

Buena Vista Coalition
California Farm Bureau Federation
East San Joaquin Water Quality Coalition
Kaweah Basin Water Quality Association
Kern River Watershed Coalition Authority
Kings River Water Quality Coalition
Sacramento Valley Water Quality Coalition
San Joaquin County/Delta Water Quality Coalition
Westside San Joaquin River Water Quality Coalition

November 6, 2014

Pamela Creedon, Executive Officer
Joe Karkoski, ILRP Program Manager
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114
c/o Keri.Yee@waterboards.ca.gov

SUBJECT: Comments on the Nitrogen Management Plan Template and submittal of a Revised Nitrogen Management Plan Template

Dear Ms. Creedon/Mr. Karkoski:

The above listed entities appreciate the opportunity to respond to the Notice of Public Comment Period for the Nitrogen Management Plan Template, issued on October 6, 2014. In response to your request for public comments on the Nitrogen Management Plan Template, we have combined our efforts to develop comments, and with these comments, propose an alternative to the Draft Nitrogen Management Plan (NMP) Template submitted by the East San Joaquin Water Quality Coalition (ESJWQC) and other agricultural stakeholders in April 2013 (hereafter referred to as the "Revised NMP Template"). Our Revised NMP Template is being put forward due to new information obtained and gained over the last year, since we originally submitted a template for consideration in April 2013. In light of our collective experiences in implementing this substantially new program for irrigated agriculture, we believe that the Revised NMP Template provided here requires growers to consider the most essential information for nitrogen management planning but does not overly burden growers with a cumbersome plan that is difficult to implement.

As a preliminary matter, the Revised NMP Template recognizes and accounts for the tremendous administrative undertaking it will be to distribute the template in the first instance, and then educate growers on how to efficiently and effectively utilize and complete the NMP template. Specifically, as compared to the previously submitted template, the Revised NMP Template provided here removes the need to provide information that is necessary to develop a ratio (i.e., amount of nitrogen supplied over the amount of nitrogen the crop needs). Our primary reason for removing this information is with

regard to the difficulty in determining nitrogen ratios for the diverse crops grown within the Central Valley. As we indicated previously, we have all gained a tremendous amount of knowledge over the last year, and have come to realize that it is not appropriate or possible to ask growers to provide this information at this time. Please be assured, the agricultural coalitions and other stakeholders associated with this letter are committed to designing an efficient approach for meeting the requirements in the various Irrigated Lands Regulatory Program Waste Discharge Requirement General Orders (General Orders). However, we recognize that to accomplish our mutual goals, the first step is to work with growers to develop an effective process for them to individually record and manage fertilizer application amounts. Additional scientific studies and outreach will need to occur before calculation of nitrogen ratios in individual nitrogen management plans is feasible. The removal of nitrogen ratio information from the NMP template as proposed here is consistent with the Agricultural Expert Panel's report as well as the California Department of Food and Agriculture Nitrogen Tracking and Reporting Task Force, both of which recognized the need to obtain different levels of information over a period of time.

With respect to the nitrogen ratio, and reporting requirements associated with the ratio for the agricultural coalitions, we expect to have further conversations with Regional Water Board staff on this issue over the coming year. However, as specifically stated in the October 6, 2014 notice, Regional Water Board staff are not soliciting comments on Nitrogen Summary Report requirements at this time. Accordingly, we collectively defer comments on the Nitrogen Summary Report until such time that it is appropriate.

Included with this communication is a description of the Revised NMP Template, the Revised NMP Template in Appendix I, and an example of a Nitrogen Application Schedule in Appendix II. Please note that the Example Nitrogen Application Schedule is *not* part of the Revised NMP Template, and we do not recommend that it become part of the template. It is being provided to you for informational purposes only, and is intended to be a guidance tool that can be provided to growers who may not currently schedule nitrogen applications. Further, it is not appropriate for the Nitrogen Application Schedule to become part of the template because it is not applicable to all crops.

- Appendix I: Revised NMP Template to be used for tracking and reporting nitrogen applications including instructions for completing the template;
- Appendix II: Example Nitrogen Application Schedule.

