

## Central Valley Regional Water Quality Control Board

15 January 2018

Mike Wackman, Legislative/Communications Director  
San Joaquin County and Delta Water Quality Coalition  
3294 Ad Art Road  
Stockton, CA 95215

### **CONDITIONAL APPROVAL OF THE SAN JOAQUIN COUNTY AND DELTA AREA COMPREHENSIVE GROUNDWATER QUALITY MANAGEMENT PLAN**

Thank you for your 26 September 2017 revised Comprehensive Groundwater Quality Management Plan (GQMP) for the San Joaquin County and Delta Area. The GQMP was reviewed to determine compliance with Waste Discharge Requirements General Order R5-2014-0029 (Order) and Appendix MRP-1 of Attachment B (Monitoring and Reporting Program) to the Order.

Based on the information in the submitted documents and the attached staff review, the GQMP meets most of the terms and conditions of the Order. To receive full approval of the GQMP, the Coalition must submit an addendum to the GQMP that addresses the following items:

- The addendum must include a discussion of outreach efforts to inform growers who use groundwater where legacy pesticide or “other constituent” exceedances have occurred;
- The addendum must have a statement about including “unused wells” in the wellhead protection management practices; and
- The addendum must include a discussion about early education and outreach to those growers whose A/Y ratios are extraordinarily high compared to all other growers of the same crop within the HVA, and there are no additional considerations that would explain such a high ratio.

Please provide the addendum to the GQMP by **15 February 2018**.

I am issuing conditional approval of the GQMP until these items are addressed. If you have any questions regarding this letter, please contact Wesley Ouimette at 916-464-4667 or [Wesley.Ouimette@waterboards.ca.gov](mailto:Wesley.Ouimette@waterboards.ca.gov).

Sincerely,

*Original Signed By:*

Pamela C. Creedon  
Executive Officer

Enclosure: Staff review of the GQMP

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## Central Valley Regional Water Quality Control Board

**TO:** Sue McConnell, P.E.  
Program Manager  
Irrigated Lands Regulatory Program

**FROM:** Wesley Ouimette  
Engineering Geologist  
Irrigated Lands Regulatory Program

**DATE:** 3 November 2017

**SUBJECT:** REVIEW OF THE COMPREHENSIVE GROUNDWATER QUALITY  
MANAGEMENT PLAN FOR THE SAN JOAQUIN COUNTY AND DELTA WATER  
QUALITY COALITION

On 26 September 2017, the San Joaquin County and Delta Water Quality Coalition (Coalition) submitted a revised Comprehensive Groundwater Quality Management Plan (GQMP) as required by section VIII.H of Waste Discharge Requirements General Order R5-2014-0029 (General Order). Groundwater Quality Management Plans are a key mechanism under the General Order to help ensure that waste discharges from irrigated lands do not cause or contribute to an exceedance of applicable water quality objectives in the underlying groundwater, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance.

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff reviewed the GQMP to determine compliance with requirements pursuant to section VIII.H of the General Order, and Appendix MRP-1 of Attachment B (Monitoring and Reporting Program). Table 1 (attached) provides descriptions of the required groundwater quality management plan components from Appendix MRP-1 of the General Order's Monitoring and Reporting Program (MRP) and lists the section in the GQMP that addresses each component. Recommended revisions/additions for incomplete items are provided below. The memorandum item numbers correspond to item numbers in Table 1.

### **Item 1. Constituents of Concern (COCs)**

Section I.A of Appendix MRP-1 requires a discussion of the Constituents of Concern (COCs) that are the subject of the plan and the water quality objectives or triggers requiring preparation of the management plan.

#### *A. Legacy Pesticides*

The GQMP lists the pesticides DBCP and EDB as Constituents of Concern in Table 20, but on page 162 states that no additional monitoring of these pesticides will occur.

Management of the legacy pesticides, EDB and DBCP, is a lower priority than nitrates and can be addressed at a later date. In the interim, members should be notified in areas where exceedances of legacy pesticides occurred.

