Regional Water Quality Control Board
Central Valley Region
Board Meeting – 11-12 April 2013

Response to Written Comments for City of Tulare, Wastewater Treatment Facility, Tentative Waste Discharge Requirements And Master Recycling Permit

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At a public hearing scheduled for 11 and 12 April 2013, the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board), will consider adoption of Waste Discharge Requirements (WDRs) and a Master Recycling Permit for discharges from the City of Tulare (City) Wastewater Treatment Facility (WWTF). This document contains responses to written comments received from interested parties regarding the tentative WDRs and Master Recycling Permit initially circulated on 28 January 2013. Written comments from interested parties were required by public notice to be received by the Central Valley Water Board by 28 February 2013 to receive full consideration. Comments were received from the City, the Central Valley Clean Water Association (CVCWA), and Jo Anne Kipps.

Written comments from the above interested parties are summarized below, followed by the responses of Central Valley Water Board staff. Based on the comments, Central Valley Water Board staff did make some changes to the tentative WDRs and Master Recycling Permit. Central Valley Water Board staff also made some changes to correct typographical errors and to improve clarity.

CITY OF TULARE (CITY) COMMENTS

Via email on 26 February 2013, the City submitted a letter with comments on the tentative WDRs and Master Recycling Permit.

City Comment No. 1: Append the following to Finding 9, page 2: "The design firm responsible for the existing 6-mgd design, Carollo Engineers, Inc., asserts that the nitrogen removal in the winter months is related to the mixed liquor suspended solids concentration (MLSS). The MLSS was 102% and 108% of the annual average MLSS. Data for December 2012 and January 2013 show the domestic effluent TN to be below 10 mg/L with the MLSS increased to 113% and 112% of the annual average to compensate for the colder weather. Therefore, an increase in the MLSS to above 112% of the annual average would keep the plant below 10 mg/L TN. Increasing the MLSS in cold months is a common practice at activated sludge plants."

RESPONSE: The requested changes have been made.

City Comment No. 2: The last two sentences of Finding 60 do not correctly summarize the significant industrial users (SIUs) discharging to the industrial and domestic wastewater treatment plants. Change the sentences to read: "The SIUs connected to the Industrial Plant that are not dairy processors include Ruiz Food Service (food processing) and a food transportation company with truck washout operations. Four SIUs discharge to the Domestic Plant, including food transportation companies with truck washout operations, and Corpak, Inc. (cardboard manufacturing)."

RESPONSE: The requested changes have been made.

City Comment No. 3: Change pH monitoring type in the proposed Monitoring and Reporting Program (MRP) from "Meter" to "Grab."

RESPONSE: The requested changes have been made.

City Comment No. 4: There is currently no commingled effluent flow meter. Installation of a new effluent flow meter would not provide added value. Effluent flow does not significantly differ from the influent flow to the WWTF and the City monitors flow delivered to each farmer receiving effluent. Eliminate the commingled effluent flow metering requirement from the MRP.

RESPONSE: The requested changes have been made. Commingled effluent flow monitoring was changed to a calculated value rather than a metered value.

City Comment No. 5: Remove the requirement for fixed dissolved solids (FDS) monitoring from the MRP. Total dissolved solids (TDS) is more appropriate because WWTF effluent is well oxidized with low organic content.

RESPONSE: The requested changes have been made.

City Comment No. 6: Alter Use Area Monitoring requirements to clarify that Use Areas not receiving waste need not be inspected on a weekly basis.

RESPONSE: The requested changes have been made.

City Comment No. 7: The City has been monitoring the current groundwater monitoring well network for 10 to 15 years (40 to 60 quarters). The current groundwater monitoring cost is $112,000 per year. Change quarterly groundwater monitoring frequency to semi-annual. Quarterly monitoring of newly installed groundwater monitoring wells for three years (12 quarters) is acceptable as proposed.

RESPONSE: The requested changes have been made. The record shows more than 12 quarters of monitoring data for most existing groundwater monitoring wells.

City Comment No. 8: The proposed Use Area Reporting requirements include estimates of fixed dissolved solids (FDS) uptake by crops. FDS is more appropriate for food processors and dairies. Given low effluent electrical conductivity and biochemical oxygen demand, FDS monitoring and reporting is not appropriate. Remove FDS uptake reporting from Item 1 of the Use Area Reporting requirements.

