



Central Valley Regional Water Quality Control Board

Casey Creamer
Southern San Joaquin Valley MPEP Committee
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23 May 2017

CONDITIONAL APPROVAL OF THE MANAGEMENT PRACTICES EVALUATION PROGRAM WORKPLAN FOR THE SOUTHERN SAN JOAQUIN VALLEY MPEP COMMITTEE

Thank you for your 1 November 2016 submittal of the Management Practices Evaluation Program Workplan (MPEP Workplan) on behalf of the Southern San Joaquin Valley Management Practices Evaluation Program Committee (MPEP Committee). The MPEP Workplan was submitted in accordance with Waste Discharge Requirements General Order R5-2013-0120 for Growers in the Tulare Lake Basin Area that are Members of a Third-Party Group (General Order). Central Valley Water Board staff have reviewed the MPEP Workplan and determined that the information provided generally addresses the General Order's main MPEP objectives. However, additional information is needed to ensure that the MPEP Workplan is adequately designed to meet the objectives listed in Section IV.B of the General Order's Monitoring and Reporting Program.

In order to facilitate the timely implementation of the MPEP Committee's proposed process for evaluating the effects of irrigated agricultural practices on groundwater, I am conditionally approving the MPEP Workplan. This conditional approval is based on the understanding that **by 1 October 2017**, the MPEP Committee will provide an updated MPEP Workplan which addresses the issues identified in the enclosed memorandum, and summarized in the attached Table 1. Please continue working with my staff to expeditiously address these items.

If you have any questions, please contact David Sholes at (559) 445-6279 or by e-mail at david.sholes@waterboards.ca.gov.

Sincerely,


for Pamela C. Creedon
Executive Officer

Enclosure: Central Valley Water Board Staff Review Memo of the SSJV MPEP Workplan

Cc: Sue McConnell, Central Valley Water Board, Rancho Cordova
Tim Ashlock, Buena Vista Coalition
David Hampton, Cawelo Water District Coalition
Donald Ikemiya, Kaweah Basin Water Quality Association
Nicole Bell, Kern River Watershed Coalition Authority
David DeGroot, Tule Basin Water Quality Coalition
Greg Hammett, Westside Water Quality Coalition

Central Valley Regional Water Quality Control Board

TO: David Sholes, CEG 
Senior Engineering Geologist
Irrigated Lands Regulatory Program

FROM: Eric Warren 
Water Resource Control Engineer
Irrigated Lands Regulatory Program

DATE: 23 May 2017

SUBJECT: REVIEW OF THE MANAGEMENT PRACTICES EVALUATION PROGRAM
WORKPLAN FOR THE SOUTHERN SAN JOAQUIN VALLEY MPEP
COMMITTEE

On 21 November 2016, the Southern San Joaquin Valley Management Practices Evaluation Program Committee (MPEP Committee) submitted a Management Practices Evaluation Program Workplan (MPEP Workplan) on behalf of its individual committee members, and in accordance with Waste Discharge Requirements General Order R5-2013-0120 (General Order). The committee is comprised in part of individual Coalitions approved to represent owners and operators of irrigated lands within the Tulare Lake Basin Area subject to the General Order. These Coalitions include the Kings River Water Quality Coalition, Kaweah Basin Water Quality Association, Tule Basin Water Quality Coalition, Cawelo Water District Coalition, Kern River Watershed Coalition Authority, Buena Vista Coalition, and Westside Water Quality Coalition. The overall goal of the MPEP is to determine the effects, if any, irrigated agricultural practices have on first encountered groundwater under different conditions that could affect the discharge of waste from irrigated lands to groundwater (e.g., soil type, depth to groundwater, irrigation practice, crop type, nutrient management practice). Groundwater Quality Management Plans, which individual MPEP Committee members are required to develop, will rely on the results and conclusions of the MPEP to address groundwater quality issues within their respective areas.