#### *B. Other Constituents of Concern*

The GQMP identifies the following constituents as exceeding the MCL water quality objective for drinking water within the Coalition area: arsenic, nitrate, chloride, iron, manganese, sulfate, TDS, and boron. Of these constituents, only nitrates and TDS were considered to be COC's because it has been shown that agricultural practices could contribute to their elevated levels. However, all of these constituents can potentially be increased by agricultural practices and should be addressed in the GQMP. It is reasonable to prioritize GQMP activities for nitrates first. In the interim, members should be notified in the areas where exceedances of these other constituents have occurred.

Constituents of concern associated with salinity can be addressed either via development of individual groundwater quality management plans or by participating in CV-SALTS. Upon the future adoption of a Central Valley Salt and Nitrate Control Program into the Sacramento River and San Joaquin River and Tulare Lake Basin Plans, all parties will then be subject to the requirements established therein.

#### **Item 5. Land Use Data**

Section I.B.1.a of Appendix MRP-1 requires land use maps which identify the crops being grown in the GQMP area. These maps may already be presented in the Groundwater Assessment Report and may be referenced and/or updated as appropriate. Map(s) must be available in electronic format using standard ArcGIS shapefiles.

DWR recently release updated land use maps. This data should be reviewed when updating the GAR.

#### **Item 17. Approach to Address COCs**

Section I.C.1 of Appendix MRP-1 requires that the GQMP include a description of the approach to be utilized (e.g., multiple COC's addressed in a scheduled priority fashion, multiple areas covered by the plan with a single area chosen for initial study, or all areas addressed simultaneously). Any prioritization included in the management plan must be consistent with the requirements in section XII of the Order, Time Schedule for Compliance.

The High Vulnerability Areas are divided into three areas and labeled "Priority 1", "Priority 2", and "Priority 3." The GQMP does not describe how or if implementation will occur differently in each of these areas. The GQMP is written as if all actions will take place simultaneously in all HVAs, regardless of priority status. The Water Board will assume that actions are being taken over the entire HVA simultaneously unless more information is provided about prioritization.

#### **Item 25. Identify Management Practices to be implemented**

Section I.C.4.b of Appendix MRP-1 requires the GQMP to identify management practices used to control sources of COCs from irrigated lands that are 1) technically feasible; 2) economically feasible; 3) proven to be effective at protecting water quality, and 4) will comply with the receiving water limitations of the Order. Practices that growers will implement must be

discussed, along with an estimate of their effectiveness or any known limitations on the effectiveness of the chosen practice(s).

When conducting outreach about wellhead protection, staff recommends including “un-used wells”.

**Item 26. Identify Outreach Plans**

Section I.C.4.c of Appendix MRP-1 requires the GQMP to identify outreach plans for providing information to growers including the method for disseminating information on relevant management practices to be implemented

The Coalition should provide early education and outreach to those growers whose A/Y ratios are extraordinarily high for their crop across all growers within the HVA and there are no additional considerations that would explain such a high ratio. This will ensure that the growers are aware that they need to take action to reduce the potential for nitrogen to leach to groundwater.

**Staff Recommendation:**

Staff finds that the 26 September 2017 GQMP submittal meets most of the requirements outlined in the Order and recommends the GQMP for conditional approval by the Executive Officer with full approval pending the addition of the actions identified in items 1, 25, and 26 above. The GQMP will contain the necessary components and supporting information to enable the Coalition and growers to meet the goals and objectives of the Order with the requested changes.