RESPONSE: FDS has been removed, as requested, and replaced with TDS. The proposed requirement to estimate FDS uptake rates is intended to provide valuable salt balance information. As noted in City Comment No. 5 above, effluent FDS is not expected to be considerably different than effluent TDS, as volatile dissolved solids will be minimal.

City Comment No. 9: Due to low organic loading rates, monitoring and reporting BOD loading rates is unnecessary. Remove organic loading rate reporting (Item 4) from the Use Area Reporting requirements in the MRP.

RESPONSE: The requested changes have been made.

City Comment No. 10: Due to low organic loading rates, monitoring and reporting FDS loading rates is unnecessary. Remove FDS loading rate reporting (Item 6) from the Use Area Reporting requirements in the MRP.

> **RESPONSE:** The proposed Use Area monitoring and reporting requirements have been changed as requested to remove the requirement to monitor and report FDS loading to Use Areas. TDS loading is now required instead. TDS loading is valuable information for salinity management.

CENTRAL VALLEY CLEAN WATER ASSOCIATION (CVCWA) COMMENTS

Via email on 28 February 2013, CVCWA submitted a letter with comments on the tentative WDRs and Master Recycling Permit.

CVCWA Comment No. 1: The tentative WDRs proposes an effluent limit for total nitrogen of 13 mg/L based on a presumed level of attenuation of nitrogen that will result in a groundwater nitrate concentration of no more than 10 mg/L as N. Modify the WDRs to authorize discharge at the proposed effluent limit for total nitrogen of 13 mg/L or at a higher limit, in accordance with what the City can demonstrate would be adequate to maintain groundwater nitrate at 10 mg/L as N or lower.

> **RESPONSE:** The requested changes have not been made. Should the Discharger provide information demonstrating a different limit is appropriate, the order could be reopened to consider the new information and new numerical limit.

CVCWA Comment No. 2: Extend the time frame for the sodium groundwater limit of 69 mg/L by three years, from April 2018 to April 2021, to reflect the timelines of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).

> **RESPONSE:** The requested changes have been made.

CVCWA Comment No. 3: Include language in Provision I.20 recognizing the expense associated with construction of groundwater monitoring wells, specifically: "The Regional Board recognizes the expense associated with monitoring well construction and will work with the City to optimize well location and construction to yield a cost-effective network configuration."

> **RESPONSE:** The requested changes have not been made. The Central Valley Water Board recognizes the expense associated with the installation of groundwater monitoring wells, and must ensure that this expense bears a reasonable relationship with the Board's need for the groundwater monitoring reports. (Wat. Code, § 13267.) In this case, the City's groundwater monitoring well network is inadequate. Central Valley Water Board staff will work with the City to identify groundwater monitoring needs to minimize costs.

JO ANNE KIPPS COMMENTS

Via email on 28 February 2013, Jo Anne Kipps submitted a letter with comments on the tentative WDRs and Master Recycling Permit.

Ms. Kipps Comment No. 1: Revise Finding 6 to identify the number of acres dedicated to drying Domestic Plant sludge.

> **RESPONSE:** The requested changes have been made to Finding 67, rather than to Finding 6.

Ms. Kipps Comment No. 2: The tentative WDRs does not describe the five aerated basins in the Industrial Plant in detail or in consistent terms throughout (including Finding 20 and Attachment D). Describe Industrial Plant components in sufficient detail to demonstrate that they are constructed in a manner that minimizes leachate formation and precludes the infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations.

> **RESPONSE:** The requested changes have been made. Attachment D now identifies the aerated equalization basins of the Industrial Plant consistent with the tentative WDRs. Finding 94(d) was revised to clarify further that the aerated equalization basins are lined with concrete (shotcrete).

Ms. Kipps Comment No. 3: Staff was reluctant to accept the City's argument that sludge drying in soil cement lined beds will not exacerbate an existing condition of groundwater pollution. Revise Finding 65 to Identify the date and form (written or verbal) of staff's provisional acceptance that soil cement "may be considered an acceptable technology to line remote sludge drying beds."

> **RESPONSE:** The requested changes have been made. The provisional acceptance of the premise that soil cement liners may be used successfully in some cases for sludge drying bed construction is described in an Executive Officer's report from September 2003. In a 24 July 2003 meeting with the City of Tulare, Central Valley Water Board staff verbally agreed that if the anecdotal evidence presented in the white paper (mentioned in Finding 65 of the tentative WDRs) is representative, there should be little or no leakage of leachate from sludge drying beds equipped with properly designed and maintained soil cement liners.

