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Central Valley Regional Water Quality Control Board

19 January 2024

Debra Dunn
Kings River Water Quality Coalition
4886 East Jensen Avenue
Fresno, CA 93725

CONDITIONAL APPROVAL OF THE KINGS RIVER WATER QUALITY COALITION COMPREHENSIVE SURFACE WATER QUALITY MANAGEMENT PLAN

Thank you for your 1 August 2023 submittal of the Kings River Water Quality Coalition (Coalition) Comprehensive Surface Water Quality Management Plan (CSQMP).

Based on staff review, the CSQMP contains the elements required by Waste Discharge Requirements General Order R5-2013-0120-09 (General Order) and is approved. By **1 August 2024**, please submit a separate Source Identification Study proposal for nickel and molybdenum containing at least the minimum components listed in Appendix MRP-1 of the General Order's Monitoring and Reporting Program.

I agree with the assessment that pH, dissolved oxygen, and coliform issues noted in the CSQMP are not likely to be remedied through a Coalition-specific management plan and acknowledge the Coalition's commitment to engage in a region-wide efforts to address these constituents as they develop. Management plan development for these constituents is not required at this time.

The enclosed memorandum provides additional details regarding staff's review of the CSQMP. If you have any questions regarding this letter, please contact Mathew Jian at (559) 445-5567 or by email at Mathew.Jian@waterboards.ca.gov.

For Patrick Pulupa
Executive Officer

Enclosure: Staff Review of the Kings River Water Quality Coalition Comprehensive Surface Water Quality Management Plan

Central Valley Regional Water Quality Control Board

TO: Eric Warren, PE
Senior Water Resource Control Engineer
IRRIGATED LANDS REGULATORY PROGRAM

FROM: Mathew Jian
Water Resource Control Engineer
IRRIGATED LANDS REGULATORY PROGRAM

DATE: 19 January 2024

SUBJECT: **REVIEW OF THE KINGS RIVER WATER QUALITY COALITION COMPREHENSIVE SURFACE WATER QUALITY MANAGEMENT PLAN**

On 1 August 2023, the Kings River Water Quality Coalition (Coalition) submitted a Comprehensive Surface Water Quality Management Plan (CSQMP) to the Central Valley Water Board. Waste Discharge Requirements General Order R5-2013-0120-09 (General Order) requires the development and implementation of Surface Water Quality Management Plans for constituents that exceed applicable water quality objectives or trigger limits more than once in a three-year period.

The following sections provide pertinent background information, a summary of the CSQMP's proposed actions, and staff's comments and recommendations.

BACKGROUND

The following constituents of concern (COCs) exceeded applicable water quality objectives or trigger limits more than once in a three-year period at multiple monitoring sites throughout the Coalition boundary: dissolved oxygen (DO), pH, electrical conductivity (EC), fecal coliform, *Escherichia coli* (*E. coli*), molybdenum, and nickel. The purpose of the CSQMP is to provide an approach that can be used to address and examine exceedances of the listed COCs. The CSQMP identifies COCs across multiple watersheds dating back to the 2014 water year (1 October 2013 to 30 September 2014).

PUBLIC COMMENTS RECEIVED

The CSQMP was circulated for 30-day public comment on 29 September 2023. No comments were received from interested parties during the review period.

SUMMARY OF THE COALITION'S COMPREHENSIVE SURFACE WATER QUALITY MANAGEMENT PLAN APPROACH

The CSQMP states that although management plans have been triggered for the COCs, no immediate changes in management practices are currently proposed. For nickel and molybdenum, the Coalition intends to conduct a Source Identification Study to identify potential source(s). All other constituents will be addressed through existing or future comprehensive regional efforts.

The following section provides constituent-specific information regarding the Coalition's proposed approach for addressing each COC.

Metals: Nickel and Molybdenum

The CSQMP states that nickel is, from a source identification perspective, a metal that is solely from a non-agricultural anthropogenic source and that molybdenum is a naturally occurring metal from a geologic source. Therefore, the Coalition will develop Source Identification Study Workplans for both constituents.

Field Parameters: pH and Dissolved Oxygen

The CSQMP states that pH can be affected by natural or anthropogenic processes, including irrigated agriculture. Irrigated agricultural sources can include runoff of lime-rich fertilizers, which directly introduces hydroxide (OH^-) to increase pH, or runoff of nitrogen-rich organic matter or ammonia-rich fertilizer, which can be biologically processed to introduce hydrogen ions (H^+) to decrease pH. The coalition's review of surface water quality data concluded that there have historically been low concentrations of nitrate and orthophosphate, indicating that eutrophication is not causing a significant increase in pH.

As indicated in the CSQMP, DO can be affected by physical and biochemical processes. This includes, but not limited to, stream flow and turbulence, water temperature, and biological oxygen demand from surface runoff from irrigation containing chemical contaminants. A review of surface water quality data concluded that there are low concentrations of nutrients, indicating that eutrophication is not causing a significant decrease in DO. The CSQMP additionally states that pH and DO are non-conserving parameters which can increase or decrease as water moves downstream.