**Table 1. Components of the Groundwater Quality Management Plan**

Item No.	Required Component	Location in GQMP (Status)
<b>Introduction and Background</b>		
1	Provide a discussion of the constituents of concern (COCs) that are the subject of the GQMP.	Constituents of Concern (incomplete)
2	Provide a discussion of the water quality objective(s) or trigger(s) requiring preparation of the management plan.	Constituents of Concern
3	Identification (both narrative and in a map form) of the boundaries (geographic and groundwater basin[s] or portion of a basin) to be covered by the GQMP including how the boundaries were delineated.	Introduction and Background, Hydrogeology Figure 1, 27
4	Provide a summary of previous work conducted to identify the occurrence of the COCs (e.g., studies, monitoring conducted) for the GQMP area.	Existing Groundwater Quality Data-Summary and throughout
<b>Physical Setting and Information</b>		
5	Provide land use maps which identify the crops being grown in the GQMP area (these maps may already be presented in the GAR). Map(s) must also be provided in electronic format as ArcGIS shapefiles.	Landuse Figure 57
6	Provide soil types and other relevant soils data as described by the NRCS soil survey or other applicable studies. The soil unit descriptions and a map of their aerial extent within the study area must be included.	Soils and Geology
7	Identification of the potential irrigated agricultural sources of the COC(s) for which the management plan is being developed. If the potential sources are not known, a source identification study may be designed and implemented.	Throughout
8	Provide a list of the designated beneficial uses as identified in the <i>Water Quality Control Plan for the Sacramento and San Joaquin River Basins</i> , Fourth Edition, revised July 2016 (Basin Plan).	Beneficial Uses
9	Provide a baseline inventory of identified existing management practices in use within the management plan area that could be affecting the concentrations of COCs in groundwater and locations of the various practices.	Existing Agricultural Management Practices
10	Provide a summary, discussion, and compilation of available groundwater quality data for the parameters addressed by the management plan. The GAR developed for the Coalition's area, and groundwater quality data compiled in that document, may serve as a reference for these data.	Existing Groundwater Quality Data-Expanded
<b>Geology and Hydrogeology</b>		

11	Provide regional and area specific geology, including stratigraphy and existing published geologic cross-sections.	Soils and Geology
12	Provide information on groundwater basin(s) and sub-basins contained within the GQMP area, including a discussion of their general water chemistry as known from existing publications, including the GAR (range of EC, concentrations of major cations and anions, nutrients, TDS, pH, dissolved oxygen, and hardness). The discussion should reference and provide figures of existing Piper Diagrams, Stiff Diagrams and/or Durov Diagrams for the GQMP area.	General Water Chemistry by Subbasin
13	Provide information regarding known water bearing zones, areas of shallow and/or perched groundwater, as well as areas of discharge and recharge to the basin/sub-basin in the GQMP area (rivers, unlined canals, lakes, and recharge or percolation basins).	Hydrogeology
14	Identification of which water bearing zones within the GQMP area are being utilized for domestic, irrigation, and municipal water production.	Irrigation Water from Groundwater Sources
15	Aquifer characteristics such as depth to groundwater, groundwater flow direction, hydraulic gradient, and hydraulic conductivity, as known or estimated based on existing information.	Subsurface Lithology, Hydrogeology
16	Identification, where possible, of irrigation water sources (surface water origin and/or groundwater) and their available general water chemistry (range of EC, concentrations of major cations and anions, nutrients, TDS, pH, dissolved oxygen, and hardness).	Hydrogeology, Irrigation Water from Surface Water Sources, Irrigation Water from Groundwater Sources,
<b>Management Plan Strategy</b>		
17	Provide a description of the approach to be utilized by the management plan (e.g., multiple COC's addressed in a scheduled priority fashion, multiple areas covered by the plan with a single area chosen for initial study, or all areas simultaneously [area wide]). Any prioritization included in the management plan must be consistent with the requirements in section XII of the General Order, Time Schedule for Compliance.	Management Plan Strategy (notes provided)
18	Provide a description of actions to be taken in order to achieve compliance with the receiving water limitations of the General Order (section III).	Management Plan Strategy
19	Provide a description of how the Coalition plans to educate Members about the sources of the water quality exceedances in order to promote prevention, protection, and remediation efforts that can maintain and improve water quality.	Actions to meet Goals and Objectives
20	Provide a description of how the Coalition will identify, validate, and implement management practices to reduce loading of COCs to surface water or groundwater, as applicable, thereby improving water quality.	Objective 2: Identify Management Practices that are Protective of Groundwater, Performance Goal 4.