The MPEP workplan was released for a 30-day public comment period. One joint comment letter was received from the Leadership Counsel for Justice and Accountability, Community Water Center, and Clean Water Action (Commenters). The Commenters noted several items that the MPEP Workplan should address, summarized as follows:

- a) The proposal to use N balance/N surplus as the main approach to evaluating the efficacy of management practices is strongly supported.

- b) Information was not provided describing the practices to be evaluated or how practices will be selected for evaluation.
- c) Information was not provided describing which crops will be prioritized for evaluation or at what point during implementation of the MPEP crops will be prioritized.
- d) The MPEP Workplan does not identify the tools that may be used to evaluate management practices or the conditions that may guide the selection of one evaluation method over another.
- e) The MPEP Workplan does not identify the desired outcomes of the MPEP process.
- f) The MPEP Workplan includes a list of known best practices, but does not indicate which practices will be incorporated into the MPEP or how practices will be selected for inclusion.
- g) The management practice investigations have not been prioritized.
- h) The MPEP Workplan does not provide strategies or proposed actions for addressing identified uncertainties in the development, execution, and interpretation of management practice investigations.

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff have reviewed the MPEP Workplan to determine compliance with requirements pursuant to section IV. of the General Order's Monitoring and Reporting Program (MRP). Based on staff review, and considering the public comments received, additional information is needed in order for the plan to meet the objectives and requirements of the General Order. Table 1 provides descriptions of the required components of a MPEP Workplan and program, and also indicates whether the specific General Order requirement was adequately met or is likely to be met by implementing the described MPEP. The memorandum item numbers listed correspond to item numbers in Table 1. Many of the issues contained in the public comment letter (e.g., b, c, f, and g) are addressed by staff comments and recommendations. Other issues (e.g., identification of specific practices to be evaluated) will necessarily be further addressed or clarified as the MPEP Workplan is implemented.

Item 1. Constituents of Concern

The background section of the MPEP Workplan states that nitrate movement through irrigated land is the primary focus of the investigation. It also indicates that if additional constituents need to be addressed, such as those which require Groundwater Quality Management Plans (GQMPs), the MPEP will be updated to include them.

Section IV.B of the MRP states the MPEP must address the constituents of concern (COCs) described in the Groundwater Quality Assessment Report (GAR). GARs submitted by some Coalitions within the Tulare Lake Basin Area identify other constituents (e.g., salts and pesticides) as COCs in addition to nitrate; the MRP requires that these constituents be addressed as well. If the SSJV MPEP Committee intends to take a phased approach to evaluating management practices applicable to other COCs, it should include these activities in the SSJV MPEP Master Schedule provided in Figure 3-1A.

Item 2 & 11. Assessing Protectiveness of Existing Management Practices

The MPEP Workplan provides a description of the process that will be used to characterize irrigated lands and assess the influence that existing management practices have on

groundwater within the MPEP area. The process will include a review of existing literature, communication with agricultural experts in both the private and public sector, and supplemental field investigations where uncertainty remains regarding the effectiveness of certain practices in protecting groundwater quality. Direct measurements and modeling will be used in the field investigations to quantify nitrate loss with consideration for various climatic and hydrogeologic conditions. The specific details of the field studies will be submitted in separate priority investigation plan submittals, in accordance with the timeline provided in Figure 3-1A (SSJV MPEP Master Schedule) of the MPEP Workplan. Section 3.6.2.4 of the MPEP Workplan additionally states that a N balance/N surplus approach will be used as the primary criterion for evaluating management practices that decrease N losses, in parallel with other metrics such as applied N/removed N (A/R).

One of the primary MPEP objectives listed in the MRP is to identify whether existing site-specific and/or commodity-specific management practices are protective of groundwater quality within high vulnerability groundwater areas. It is unclear based on the MPEP Workplan how the MPEP will determine whether a specific practice is deemed protective (e.g., Does a practice need to meet a specific N surplus threshold? Does a practice only need to reduce N surplus compared to some other common practice? Will direct measurement or modeling be required to demonstrate a reduction of nitrate concentration in groundwater?). To show that the MPEP is adequately designed to meet the objectives listed in Section IV.B of the MRP, the Workplan must include criteria for defining protective practices. These criteria should be developed with input from professionals in the field of water quality, in addition to agronomy. It is possible that a suite of protective practices may be needed to ensure groundwater protection. The MPEP should result in the identification of protective practices or suites of practices needed for different combination of crops and conditions to protect groundwater quality.

