

Central Valley Regional Water Quality Control Board  
2/3 February 2012 Board Meeting

Response to Comments for the City of Hughson  
Wastewater Treatment Facility  
Tentative Waste Discharge Requirements

---

The following are Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) staff responses to comments submitted by interested parties regarding the tentative Waste Discharge Requirements (WDRs) for the City of Hughson Wastewater Treatment Facility (WWTF). Comments were required to be submitted to the Central Valley Water Board by 5:00 p.m. on 16 December 2011. Comments were received from the City of Hughson (Discharger), Central Valley Clean Water Association (CVCWA), and Jo Anne Kipps (a private citizen) within the comment period. The comments were accepted into the record. The comments are summarized below and followed by staff's response, except where staff concurred with the comment and revised the tentative WDRs. The full text of all comment letters are provided in the agenda package.

---

**CITY OF HUGHSON's COMMENTS**

---

The Discharger requested a few minor revisions to clarify the Findings, Provisions and Information Sheet of the proposed WDRs. The requested revisions were made.

---

**CVCWA's COMMENTS**

---

**CVCWA Comment No. 1:** Using both Title 27 exemptions, Section 20090(a) and Section 20090(b), for the rapid infiltration ponds is unclear and unnecessary. The rapid disposal ponds should be exempt from Title 27 under the unconditional sewage exemption only (i.e., Title 27, Section 20090(a)). Supporting evidence is given using specific language from Title 27, Section 20090(a) and referencing the State Water Resource's Control Board's adoption of Order WQ 2009-0005 for the City of Lodi.

**RESPONSE:** Staff and the commenter both agree that the facility's disposal ponds are exempt from the requirements of California Code of Regulations, title 27 ("Title 27"). The Title 27 regulations ensure water quality protection by prescribing stringent waste containment standards. A disposal pond, which is designed to dispose of water by allowing it to percolate, is a bad fit for Title 27, and the regulations recognize this. Nonetheless, the commenter disagrees with the application of the Title 27 exemptions, which merits further explanation.

The exemptions cited as applicable in the Finding are the sewage exemption, found at Title 27, section 20090(a), and the wastewater exemption, found at Title 27, section 20090(b). As the commenter points out, the sewage exemption actually contains two distinct exemptions. Part 1 of the sewage exemption is the "conditional" part of the exemption; for it to apply, the discharge of sewage must be regulated by Board-issued WDRs (or a waiver program), and the discharge

---

**must comply with water quality objectives. This exemption is basically the same as the wastewater exemption found at Title 27, section 20090(b). Part 2 of the sewage exemption, however, “unconditionally” exempts “treatment or storage facilities associated with municipal wastewater treatment plants” from the Title 27 requirements.**

**The commenter states that the disposal pond should be considered both a “storage” facility, because water above the floor of the pond can be considered to be in temporary storage (before it percolates through the floor of the pond), and a “treatment” facility, because the discharged waste is, in a manner of speaking, treated in the first few inches of soil that underlie the pond. According to the commenter, this means that, “the City has no duty to demonstrate compliance with the basin plan or water quality objectives as a condition of the disposal ponds being exempt from Title 27.” However, under the Commenter’s logic, the disposal ponds are actually doing three things: holding water for storage before the water percolates down, treating the water as it passes through the upper layers of the soil, and, critically, disposing of fully-treated effluent after the upper layers of the soil have provided some degree of treatment.**

**Regarding the first two functions of the disposal ponds, the commenter is correct: the unconditional exemption applies. However, the commenter ignores the third, and arguably most important, function of the disposal ponds: they dispose treated effluent. The focus of staff’s analysis is not on the water in the pond itself (“storage”) nor is it on the water in the upper few inches of the soil (which could possibly be considered a “treatment facility”); it is on the water after it has emanated through the bottom of the pond and after it has been fully treated, including whatever treatment the upper few inches of soil provides. In order for the Board to find that the Title 27 exemption applies to the disposal of the treated effluent, the Board must determine whether the discharges from the ponds will be consistent with the applicable water quality objectives contained in the Basin Plan. The “conditional” sewage exemption applies here, not the “unconditional” sewage exemption. Therefore, no revisions were made to address the comment.**

---

## **JO ANNE KIPPS’ COMMENTS**

---

**Comment No. 2:** Revise Finding 26 to include effluent data for chloride, sodium, and total trihalomethanes (THMs). Additionally, revise Finding 34 to include groundwater data for total organic carbon (TOC). It is difficult to evaluate the discharge’s influence on groundwater without data on effluent chloride and sodium concentrations and without data on groundwater TOC concentrations.