Ms. Kipps Comment No. 4: Finding 67 describes the City's construction of the Domestic Plant's sludge drying beds, but does not describe the City's demonstration sludge drying bed, which was constructed with a leachate collection and recovery system. Describe the demonstration sludge drying bed and how the City did not operate the demonstration bed as intended (i.e., to collect data to demonstrate to the Board that soil cement lined sludge drying beds reflect best practicable control in this discharge situation).

> **RESPONSE:** Finding 67 of the tentative WDRs has been changed to include a description of the City's double-lined, demonstration sludge drying bed. Finding 69 describes how the City diverted sludge into the Fermenter for the period of 2006 through 2012, rather than use the soil cement sludge drying beds over that period.

Ms. Kipps Comment No. 5: Revise Finding 68 to clarify which sludge beds were significantly weathered (Domestic, Industrial, or both) upon inspection and identify the constructed depth of the soil cement liner in all sludge drying beds.

> **RESPONSE:** Finding 67 has been revised to include the constructed thickness of the soil cement liner of 14 inches. Finding 68 has been revised to clarify that the sludge beds found to be significantly weathered upon inspection were randomly selected beds from both the Domestic and Industrial sludge drying beds, the state of which appeared to be representative of all the soil cement lined sludge drying beds at the WWTF.

Ms. Kipps Comment No. 6: Finding 66 states, "Key conditions of acceptance of soil cement lined sludge drying beds include: comprehensive design criteria, stringent construction quality assurance and quality control, periodic maintenance, and effective monitoring of containment integrity. Municipalities are expected to discontinue use of the soil cement lined beds, implement an alternative method of sludge drying, and implement groundwater remediation measures if they cannot demonstrate containment is sufficiently protective of groundwater." Revise Provision I.21 to require the City to submit a written report for staff review and concurrence describing a proposed work plan for the sludge drying bed assessment at least 90 days prior to the assessment report deadline of 29 October 2013.

> **RESPONSE:** The requested changes have not been made. However, Provision I.21 has been revised to include specific requirements for the sludge drying bed assessment. These specific requirements are designed to result in an assessment that fulfills our information needs and makes the proposed requirement for preparation of a work plan unnecessary.

Ms. Kipps Comment No. 7: Include the suite of 40 Code of Federal Regulations (40 CFR) part 503 metals in the waste constituents to be included in the sludge drying bed assessment.

> **RESPONSE:** The requested changes have been made.

Ms. Kipps Comment No. 8: Revise Provision I.21 to require the City to submit a technical report within 120 days following the assessment report deadline of 29 October 2013 describing a work plan and implementation schedule for ceasing sludge discharges to land (implement mechanical dewatering) within three years if the assessment report presents data indicating that leachate released to soils from the soil cement lined drying beds has the potential to contribute to an existing condition of pollution in groundwater affected by the WWTF.

> **RESPONSE:** The requested changes have not been made as they appear to presuppose a particular outcome of the sludge drying bed assessment. We have clarified Provision I.21 to detail the requirements of the assessment. If necessary, the Central Valley Water Board may take discretionary action based on the assessment results.

Ms. Kipps Comment No. 9: The tentative WDRs proposes an effluent limitation for chloride of 175 mg/L and a groundwater limitation for chloride of 106 mg/L. Finding 28 characterizes the commingled

discharge for several waste constituents of concern, but not chloride. Rather than applying the Basin Plan effluent limit of 175 mg/L, commingled effluent should be limited to a value that ensures, after accounting for evaporative losses, chloride concentrations in percolated effluent will not cause groundwater chloride levels to exceed 106 mg/L.

RESPONSE: The requested changes have not been made. Finding 28 states average commingled effluent chloride concentrations are about 68 mg/L. A chloride limit below the Basin Plan limit of 175 mg/L does not appear to be necessary.

Ms. Kipps Comment No. 10: Prohibit the City from allowing industrial sewer users to discharge pollutant-free waste to the wastewater collection system to purposefully lower discharge salinity to levels compliant with City-issued salinity limits.

RESPONSE: The requested changes have not been made. Central Valley Water Board staff does not have evidence to believe that significant industrial users discharging to the City sewer are diluting wastewater with excess fresh water. Such activity would already be prohibited under Provision I.5, which prohibits discharge of pollutant-free waste to the WWTF in amounts that significantly diminish the system's capability to comply with the order.