Items 5 & 12. Applicability of Evaluated Management Practices to Represented Member Farms

The MPEP's technical process workflow includes an initial inventory of known protective management practices that will be fast-tracked for outreach to growers. Section 2.1.4 of the MPEP Workplan also indicates that protective practices for specific irrigated lands settings (unique crop, soil, and management combinations) will be identified and implemented under the MPEP.

Per the General Order, applicable protective practices must be implemented by Members in both high and low vulnerability areas. Outreach to growers will be less successful if there is uncertainty whether a specific management practice applies to a specific commodity or growing operation. The MPEP Workplan correctly highlights the need to identify the conditions under which certain practices are protective (e.g., specific commodities, soil conditions, etc.). However, it does not contain an adequate explanation of how protective practices identified through literature or focused field studies will be evaluated for applicability to represented Member farms. A description of the evaluation process should be included in the MPEP Workplan.

Item 6 & 13. Master Workplan - Prioritization

Figure 3-1A of the MPEP Workplan (SSJV MPEP Master Schedule) lists activities to be conducted during implementation of the MPEP. Included in these activities is an “Initial Prioritization of Investigations” during which prioritization criteria will be established and priority research and outreach will be identified. Upon completion of these tasks, three separate priority investigations will be implemented on a staggered schedule.

The MPEP Workplan requirements listed in MRP section IV.D allow a prioritized approach for the MPEP investigations, provided the Workplan includes a timeline describing the priority and schedule for each of the areas/commodities to be investigated, and anticipated submittal dates for addendums containing the specific details of each investigation. Figure 3-1A (SSJV MPEP Master Schedule) contains plan submittal dates for each priority investigation to be conducted, but does not define the specific areas/commodities to be investigated. This information should be included as part of the MPEP Workplan, not as a MPEP task. Additionally, the time schedule provided does not match current progress (e.g., the first priority investigation plan submittal was anticipated in Q4 2016). The MPEP Workplan should be updated to reflect current progress and anticipated task completion dates, and at a minimum identify the areas/commodities which will be included in the priority investigations. The specific details of the investigations are appropriate to include in the priority investigation plan submittals, consistent with the timeline provided in the SSJV MPEP Master Schedule. Any progress on the design or implementation of the investigations should also be included in the annual Monitoring Report updates.

Table 3-1A of the MPEP Workplan identifies 11 major crop categories which represent approximately 76% of the irrigated acreage in the SSJV MPEP area. It does not state whether these are the crops which will be evaluated by the MPEP. For example, footnote 4 states, “A significant portion of these crops is irrigated with dairy effluent. These fields are covered under the Dairy General Order, not the LTILRP [Long Term Irrigated Lands Regulatory Program].” The MPEP Workplan should include a list of the crops and/or crop categories that will be evaluated by the MPEP.

Item 7. Workplan Approach

Section 3.8.3 of the MPEP Workplan provides a discussion of information that can be used to calibrate the SWAT model and provide an evaluation of the model’s performance. The potential information listed includes field study results, collaboration with grower, packer, and commodity groups, water balance data made available through other efforts (e.g., the Sustainable Groundwater Management Act), and individual single purpose models.

While the MPEP Workplan provides a comprehensive list of data available, it does not include a discussion of the sensitivity analysis, calibration, validation, and uncertainty analysis methodology that will be used to evaluate the SWAT model (e.g., SWAT-CUP, comparison of simulated to observed output values, etc.). A discussion of this process is needed to provide reasonable confidence in the model results and determinations regarding the protectiveness of management practices implemented by growers.