**RESPONSE:** The effluent has not been monitored for chloride, sodium, and THMs, so data are not available. However, Finding 19 acknowledges that the effluent previously contained THMs as a consequence of chlorine disinfection. No revisions were made to address this comment.

The groundwater data for TOC are presented in the table below for reference. The TOC concentration in the background groundwater monitoring well is greater than the concentration in downgradient monitoring wells, which shows that the discharge has not degraded groundwater quality with respect to TOC. The concentration of TOC in downgradient wells is not considered to be a threat to groundwater quality. Any reducing conditions as a result of the discharge would be minimal and localized. Therefore, the TOC groundwater monitoring data are extraneous and were not added to the proposed WDRs.

MW	TOC (mg/L)	
	Avg. <sup>1</sup>	Range
10	3.5	ND – 14
2	3.0	1.8 – 6.5
4	1.7	1.2 – 2.3
5	1.7	ND – 2.7
6	1.6	ND – 2.3
7	1.2	ND – 3.5
8	1.6	1.0 – 5.4
9	0.9	ND – 1.6
11	1.8	ND – 4.4
12	0.8	0.7 – 1.0
13	0.6	ND – 0.9

**Comment No. 3:** Finding 35 indicates that MW-10 is representative of background groundwater quality but lacks technical information to support this conclusion.

**RESPONSE:** See response to Comment No. 9.

**Comment No. 4:** Revise Finding [3]6 to indicate that the discharge has degraded groundwater with respect to THMs, caused nitrate in groundwater to exceed the water quality objective of 10 mg/L, and possibly degraded groundwater with constituents of emerging concern. Finding 36 states that it appears no degradation of groundwater quality is occurring as a result of the discharge. However, this contradicts groundwater data for THMs and nitrate provided in Finding 34. Additionally, Finding 26 indicates that the City of Hughson's water source has a detectable concentration of THMs that

threaten to degrade groundwater quality even if the Discharger ceases chlorination of the effluent.

**RESPONSE:** Finding 36 was revised to clarify that the discharge has degraded groundwater with respect to THMs but is not expected to continue to degrade groundwater quality because chlorine disinfection of the effluent has ceased. No other changes were made to address this comment.

Residual THMs from the source water are not likely to cause degradation of groundwater. The major use of potable water includes heating and aeration by means of a water heater and use in showers, faucets, and washing machines; this effectively strips THMs from the influent. Additional volatilization of THMs would occur in gravity sewers. If residual THMs are present in the influent, the newly constructed oxidation ditch is expected to provide sufficient treatment (e.g., stripping THMs in the oxidation zone) to remove remaining THMs from the effluent.

The groundwater data in Finding 34 show that nitrate in the background monitoring well exceeds the water quality objective of 10 mg/L. Since downgradient monitoring wells have an average nitrate concentration less than background, the discharge is not degrading groundwater with respect to nitrate.

It is uncertain whether the discharge has degraded groundwater with constituents of emerging concern (CEC), as these constituents have not been characterized in groundwater or the effluent. Requiring the Discharger to characterize CECs in the effluent and groundwater would impose extensive costs to evaluate constituents without developed groundwater water quality objectives. As described in the U.S. Geological Survey Scientific Investigations Report 2006-5240 (an evaluation of CECs in domestic wastewater treatment effluent), conventional wastewater treatment processes succeed in reducing constituent concentrations for many emerging contaminants. The Discharger recently undertook substantial cost to construct a new treatment plant. If groundwater was degraded by CECs during the operation of the previous WWTP, the new WWTP is expected to provide adequate treatment to reduce CEC concentrations. CECs and THMs previously degrading groundwater would likely attenuate through dispersion and advection, and there is no indication that CECs are impacting any beneficial use.