21	Identification of key individuals involved in major aspects of the project (e.g., project lead, data manager, sample collection lead, lead for stakeholder involvement, quality assurance manager).	Duties and Responsibilities
22	Provide a discussion of each individual's responsibilities.	Duties and Responsibilities
23	Provide an organizational chart with identified lines of authority.	Duties and Responsibilities
24	Identification of the entities or agencies that will be contacted to obtain data and assistance.	Agencies Contacted for Data and/or Assistance
25	Identification of management practices used to control sources of COCs from irrigated lands that are 1) technically feasible; 2) economically feasible; 3) proven to be effective at protecting water quality, and 4) will comply with sections III.A and B of the General Order. Practices that growers will implement must be discussed, along with an estimate of their effectiveness or any known limitations on the effectiveness of the chosen practice(s). Practices identified may include those that are required by local, state, or federal law. Where an identified constituent of concern is a pesticide that is subject to DPR's Groundwater Protection Program, the GQMP may refer to DPR's regulatory program for that pesticide and any requirements associated with the use of that pesticide provided that the requirement(s) are sufficient to meet water quality objectives.	Management Plan Strategy (notes provided)
26	Identification of outreach that will be used to disseminate information to participating growers. This discussion shall include: the strategy for informing growers of the water quality problems that need to be addressed, method for disseminating information on relevant management practices to be implemented, and a description of how the effectiveness of the outreach efforts will be evaluated. The third-party may conduct outreach efforts or work with the assistance of the County Agricultural Commissioners, U.C. Cooperative Extension, Natural Resources Conservation Service, Resource Conservation District, California Department of Food and Agriculture, or other appropriate groups or agencies.	Actions to Meet Goals and Objectives
27	Provide a specific schedule and milestones for the implementation of management practices and tasks outlined in the management plan. Items to be included in the schedule include: time estimated to identify new management practices as necessary to meet the Order's surface and groundwater receiving water limitations (section III of the Order); a timetable for implementation of identified management practices (e.g., at least 25% of growers identified must implement management practices by year 1; at least 50% by year 2).	Objective 4: Develop Management Practice Performance Goals and Compliance Schedule
28	Establish measureable performance goals that are aligned with the elements of the management plan strategy. Performance goals include specific targets that identify the expected progress towards meeting a desired outcome.	Objective 4: Develop Management Practice Performance Goals and Compliance Schedule

<b>Monitoring Methods</b>		
29	The monitoring system must be designed to measure effectiveness at achieving the goals and objectives of the GQMP and capable of determining whether management practice changes made in response to the management plan are effective and can comply with the terms of the General Order.	Monitoring Methods
30	The third-party's Management Practice Evaluation Program and Groundwater Quality Trend Monitoring shall be evaluated to determine whether additional monitoring is needed in conjunction with the proposed management strategy(ies) to evaluate the effectiveness of the strategy(ies). This may include commodity-based representative monitoring that is conducted to determine the effectiveness of management practices implemented under the GQMP. Refer to section IV of the MRP for groundwater monitoring requirements.	Monitoring Methods
<b>Data Evaluation</b>		
31	Methods to be utilized to perform data analysis (graphical, statistics, modeling, index computation, or some combination thereof).	Methods of Data Evaluation
32	Identify the information necessary to quantify program effectiveness going forward, including the tracking of management practice implementation. The approach for determining the effectiveness of the management practices implemented must be described. Acceptable approaches include field studies of management practices at representative sites and modeling or assessment to associate the degree of management practice implementation to changes in water quality. The process for tracking implementation of management practices must also be described. The process must include a description of how the information will be collected from growers, the type of information being collected, how the information will be verified, and how the information will be reported.	Data Evaluation

KARL E. LONGLEY ScD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCEE, EXECUTIVE OFFICER

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