Item 8 & 9. Groundwater Quality Monitoring

Section 3.9.2 of the MPEP Workplan includes an evaluation of groundwater monitoring, and its use in evaluating the effect of management practices on groundwater quality. The section concludes that as the contributing area of a monitoring well increases (e.g., screen length below water table increases, regional groundwater flow rate increases, etc.), the usefulness of that monitoring well for evaluating a specific management practice is significantly decreased. Due to the described limitations, the MPEP Workplan proposes to utilize groundwater modeling to estimate the effect of management practice modifications to groundwater quality. Section 3.9.4 of the MPEP Workplan indicates that monitoring of first encountered groundwater will still be conducted in order to increase confidence in vadose zone modeling results. To serve this purpose, groundwater monitoring activities will focus on hydrologic areas conducive to short transport times between surface and groundwater.

Section IV.D of the MRP requires that where groundwater quality monitoring is proposed, the MPEP Workplan identify (a) the constituents to be assessed, and (b) the frequency of the data collection for each constituent. The MPEP Workplan does not include the groundwater constituents to be assessed, or the frequency of data collection as required by the MRP. Section 3.9.6 includes the statement that “Ultimately, the scope of constituent sampling and sampling frequencies will be developed under consideration of site-specific conditions including the hydrogeologic setting, the farming operations being investigated, and the scope of the associated aboveground and vadose zone investigation.” The MPEP Workplan does indicate that at a minimum, any groundwater monitoring will include the trend monitoring constituents listed in the MRP. Staff agrees that this information is sufficient to meet MRP section IV.D.2a requirements. However, future submittals detailing the field investigations should reflect any changes to the list of proposed groundwater monitoring constituents. With regard to the frequency of the data collection for each constituent, this information was not provided, and must be included in the workplan addendums described in Section 3.13 and Figure 3-1A of the MPEP Workplan.

Item 10. Quality Assurance Project Plan (QAPP)

Section VIII of the MRP states, “Any necessary modifications to the QAPP for groundwater monitoring shall be submitted with the MPEP and groundwater trend monitoring workplans.” The QAPP is intended to describe site-specific information, project organization and responsibilities, and the quality assurance components of surface and groundwater monitoring activities conducted under the General Order.

An updated QAPP was not submitted with the MPEP Workplan to reflect the described groundwater monitoring activities. However, it is not appropriate to submit this document at this time. Although groundwater monitoring is anticipated in the MPEP Workplan, the extent of the monitoring and project specific information will not be determined until completion of the described literature review process. It is appropriate that after this process has completed, and if priority investigations are deemed necessary to evaluate the effectiveness of management practices, an updated QAPP be submitted with the workplan for those activities. This document must follow the sampling and analytical procedures as specified in Attachment C, Order No. R5-2008-0005, Coalition Group Monitoring Program Quality Assurance Project Plan Guidelines (QAPP Guidelines), or revised procedures approved by the Executive Officer.

Item 14. Compliance with Sections 6735(a) and 7835 of the California Business and Professions Code

Section 7835 of the California Business and Professions Code states that *“All geologic plans, specifications, reports, or documents shall be prepared by a professional geologist or licensed certified specialty geologist, or by a subordinate employee under his or her direction. In addition, they shall be signed by the professional geologist or licensed certified specialty geologist and stamped with his or her seal, both of which shall indicate his or her responsibility for them.”*

Section 6735(a) of the California Business and Professions Code states that *“All civil (including structural and geotechnical) engineering plans, calculations, specifications, and reports (hereinafter referred to as “documents”) shall be prepared by, or under the responsible charge of, a licensed civil engineer and shall include his or her name and license number. Interim documents shall include a notation as to the intended purpose of the document, such as ‘preliminary,’ ‘not for construction,’ ‘for plan check only,’ or ‘for review only.’ All civil engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final civil engineering calculations and reports shall bear the signature and seal or stamp of the licensee, and the date of signing and sealing or stamping. If civil engineering plans are required to be signed and sealed or stamped and have multiple sheets, the signature, seal or stamp, and date of signing and sealing or stamping shall appear on each sheet of the plans. If civil engineering specifications, calculations, and reports are required to be signed and sealed or stamped and have multiple pages, the signature, seal or stamp, and date of signing and sealing or stamping shall appear at a minimum on the title sheet, cover sheet, or signature sheet.”*

The MPEP Workplan may contain information that is consistent with the requirement of the aforementioned sections of the California Business and Professions Code, and, therefore, require the appropriate signature(s) or stamp(s) of the contributors. A revised MPEP Workplan and applicable future submittals should contain the signature(s) and license number(s) of contributors, if appropriate.