**Comment No. 6:** The Order should require the Discharger to install an additional background groundwater monitoring well and Finding 36 should be revised to indicate the discharge threatens to degrade groundwater with TDS, chloride and sodium.

**RESPONSE:** See response to Comment No. 9.

**Comment No. 7:** Revise one of the Findings 46 through 51 to indicate whether the Discharger performed the antidegradation analysis and whether the analysis was adequate.

**RESPONSE:** Central Valley Water Board staff completed the antidegradation analysis based on data and analysis provided in the RWD. Resolution 68-16 does not specify who is required to complete the antidegradation analysis; therefore, this information was considered extraneous and not included in the tentative Order. No revisions were made to address this comment.

**Comment No. 8:** Revise Finding 48 to identify the sources of historical groundwater data that were checked to rule out the existence of groundwater data prior to 2001, when the Discharger first started monitoring groundwater quality.

**RESPONSE:** Staff investigated readily available sources in an attempt to determine shallow groundwater quality prior to 1968. Sources reported data from wells that have a deep screen for production purposes. Samples from wells with deep screens characterize the average concentration of constituents over the depth of the well, effectively diluting higher concentrations in stratified zones, and are unlikely to represent first groundwater. For reference, the U.S.G.S. "STORET" database provided six wells within 3.5 miles of the facility. Each well was sampled in July 1966 and was reported to contain TDS concentrations that range from 252 mg/L to 902 mg/L. The well with the highest TDS concentration was located approximately 2,500 feet from the wastewater treatment facility. While this data may not represent first groundwater, the data indicates that an elevated TDS concentration exists in groundwater near the vicinity of the discharge. No revisions were made to address this comment.

**Comment No. 9:** Staff should (a) re-evaluate the reliance on MW-10 to characterize background groundwater quality; (b) use data from MW-9, MW-12, and MW-13 prior to initiation of discharge to Ponds 1W and 2W to characterize background groundwater quality; and (c) propose effluent limits for TDS, chloride and, sodium. Groundwater passing through monitoring wells MW-9, MW-12, and MW-13 has lower concentrations of TDS, chloride, and sodium compared to groundwater passing through MW-10.

**RESPONSE:** Finding 35 was revised to explain that the Discharger constructed MW-10 to replace MW-8, which was the original background groundwater monitoring well and located directly within the influence of the discharge. Monitoring well MW-10 was added to the monitoring network in December 2005. The location of MW-10 was chosen based on review of California Department of

---

**Water Resources groundwater maps, which were used to determine the historic upgradient direction of groundwater. A monitoring well located further upgradient than MW-10 would not likely provide a good representation of background groundwater quality. No other revisions were made to address this comment.**

**As stated in the response to Comment No. 8, available groundwater data as early as July 1966 shows that regional groundwater typically has an elevated concentration of TDS. Therefore, the location of MW-10 and the data obtained from MW-10 is considered to be representative of background groundwater quality as described in the proposed WDRs.**

**As stated in Finding 36, groundwater monitoring data indicates that groundwater quality downgradient of the facility is better than background groundwater quality with respect to TDS, sodium, and chloride. This is likely a result of the diluting effect from the effluent discharge. Because the discharge is not expected to be a threat to groundwater quality with respect to TDS, sodium, and chloride, effluent limits are not required. Compliance with the Basin Plan will be determined based on groundwater monitoring.**

**Comment No. 10:** The Order should include an effluent limit for nitrate-nitrogen of 10mg/L or, alternatively, BOD limitations for BOD of 10 mg/L and 15 mg/L to ensure that nitrate-nitrogen concentrations will be less than 10 mg/L.

**RESPONSE:** The effluent data in Finding 26 shows that the discharge has historically contained less than 8 mg/L nitrate-nitrogen. The newly constructed treatment plant is expected to provide the same or better treatment. Additionally, groundwater data in Finding 34 shows that, on average, the groundwater quality has not exceeded background groundwater quality or the water quality objective for nitrate. Because the discharge is not expected to be a threat to groundwater quality with respect to nitrate, an effluent limit is not required. Compliance with the Basin Plan will be determined based on groundwater monitoring. No revisions were made to address this comment.