Ms. Kipps Comment No. 11: Provision I.9 requires that dissolved oxygen never be below 1.0 mg/L for three consecutive weekly sampling events. The MRP only requires dissolved oxygen monitoring as needed. Revise the required monitoring to include weekly sampling for dissolved oxygen (between 8:00am and 9:00am).

RESPONSE: To prevent nuisance odor conditions, Provision I.9 requires that the Discharger maintain a dissolved oxygen concentration of 1.0 mg/L or above ("shall not be less than 1.0 mg/L for three consecutive weekly sampling events") in all ponds that do not require an anoxic or anaerobic environment. Of more than 1,100 dissolved oxygen readings from 2010 to 2012 from pond monitoring required by WDRs Order R5-2002-0186 (between 8:00am and 9:00am), only six readings were less than 1.0 mg/L. The record does not show odor complaints related to low dissolved oxygen in ponds in recent years. However, for improved consistency with Provision I.9 and in addition to daily dissolved oxygen monitoring until readings show greater than 1.0 mg/L, the MRP was revised to require two weekly dissolved oxygen monitoring events following odor issues.

Ms. Kipps Comment No. 12: Either revise the Information Sheet to provide justification for Fermenter influent and effluent reporting, or omit this reporting. Alternatively, revise the MRP to require parameters and constituents relevant to the design parameters of the Fermenter (e.g., monthly average flow, peak hourly flow, COD loading rate), as described in Finding 23. Clarify whether the influent monitoring point is before or after the point at which sludge is introduced into the Fermenter.

RESPONSE: The tentative WDRs do not include Fermenter influent monitoring requirements. The City no longer depends on the Fermenter for achieving high removal rates for organic waste constituents. Fermenter influent and effluent monitoring and reporting in the MRP is proposed primarily to document the source and effects of aqueous ammonia addition at the WWTF. Page 10

of the Information Sheet has been changed to clarify the reason for the proposed Fermenter monitoring.

Ms. Kipps Comment No. 13: Revise commingled effluent monitoring in the MRP to include 40 CFR part 503 metals (i.e., arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc) at least annually, coincident with Priority Pollutant monitoring. The suite of General Minerals identified in the Glossary should include iron, manganese, copper, and zinc. Commingled effluent monitoring should include sodium adsorption ratio (SAR) to assess its acceptability for agricultural use.

RESPONSE: The requested changes have not been made. The City has documented over the last ten years that iron, manganese, copper, zinc, and 40 CFR part 503 metals do not occur in significant quantities in WWTF effluent. However, as part of the proposed annual Priority Pollutant monitoring, the City would be required to analyze commingled effluent samples for 40 CFR part 503 metals. The sodium adsorption ratio is calculable from the results of proposed monitoring.

Ms. Kipps Comment No. 14: Revise the groundwater monitoring requirements in the MRP to include quarterly monitoring for 40 CFR part 503 metals of groundwater potentially influenced by sludge bed discharges, at least until sufficient data is submitted to warrant decreasing the monitoring frequency. Groundwater in all monitoring wells should be analyzed for Total Coliform Organisms (TCO) at least annually to assess compliance with the groundwater limitation and to assess monitoring well construction integrity. The list of monitored groundwater parameters and constituents to be reported in tabular form in quarterly monitoring reports should also include groundwater depth and elevation for assessment purposes.

RESPONSE: The requested changes pertaining to increased monitoring frequency for 40 CFR part 503 metals in groundwater near sludge drying bed discharges have not been made. There are currently no functional groundwater monitoring wells immediately downgradient of sludge drying beds. The proposed requirement for a Sludge Drying Bed Assessment Report is expected to show whether the sludge drying beds have potential to cause groundwater to contain 40 CFR part 503 metals in excess of water quality objectives. The Executive Officer of the Central Valley Water Board has authority to revise the proposed MRP, if necessary. Total coliform organisms are expected to be filtered out by the soil as effluent percolates. The presence of coliform organisms in groundwater may be an indication of monitoring well construction integrity, as the commenter suggests. However, the Groundwater Monitoring Well Work Plan required by Provision I.20 requires the City to describe the criteria that will be used to determine whether a monitoring well can be considered to provide reliable groundwater quality data and describe how each well in the network compares with the criteria. The City will need to demonstrate the integrity of well construction at that time.