Item 15. Required Certification Statement

Section IX.3 of the MRP states that each person signing a report required by the Order must provide following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel or represented Members properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment for violations.”

The MPEP Workplan does not contain the required signature and certification statement of the individual(s) authorized to bind the party submitting the report. The signature and certification statement should be included in a revised cover page for the MPEP Workplan and any future reports submitted by the SSJV MPEP Committee.

Table 1. Components of the Management Practices Evaluation Program and Workplan

Item No.	MPEP Objectives and Workplan Components	Location in MRP	Item Complete¹
Objectives			
1	Address the constituents of concern described in the GARs	IV.B	No
2	Identify whether existing site-specific and/or commodity-specific management practices are protective of groundwater quality within high vulnerability groundwater areas	IV.B.1a	No
3	Determine if newly implemented management practices are improving or may result in improving groundwater quality	IV.B.1b	Yes
4	Develop an estimate of the effect of Members' discharges of constituents of concern on groundwater quality in high vulnerability areas. A mass balance and conceptual model of the transport, storage, and degradation/chemical transformation mechanisms for the constituents of concern, or equivalent method approved by the Executive Officer or as a result of the recommendations by the expert panels by CDFR and the State Water Board, must be provided	IV.B.1c	Yes
5	Utilize the results of evaluated management practices to determine whether practices implemented at represented Member farms (i.e., those not specifically evaluated, but having similar site conditions), need to be improved.	IV.B.1d	No
Implementation			
6	Provide a master schedule describing the rank or priority for the investigation(s) of the high vulnerability areas (or commodities within these areas) to be examined under the MPEP.	IV.B.2	No
Workplan Approach			
7	The workplan must include a scientifically sound approach to evaluating the effect of management practices on groundwater quality.	IV.D.1	No
Groundwater Quality Monitoring – Constituent Selection			
8	Where groundwater quality monitoring is proposed, identify the constituents to be assessed.	IV.D.2a	Yes
9	Where groundwater quality monitoring is proposed, identify the frequency of the data collection (e.g., groundwater quality or vadose zone monitoring; soil sampling) for each constituent.	IV.D.2b	No

¹ For Items 1-5, "Item Complete" indicates whether the MPEP Workplan provides sufficient information to determine whether the MPEP objectives can be met if the described MPEP is implemented.

Item No.	MPEP Objectives and Workplan Components	Location in MRP	Item Complete ¹
10	Any necessary modifications to the QAPP for groundwater monitoring shall be submitted with the MPEP and groundwater trend monitoring workplans.	VIII	No
Workplan Implementation and Analysis			
11	Provide sufficient information/justification for the Executive Officer to evaluate the ability of the evaluation program to identify whether existing management practices in combination with site conditions, are protective of groundwater quality.	IV.D.3	No
12	Explain how data collected at evaluated farms will be used to assess potential impacts to groundwater at represented farms that are not part of the Management Practices Evaluation Program's network.	IV.D.3	No
Master Workplan – Prioritization			
13	If the third-party chooses to rank or prioritize its high vulnerability areas in its GAR, a single Management Practices Evaluation Workplan may be prepared which includes a timeline describing the priority and schedule for each of the areas/commodities to be investigated and the submittal dates for addendums proposing the details of each area's investigation.	IV.D.4	No
Other			
14	All reports submitted should comply with Sections 6735(a) and 7835 of the California Business and Professions Code	N/A	No
15	Each person signing a report required by the Order must include the provided certification statement.	WDR Sec. IX.3	No