Description of Revised Nitrogen Management Plan Template

The Revised NMP Template includes many of the same fields as the April 2013 NMP Template with the exception of estimating a nitrogen ratio (reasons for doing so are provided above). While the form of the Revised NMP Template is relatively simple, the information supplied in the various fields leads growers to properly plan for nitrogen fertilizer applications. Essentially, growers subject to NMP requirements would be required to fill out the Revised NMP Template form to determine the planned amount of total nitrogen to be applied during the crop harvest year (including consideration of credits). We anticipate that the agricultural coalitions will provide growers the option of completing an excel worksheet, which will use formulas to calculate some of the values, or a filling in the information on a paper hard copy version to track the information. In using the Revised NMP Template, the grower would record the amount of nitrogen planned for application (as recommended by a person with appropriate certification in high vulnerability areas) versus the amount that is then actually applied for the crop year. It is important to recognize that the information recorded in the planned column of the Revised NMP Template is a recommendation. Due to many different factors (e.g., changes in weather, water supply, expected crop yield, etc.) that can occur after a recommendation is made, the actual amount applied may differ.

As part of completing the Revised NMP Template, growers in high vulnerability areas are expected work with a Certified Crop Advisor or similar certified nutrient expert (unless the grower him/herself is certified) to determine the appropriate timing of nitrogen applications in addition to considering soil and plant tissue testing, application rates, form of nitrogen fertilizer, and N concentrations in irrigation water. With respect to timing of application, and as indicated above, included for illustrative purposes only is an example of how a grower may choose to record the timing of their nitrogen applications. (See Appendix II.) Moreover, the Revised NMP Template is just that - a template. It is intended as guidance to assist growers in developing the nitrogen fertilizer portion of an overall crop nutrient plan. Per the requirements of the various agricultural orders for discharges from irrigated lands, the Revised NMP Template would be prepared annually by members, be updated as necessary and would be retained on the farm.

The following is a description of the data fields and sources of information for each. Each number corresponds to the number and field of the Revised NMP Template in Appendix I.

1. Crop Year, Harvested

- Year a crop is harvested. For annual crops, the period of time from planting to harvest would be included into the plan. For perennial crops, the crop year can be considered dormancy through post-harvest (or other equivalent period). This is the period when the nitrogen applications are counted.

2. Member ID

- Unique Coalition membership number.

3. Name

- Name of the member or the name of the person employed by the member responsible for the nutrient management planning.

4. APN(s) and Field(s) ID

- Assessor Parcel Number (APN) for reporting unit of worksheet and summary.
- Field(s) numbers in the reporting unit covered by the worksheet. If fields can be designated by the grower and assigned to their respective parcels, future reporting may only need to be done by field.

5. Crop

- Name of crop associated with the APN(s) and Field ID(s) for which the NMP is being filled out for.

6. Production Units

- Many crops use different metrics for yields besides pounds (lbs). Identification of the production unit by the grower will avoid unnecessary conversions to a standardized lbs basis. Coalitions and the Regional Board could do further calculations based upon the identified production units, if necessary for further analysis.

7. Expected Yield

- Identified by the grower based upon production history of the field(s) and forecast of available inputs and site conditions.

8. N Needed

- An estimate by either the grower or consultant of the pounds per acre needed for the expected yield based upon production history and site conditions.

9. Acres

- Total acres that the worksheet data applies to.

10. Planned N

- The amount of nitrogen the grower plans to apply to the crop or would otherwise be available to the crop from the different potential sources.

11. Certification By

- Location of signature, date, and the certification method used (self-certified by either trained grower; NRCS/UC site recommendation; nitrogen management plan specialist; or no certification necessary).

12. Actual N

- The total amount of nitrogen applied, or otherwise available from using the various sources.

13. Actual Yield

- Units/acre.

14. Notes

- Space for members or member consultant to add any notes to help them account for the conditions of the crop that may affect yield or nitrogen applications.

15. Organic Material N (manure, compost)

- Estimated available nitrogen contained in manure or compost applications, measured in pounds per acre.

16. Total N Applied

- Sum of nitrogen applied per acre in the reporting area.

We appreciate your consideration of the Revised NMP Template and look forward to working with Regional Water Board staff to resolve any issues of concern you may have with our proposed Revised NMP Template.

Sincerely,

A handwritten signature in black ink, appearing to read 'PK' with a long horizontal flourish extending to the right.

