for representative background receiving water conditions, as the sample location inherently removes the potential impacts the Anderson WWTP's discharge may have on the receiving water upstream of the Discharger's outfall.

Furthermore, on 2 May 2013, the Discharger submitted notification to the Water Board of its willingness to withdraw its request for a revised RSW-001 location at this time and to commit to further discussion with Water Board staff regarding a more appropriate receiving water monitoring location.

DISCHARGER COMMENT #8 – Effluent and Receiving Water Characterization Study

The Discharger requests that the "discussions of the Effluent and Receiving Water Characterization Study on Page 23 and F-7 [sic] be revised to include clear reference to Attachment I."

RESPONSE:

On page 23 and F-74 the proposed permit references the reopener provision related to the "constituent study." The reopener is not related to the effluent and receiving water characterization study (i.e., "Attachment I"). Therefore, reference to the Attachment I study under the constituent study reopener is not necessary.

The constituent study parameter: “bis-2(ethylhexyl) phthalate,” has been added to the reopener language on page 23 and F-74, for clarity.

DISCHARGER COMMENT #9 – Reopener Provision for Potential Future Construction

The Discharger states that future facility improvements may affect the facility description and may affect the maximum daily flow listed on Page F-4.

The Discharger provided three examples of changes to the facility description that may affect the “facility description”: a fourth secondary clarifier, additional equalization capacity, and a mixed-liquor return system.

The Discharger requests that a reopener provision be included specifying that the permit may be reopened if modifications are made that affect the maximum daily flow or other facility treatment characteristics.

RESPONSE:

A reopener for facility upgrades is not necessary.

The maximum flow rate provided in the Facility description on page F-4 is the maximum flow rate *observed* during the past permit cycle. The effluent discharge is regulated by an average *dry weather* flow limit and not a peak or “maximum” flow that that would typically occur during wet weather conditions. Therefore, any changes to wet weather peak flow rates will not subject the Discharger to compliance issues with the permit.

The facility description is as follows:

“The treatment system at the Facility consists of influent screening for removal of large solids, activated sludge treatment with secondary clarification, filtration, and chlorination/dechlorination.”

The examples of treatment changes provided by the Discharger in Comment #9 do not affect the facility description that is provided in the proposed permit.

The proposed permit acknowledges that the facility is in the process of upgrades and provides a description of the planned upgrades in the Planned Changes section under “Facility Description” (Fact Sheet section II.E., pg. F-6). Providing the description of planned upgrades do not inherently subject the Discharger to these upgrades and further, these upgrades are not part of any compliance schedule.

DISCHARGER COMMENT #10 – Facility Description

The Discharger requests that the average daily flow rate listed on Page F-4 be revised to 4.5 MGD and the maximum daily flow rate to 14.4 MGD. The Discharger state’s “These revised flows correspond to the design capacity of the SWTP after the Phase 1A/1B improvements, as does the 3.4 MGD average dry weather flow listed on page Page F-4.”

RESPONSE:

The average dry weather flow of 3.4 MGD provided on page F-4 is a design flow. The other flow rates provided on page F-4; average daily and peak flow are observed values from the past permit cycle that were included in the Report of Waste Discharge. These two flow values are not design flow rates. In order to clarify the reported flow values, Water Board staff has added the word “observed” to the following sentence located on page F-4, as follows:

“The Facility design average dry weather flow is 3.4 MGD. The Report of Waste Discharge described observed flows during the past permit cycle as follows: annual average daily flow rate: 3.52 MGD and maximum reported daily flow: 11.39 MGD.”

DISCHARGER COMMENT #11 – Discharge Prohibitions

The Discharger requests that the following prohibition be removed from the tentative permit:

“The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system’s capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.”

The Discharger states that 40 CFR 122.41 et. seq. does not contain any such language or other language that applies to pollutant free wastewater and treatment plant operation. The Discharger also states that the State Board General Order 2006-0003 (i.e., Sanitary Sewer Overflows GO) contains “sufficient and substantial” requirements relating to the design, operation, and maintenance of the sanitary sewer system.

RESPONSE:

40 CFR 122.41 provides conditions applicable to all permits. Subsection (e) refers to “proper operation and maintenance” and includes the following:

“The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.”

The prohibition against allowing pollutant-free wastewater to cause improper operation of the Facility’s systems is necessary and relevant to the federal regulations which do require a permittee to properly operate and maintain their treatment facilities, including related appurtenances. Furthermore, the prohibition in the proposed permit does not prohibit pollutant-free wastewater from being discharged into the treatment system, rather it prohibits discharges of such wastewater that significantly diminishes the system’s capability *to comply* with the permit conditions.

CVCWA COMMENTS

CVCWA COMMENT #1 - Dilution

CVCWA recommends that the Water Board grant the City its requested mixing zones and discuss with the City the use of a trigger in the final permit.