Ms. Kipps Comment No. 15: Revise the MRP to clarify that loadings should be reported for each discrete Use Area or, if applicable, each individually managed recycled water irrigation area within each discrete Use Area. Page 3 of the Information Sheet says that the tentative WDRs require the City to "calculate nitrogen and salt loading to individual Use Areas," so the tentative MRP should also specifically require this.

RESPONSE: The requested changes have not been made. Page 6 of the proposed MRP already requires that the "Discharger shall perform routine monitoring and loading calculations for each discrete irrigation area within the Use Area."

Ms. Kipps Comment No. 16: Because of the requirement for nitrogen removal, the WWTF will generate an effluent with BOD concentrations much lower that the prescribed 40 mg/L monthly average limit. The proposed Order does not set a BOD loading limit. Revise the MRP to remove reporting of daily and cycle average BOD loading rates, which is unnecessary.

RESPONSE: The requested changes have been made.

Ms. Kipps Comment No. 17: Because so many of the City's groundwater monitoring wells have gone dry, revise the MRP to require the City to either replace monitoring wells that are dry for more than three consecutive monitoring events, or provide justification why replacement of dry wells is not necessary or may be postponed.

RESPONSE: The requested changes have not been made. Provision I.20 requires that the "Discharger shall establish and maintain a representative groundwater monitoring well network" according to a time schedule. Staff may request, and the Executive Officer has the authority to order (Wat. Code, § 13267.) work to maintain an adequate groundwater monitoring well network, if necessary.

Ms. Kipps Comment No. 18: Revise the tentative WDRs to correct misspelling of the word "flotation," spelled "floatation" in the tentative WDRs.

RESPONSE: The requested changes have been made.

Ms. Kipps Comment No. 19: Page 4 of the Information Sheet contains a sentence that needs editing: "The Tulare Irrigation District maintains multiple groundwater recharge basins and unlined canals because in an attempt to designed to store water for drought years." Also, the Information Sheet should mention whether Users also receive surface water deliveries from cited irrigation districts.

RESPONSE: The requested changes have been made. The subject sentence was changed to: "The Tulare Irrigation District maintains multiple groundwater recharge basins and unlined canals designed to recharge groundwater for use during drought years." Page 4 of the Information Sheet has been changed to state that recycled water users receive Tulare Irrigation District water and maintain supply wells for irrigation.

Ms. Kipps Comment No. 20: Revise the tentative WDRs to use nitrate as nitrogen exclusively to describe nitrate concentrations for consistency, rather than nitrate as nitrate as done on page 4 of the Information Sheet.

RESPONSE: The requested changes have been made.

Ms. Kipps Comment No. 21: The Information Sheet references a technical report included in the City's RWD, *Evaluation of interim groundwater quality limits (EC, TDS, B, Cl and Na) posed on POTWs for protection of irrigation agriculture in the Central/Southern San Joaquin Valley* by Dr. Stephen Grattan of UC Davis. Because of the report's potential regulatory significance, staff should post this report on the Board's website for public review.

RESPONSE: The subject report in the Central Valley Water Board file is available for public review upon request. The CV-SALTS website (http://www.cvsalinity.org) includes more up-to-date documents pertaining to salinity and potential changes to policy and regulation for protection of groundwater for agricultural uses.

Ms. Kipps Comment No. 22: Page 10 of the Information Sheet contains a sentence that needs editing: "This Order sets effluent limits for BOD_5 and TSS of 40 mg/L as monthly average and 80 mg/L as daily maximum percent removal."

RESPONSE: The requested change has been made. The subject sentence was changed to: "This Order sets effluent limits for BOD_5 and TSS of 40 mg/L as monthly average and 80 mg/L as daily maximum."

Ms. Kipps Comment No. 23: Revise Attachments A and F to identify function and non-functional (dry) groundwater monitoring wells.

RESPONSE: The requested changes have not been made. The word "Dry" appears in the table on pages 3 and 4 of the Information Sheet under "Depth to Water" for wells that have not produced sufficient water for samples to be collected during recent groundwater monitoring events.

Ms. Kipps Comment No. 24: Revise the legends in the figures presented as Attachments C, D, and G to change "Master Reclamation Permit" to "Master Recycling Permit" for consistency with the terminology used in the tentative WDRs.

RESPONSE: The requested changes have been made.

Ms. Kipps Comment No. 25: The tentative MRP lists groundwater monitoring for depth twice.

RESPONSE: The tentative MRP has been changed to list groundwater monitoring for depth once.