Due to these factors, and without an identifiable on-farm source of elevated pH and low DO, the Coalition has not proposed any management plan actions for these two field parameters and intends to continue to monitor pH and DO per the current Surface Water Monitoring Plan.

Electrical Conductivity

The CSQMP acknowledges that EC is directly related to salt concentration in water. The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) program is currently implementing a Prioritization and Optimization Study to comprehensively address salt accumulation in the Central Valley. Therefore, the Coalition will address EC management through its participation in this effort as well as working with growers to implement reasonable, feasible and practicable efforts to control levels of salt in discharges.

Bacteria: Fecal Coliform and Escherichia coli

Recognizing that E. coli is a subset fecal coliform, the CSQMP addresses them under the same approach. Due to the ubiquitous nature of bacterial contamination within the Central Valley region, the CSQMP states the Coalition intends, under the direction and guidance from the Central Valley Water Board, to develop a regional approach for characterizing fecal indicator bacterial sources, including *E. coli*.

Future Constituents of Concern

The CSQMP also describes the following general approach the Coalition will take for future SQMPs that are triggered:

1) Identify irrigated agricultural source(s) of COCs that are causing water quality problems;
2) Identify management practices that can be implemented;
3) Develop management plant implementation schedule;
4) Develop management practice performance goals;
5) Develop monitoring schedule; and
6) Evaluate management practice(s) effectiveness

STAFF COMMENTS

Data Evaluation

Per Section 1.E.2 of Appendix MRP-1 of the General Order, data evaluation should include at a minimum, “Methods to be utilized to perform data analysis (graphical, statistics, modeling, index computation, or some combination.”

In the section titled “Methods of Data Evaluation”, the CSQMP states that simple descriptive statistics will be used in evaluating water quality data. No specific methods (e.g., Mann-Kendall, ANOVA) were identified to conduct the types of trend analyses needed to evaluate the effectiveness of the management plans.

Time Schedule for Compliance

Per Section XII of the General Order, “The time schedule identified in the SQMP for compliance with Surface Water Limitation III.A must be as short as practicable, but may not exceed 10 years from the date the SQMP is submitted for approval by the Executive Officer. The proposed time schedule in the SQMP must be supported with appropriate technical or economic justification as to why the proposed schedule is as short as practicable.” In the section titled *Schedule and Milestones for Implementation of Management Practices*, the CSQMP states that because there are no implementation activities taking place for any of the COCs, no time schedule for compliance is currently needed.

Identified minor errors in Comprehensive Surface Water Quality Management Plan

Staff identified some minor errors during the CSQMP review. For example, page 15 of the CSQMP includes a statement that “Metals analyzed for total concentrations are compared to static WQTL values, those analyzed for dissolved concentrations are compared to a variable WQTL based on the hardness level in the water sample (Table 6).” Table 6 is a table of the beneficial uses of surface waters.

STAFF RECOMMENDATIONS

Dissolved Oxygen, pH, Coliform

Staff are aware of the complexities regarding DO, pH, and coliform, both from a source identification and a treatment perspective. These water quality issues are ubiquitous throughout the region, observed in both agricultural and non-agricultural settings, and often do not have broadly applicable management practices demonstrated to be effective in resolving them.

In the event there is sufficient evidence indicating that a water quality exceedance is unlikely to be remedied by a management plan, Section VIII.N.3 of the General Order grants the Executive Officer the discretion to determine that a SQMP is not required. In acknowledgement of the statements above, it is staff’s opinion that the observed exceedances are unlikely to be remedied solely by the actions of the Coalition members and are currently best addressed through more comprehensive coordinated efforts within the region.

Electrical Conductivity

In accordance with the Tulare Lake Basin Plan, dischargers maintaining full participation in the Prioritization and Optimization Study in addition to implementation of reasonable, feasible and practicable efforts to control levels of salt in discharges are currently in

compliance with the salinity discharge requirements of the General Order. This obligation is currently being met by the Coalition.

Molybdenum and Nickel

The General Order allows the Coalition to conduct a Source Identification Study as an intermediate step in identifying and addressing contributing sources of water quality constituents of concern. However, the Coalition has not provided sufficient information regarding the proposed study for molybdenum and nickel for staff to make a recommendation to proceed with its implementation. The Coalition should submit a separate Source Identification Study proposal to the Executive Officer containing the minimum components listed in Appendix MRP-1 of the General Order's Monitoring and Reporting Program. If the Source Identification Study proposal is approved, and the Source Identification Study determines an irrigated agricultural source for molybdenum and/or nickel, the Coalition should develop an appropriate technical or economic justification as to why a proposed time schedule for compliance is as short as practicable.