CVCWA states that the permit “unreasonably restricts the amount of dilution granted in the derivation of numerous effluent limits.” CVCWA states that the use of projected future effluent quality as the basis for determining constituent by constituent dilution credits is inappropriate.

CVCWA also states that separate mixing zones for each constituent are inappropriate.

RESPONSE:

There are nine parameters for which the proposed permit grants dilution credits. The applicable criteria associated with these parameters fall within two categories: aquatic-life and human health. The table below provides the parameters with dilution credits and groups the parameters with the associated criteria that were used in the water quality-based effluent limitations analyses.

Aquatic-life criteria	Human Health criteria
Copper Cyanide Zinc pH	Beta-BHC Carbon Tetrachloride Chlorodibromomethane Dichlorobromomethane Nitrate

All of the parameters associated with aquatic-life criteria received the dilution credits requested by the Discharger or an even *larger* credit than what was originally requested.

However, parameters associated with human health criteria received dilution credits less than what was requested by the Discharger. Please note, the Discharger only requested dilution credits for carbon tetrachloride, chlorodibromomethane, and dichlorobromomethane. Furthermore, the Discharger is not contesting the proposed effluent limitations in the proposed permit.

Water Board staff considered the projected maximum effluent concentration and the receiving water's assimilative capacity for each individual pollutant in the determination of appropriately-sized mixing zones. The consideration of these factors is necessary to avoid allocating an unnecessarily large portion of the receiving water's assimilative capacity for each pollutant and possibly violate the Antidegradation Policy.

The Discharger requested a dilution credit of 200:1 for parameters associated with human health criteria. A human health dilution credit of 200:1 resulted in effluent limitations that far exceeded concentrations necessary for compliance. Maximum daily effluent limitations computed with a dilution credit of 200:1 exceeded maximum *observed* effluent concentrations by a range of 780% to 13,800%. Furthermore, the resulting effluent limitations allocated from 29% to 115% (not possible) of the remaining assimilative capacity, depending on the pollutant, in the receiving water. Table 1 below, provides resulting parameter-specific assimilative capacity usage values and effluent limitations as a result of a 200:1 dilution credit application. Maximum observed effluent concentrations and applicable criteria have been provided for reference, as well.

Table 1. Application of a 200:1 Human Health Dilution Credit

Parameter	Allocation of a 200:1 Dilution Credit		Facility Effluent	Criteria
	% of Remaining Assimilative Capacity Used by Discharger-proposed 200:1	Resulting Maximum Daily Limit	Maximum Observed Effluent Concentration	Human Health
Beta-BHC (µg/L)	32%	1.2	0.013	0.005

Parameter	Allocation of a 200:1 Dilution Credit		Facility Effluent	Criteria
	% of Remaining Assimilative Capacity Used by Discharger-proposed 200:1	Resulting Maximum Daily Limit	Maximum Observed Effluent Concentration	Human Health
Carbon Tetrachloride (µg/L)	115%	121	1.0	0.25
CDBM (µg/L)	43%	154	3.0	0.41
DCBM (µg/L)	35%	193	22.0	0.56
Nitrate (mg/L)	29%	3015	21.7	10

The permit proposes human health dilution credits ranging from 5:1 to 47:1. These dilution credits result in final maximum daily effluent limitations that are approximately 38% to 280% greater than observed maximum effluent concentrations. However, the proposed dilution credits result in effluent limitations that allocate less than 10% of the remaining assimilative capacity for each pollutant in the receiving water.

CVCWA states that separate mixing zones for each constituent are inappropriate. For example, CVCWA requests that the “largest” mixing zone for each criterion that has been granted in the proposed permit (e.g., acute aquatic-life, chronic aquatic-life, and human health), should be applied to all the other applicable parameters that have been granted a dilution credit/mixing zone of smaller size.

Water Board staff disagree with CVCWA’s assertion that “separate mixing zones for each constituent are inappropriate.” Dilution credits and mixing zones for each criterion in the proposed permit were analyzed on a pollutant-by-pollutant basis in accordance with Section 1.4.2.1 of the SIP, which states, “*Dilution credits may be limited or denied on a pollutant-by-pollutant basis, which may result in a dilution credit for all, some, or no priority pollutants in a discharge.*” To assign the “largest” mixing zone to all of the other parameters with the same “type of criterion” (e.g., human health criterion) fails to take into account pollutant specific information including, but not limited to, site-specific assimilative capacity information.