**Comment No. 11:** Revise Finding 63 to classify the Discharger as a 2-A as opposed to 3-B. The undisinfected effluent poses a threat to the beneficial uses of groundwater by causing short-term violations of the total coliform organism water quality objective. Additionally, the discharge threatens to cause short-term violations of the toxicity water quality objective due to the THMs in the source water.

**RESPONSE:** After further review, Finding 63 was revised to show that the discharge is classified as 2-B. Staff agrees that the undisinfected effluent poses

a threat to the total coliform organism water quality objective. Therefore, the discharge meets the requirements for a Category 2 Threat to Water Quality. However, as indicated in the response to Comment No. 4, THMs from the source water are not a threat to the toxicity water quality objective for groundwater and the discharge does not meet the requirements of Category A Complexity as a toxic waste. Groundwater monitoring alone does not elevate the complexity to level A.

**Comment No. 12:** Revise Finding 67 [sic] to restrict the use of Title 27 statistical methods to waste constituents not naturally present in groundwater (e.g., total THMs). Title 27 is a regulatory program for discharges that must be contained and not release waste constituents to groundwater. Because of its “no discharge” requirement, Title 27 requires the use of statistical methods that serve to detect whether a release has occurred. Many waste constituents in the discharge are present naturally in groundwater and the use of Title 27 statistical methods tend to result in background concentrations that can be several orders of magnitude higher than average values. Orders that specify the use of Title 27 statistical methods for evaluating compliance are essentially licenses to pollute and are not compliant with the Basin Plan.

**RESPONSE:** The general approach for compliance determination set forth in Title 27, section 20415(e) is flexible enough to deal with both man-made and naturally occurring constituents in groundwater. The commenter correctly notes that the first goal in Title 27 is to detect releases from regulated landfills, etc.; whereas “releases” of waste constituents to groundwater are inherently ongoing for many land discharges that are exempt from Title 27. However, the requirements of Title 27, section 20415(e) also make the distinction between detection monitoring (used to determine whether there has been a release) and compliance monitoring (used to determine if an enforceable standard has been violated). Use of these principles to develop a detailed method for determining compliance with Groundwater Limitations in WDRs for other programs need not constitute a “license to pollute”. Title 27 is also cited because it requires the Discharger to propose statistical methods that meet certain performance standards. Specifically, Title 27, section 20415(e) contains the following reasonable and appropriate requirements:

*(7) Propose Data Analysis Method(s) -Based on data collected pursuant to ¶(e)(6), the discharger shall implement data analysis methods allowed in ¶(e)(8) for ... each Monitoring Parameter... The specifications for each data analysis method shall include a detailed description of the criteria to be used for determining “measurably significant” ... evidence of any release... and for determining compliance with the Water Standard [emphasis added]. Each statistical test specified for a particular COC or Monitoring Parameter*

shall be conducted for that COC or Monitoring Parameter at each Monitoring Point... The discharger shall:

...

***(B) submit to the RWQCB, before implementing the selected methods, a comprehensive technical report, certified by an appropriately registered professional, documenting that use of the proposed data analysis methods will comply with the performance standards outlined in ¶(e)(9, 10, & 12)...***

***(C) use any water quality data analysis software the SWRCB or RWQCB deems appropriate for such use, provided that the manner of such use is consistent with the manner of usage the SWRCB or RWQCB has deemed appropriate (without the need for additional substantiation), for that software, and further provided that the discharger notifies the RWQCB before initiating such use.***

***(10) Background Values/Procedures -...the discharger shall justify the use of a procedure for determining a background value for each COC and for each Monitoring Parameter specified in the WDRs...***

Additional support for the requirement to use statistics to assess groundwater quality and groundwater quality impacts is found in the U.S. EPA's Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities<sup>1</sup>, which states:

***Compliance monitoring typically involves a comparison of downgradient well data to a groundwater protection standard [GWPS], which may be a limit derived from background or a fixed concentration limit (such as in 40 CFR 264.94 Table 1, an MCL, a risk-based limit, an alternate concentration limit, or a defined clean-up standard under corrective action). The key statistical procedure is the confidence interval, and several confidence interval tests (mean, median, or upper percentile) may be appropriate for compliance evaluation depending on the circumstances. The choice depends on the distribution of the data, frequency of nondetects, the type of standard being compared, and whether or not the data exhibit a significant trend...***

***Since some programs will also utilize background [groundwater quality] as standards for compliance..., those tests and discussions under Part III detection monitoring (including statistical design in Part I) may pertain in identifying the appropriate standards and tests.***

---

<sup>1</sup> U.S. EPA Publication No. EPA 530/R-09-007, March 2009.