For example, carbon tetrachloride has been granted a 5:1 human health dilution credit. Providing a 5:1 dilution credit equates to using approximately 3.4% of the remaining assimilative capacity for carbon tetrachloride in the receiving water. The largest human health dilution credit in the proposed permit is 47:1. Using CVCWA’s approach and

applying the largest human health mixing zone/dilution credit to carbon tetrachloride (i.e. 47:1 instead of 5:1) will result in using approximately 27% of the remaining assimilative capacity for carbon tetrachloride in the receiving water.

CVCWA COMMENT #2 - Toxicity

The chronic toxicity monitoring trigger in the proposed permit is 2 TUc. CVCWA states that this trigger “does not take into account the full chronic dilution of 14:1 that would occur at the edge of a 230 foot mixing zone, but against bases the trigger on treatment plant performance. This is unnecessarily stringent.” CVCWA requests the monitoring trigger be 14 TUc. In addition, CVCWA recommends the concept of an “intermediate trigger value” (a value less than 14:1) which “could be used in the permit to address the Regional Board’s concern that effluent quality will be allowed to deteriorate unchecked.”

RESPONSE:

Water Board staff does not concur. The Discharger’s whole effluent toxicity testing on the discharge did not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative toxicity objective and therefore a mixing zone/dilution credit for chronic toxicity at 14:1 is not necessary. Furthermore, the receiving water is on the 303(d) list for unknown toxicity, with a scheduled TMDL completion date of 2019.

The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and potentially initiate a TRE when the effluent exhibits toxicity. The purpose of accelerated monitoring is to quickly determine whether there is a pattern of toxicity before requiring the implementation of a TRE as it may not be appropriate to require a discharger to initiate a TRE if the initial toxic sample was a result of a one-time event that is not recurring.

The proposed permit contains a numeric toxicity monitor trigger of >2 TUc. Therefore, accelerated monitoring would be triggered when testing exhibits toxicity at less than 50% effluent. Water Board staff have determined this trigger to be appropriate.

CVCWA COMMENT #3 – BOD₅ and TSS Limitations

The proposed permit includes final effluent limitations for BOD₅ and TSS that are the same as the 2007 permit. CVCWA states, “*The Tentative Order proposes to depart dramatically from the previous reasons and explanations for including the final effluent limitations for BOD and TSS (see pp. F-48). Rather than relying on the previous reasons, which CVCWA believes have not changed, the Tentative Order includes statements that allege that the BOD and TSS limits in the permit are necessary to ensure compliance with antidegradation policies. The reference to compliance with antidegradation policies here is unexplained and unsupported. Accordingly, CVCWA*

recommends that the Tentative Order be revised to mirror Order No. R5-2007-0058 with respect to the limits for BOD and TSS."

RESPONSE

In response to CVCWA's comment, Water Board staff has amended the tentative permit (Fact Sheet section IV. C.3.d.iii(c)), as follows:

Consequently, this Order includes ~~contains~~ effluent limits for BOD₅ and TSS based on that reflect the technical capability of the advanced-secondary (or tertiary) filtration process, protect the beneficial uses of the receiving water, and minimize degradation. ~~to ensure compliance with the Antidegradation Policy, which states, "Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."~~

Other Central Valley Water Board Modifications to Tentative Permit

In addition to the modifications discussed above, Water Board staff has made the following additional modifications to the tentative permit:

1. Page 5, Finding II.G. Replaced reference to "tertiary treatment" with "advanced-secondary treatment."
2. Page 5, Table 5 and page F-16, Table F-4. Removed the following language:

Suitable uses from State Water Board Resolution No. 88-63:
Municipal and domestic supply (MUN).

3. Page F-38, Table F-12. Fact Sheet section IV.C.2.e.ii:

The ECA CTR acute zinc value has been corrected from 1065 µg/L to 606.2 µg/L. The ECA CTR chronic zinc value has also been changed from 1065 µg/L to 145.5 µg/L.

In addition, the following footnotes have been added to Table F-12:

¹ Copper dilution credit (D) granted. $D_{acute/BPO} = 10:1 @ \text{Hardness} = 43.1 \text{ mg/L}$, $D_{chronic} = 14:1 @ \text{Hardness} = 42.3 \text{ mg/L}$

² Zinc (D) granted. $D_{\text{acute/BPO}}=10:1@ \text{hardness}=43.1 \text{ mg/L}$, $D_{\text{chronic}}=1:1@ \text{Hardness}=57.3 \text{ mg/L}$

4. Page F-75, Fact Sheet section VII.B.2.a.:

Monitoring Trigger. A numeric toxicity monitoring trigger of > 2 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does allow dilution for the chronic condition. Therefore, accelerated monitoring and requirements for a TRE initiation ~~is~~ are triggered when the effluent exhibits toxicity at less than 50% effluent.

5. Attachment G:

Correction to background dissolved copper concentration. Value was listed as 2.96 $\mu\text{g/L}$, correct value is 2.69 $\mu\text{g/L}$.