**No revisions were made to address this comment.**

**Comment No. 13:** Eliminate Groundwater Limitation E.1 and replace with a suite of numerical limitations for waste constituents that reflect the Discharger's implementation of best practicable treatment and control. Without such numerical limits, the Order is essentially unenforceable except for its "no pollution" requirement in Discharge Specification B.2.

**RESPONSE:** It is not necessary to specify numeric groundwater limits in the WDRs in order to ensure compliance with the Basin Plan. The Groundwater Limitations of the proposed WDRs state:

*Release of waste constituents from any portion of the WWTF shall not cause groundwater to:*

- 1. Contain waste constituents in concentrations statistically greater than background groundwater quality. Compliance with this limitation shall be determined annually based on comparison of background groundwater quality using historical MW-10 monitoring data and downgradient monitoring well data, using approved statistical methods.*
- 2. Exceed a total coliform organism level of 2.2 MPN/100mL.*
- 3. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.*
- 4. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.*

It is reasonable to require that the Discharger complete the work required to determine background groundwater quality and propose an appropriate method to determine compliance with the Groundwater Limitations. Provision F.1.a of the proposed WDRs requires that the Discharger submit a Groundwater Limitations Compliance Assessment Plan and states:

*The plan shall describe and justify the statistical methods used to propose groundwater concentration limits for the constituents listed in the Monitoring and Reporting Program. Compliance shall be determined annually based on an interwell statistical analysis that uses methods prescribed in Title 27, Section 20415(e)(10) to compare monitoring data collected at each down gradient well to background groundwater quality as measured in MW-10.*

**This plan is subject to review and approval by the Executive Officer. No revisions were made to address this comment.**

**Comment No. 14:** The tentative WDRs should require the Discharger to install an additional upgradient groundwater monitoring well to obtain additional data to characterize background quality.

**RESPONSE:** See response to Comment No. 9.

**Comment No. 15:** Revise Provision F.8 with wording that does not imply that enforcement can be taken against the Discharger for implementing best practicable treatment and control that is not cost-effective.

**RESPONSE:** Extremely expensive control measures may not be considered “practicable,” so the use of cost-effective is somewhat redundant here. However, it is important to note that the Board considers the implementation of cost-effective control techniques to be in the best interest of the Discharger, the populace that pays the service fees for wastewater treatment, and the people of the state. The Provision is not intended to result in enforcement if the Discharger implements measures that are not cost-effective; but to indicate that no enforcement will be taken if the Discharger has implemented all practicable measures. No revisions were made to address this comment.

**Comment No. 16.1:** The MRP should require 24-hour composite monitoring of influent and effluent BOD. Grab sampling of influent and effluent does not reflect implementation of best practicable control.

**RESPONSE:** It is known that influent BOD will vary with the time of day. However, because of the retention time in the treatment system, effluent BOD is not expected to have significant hourly variation. Grab samples have historically been appropriate for this type of discharge. Additionally, sampling is a means of monitoring and not a treatment or control practice. No revisions were made to address this comment.

**Comment No. 16.2:** The MRP should require groundwater monitoring to include total organic carbon (TOC).

**RESPONSE:** See response to Comment No. 2. No revisions were made to address this comment.

**Comment No. 16.3:** The MRP should require quarterly groundwater monitoring as opposed to semi-annual groundwater monitoring.

**RESPONSE:** The Discharger has provided necessary data to establish a baseline of groundwater quality over the past eleven years. Semi-annual monitoring is sufficient to detect a significant change in groundwater quality resulting from the discharge and not temporal changes within the aquifer. No revisions were made to address this comment.