Parry Klassen
Executive Director, East San Joaquin Water Quality Coalition

APPENDIX I: REVISED NMP TEMPLATE

Revised Nitrogen Management Plan Template

1. Crop Year, (Harvested):	4. APN(s):	Field(s) ID	
2. Member ID#			
3. Name:			
CROP NITROGEN MANAGEMENT PLANNING		N APPLICATIONS/CREDITS	10. Planned N
5. Crop		<u>Nitrogen Fertilizers</u>	12. Actual N
6. Production Units		Dry & Liquid N (non foliar)	
7. Expected Yield (Units/Acre)		Foliar N fertilizers	
8. N Needed (lbs/acre)		Other N fertilizers	
9. Acres		15. Organic Material N	
Post Production Actuals		Available N in Manure (est)	
13. Actual Yield (Units/Acre)		Available N in Compost (est)	
Total N (lbs/acre)		16. Total N Applied (per acre)	
		<u>Soil Nitrogen Credits (est)</u>	
14. Notes:		Available N carryover in soil	
		N in irrigation water (annualized)	
		Total N Credits (lbs per acre)	
		Total N Available (Applications + Credits)	
11. CERTIFIED BY:		CERTIFICATION METHOD	X
		Self-Certified, approved training program attended	
		Self-Certified, UC or NRCS site recommendation	
DATE:		* Nitrogen Management Plan Specialist	
		Low Vulnerability Area, No Certification Needed	
		* As defined in the Instructions	

NITROGEN MANAGEMENT PLAN TEMPLATE INSTRUCTIONS

Complete a NMP TEMPLATE for every crop management unit in your membership. All fields/parcels will need to have a completed NMP Template kept on farm.

1. Enter the calendar year for which this report is based upon. NMP Templates are based upon crops harvested within each calendar year.
2. Enter your membership identification number for your coalition group.
3. Enter the name of the person filling out the form. This needs to be owner or manager of the farm or the individual certifying the plan.
4. Enter Assessor's Parcel Number (APN) and field identification (ID) for each unique management unit; the field ID can be alpha/numeric or your internal identifier. If the same crop and same nitrogen application is used on more than one field, enter all APN's and/or field numbers where the information applies.
5. Enter crop (almonds, walnuts, table grapes, wine grapes, raisin grapes, watermelons, canning tomatoes, fresh market tomatoes, etc.).
6. Enter the standard production unit. Either as identified in the instructions or the standard units that you base your nitrogen management planning on (e.g., tons, lbs, bales, etc.).
7. Enter your expected yield per acre for the management unit. Realistic yield expectations will help guide N management decisions.
8. Enter the amount of Nitrogen needed to be applied or that is otherwise available to meet your expected yield. Utilize standardized recommendations from CDFA, UCCE, NRCS, commodity organizations, or site specific knowledge to appropriately estimate the amount of N needed.
9. Enter total acres for the management unit in each worksheet.
10. Under the Planned N column, allocate how much N you plan to apply from each of your available sources and total each section. Double check your N Available with your N Needed (8.) to make sure they are appropriate. Use your planned totals for each source of N and schedule your applications for the crop year. You can use the example provided or an equivalent method that shows the planned timing for each application. Proper scheduling of N applications is an essential component of a Nitrogen Management Plan.
11. Parcels/Fields that are in designated High Vulnerable Areas will need to be certified by one of the available methods. Certification occurs on the initial plan and not for the Actuals.

NITROGEN MANAGEMENT PLAN WORKSHEET INSTRUCTIONS (continued)

12. Under the Actual N column, allocate how much N you applied, or otherwise available from each of your sources and total each section. Use your planned N schedule to guide you throughout the crop season. Application amounts and timing should be adjusted based upon changing conditions (weather, expected yield, disease, etc.).

13. Update your Post Production Actuals with the Actual Yield for the crop management unit. Compare the Actual Yield to the Total amount of N that was available for the crop. Make a self-evaluation whether your N applications were appropriate for the yield achieved. Utilize the available resources or site experience to determine the appropriate amount compared to the yield.

14. Add any notes to the worksheet such as important reminders or circumstances faced during the crop season.

15. Estimate available nitrogen contained in manure or compost applications, measured in pounds per acre.

16. Sum the available nitrogen applied per acre in the reporting area.

Complete additional worksheets until all crops and management units are completed.

DEFINITIONS

Crop Year (Harvested) - The crop year is on a January 1st to December 31st Calendar year. The date of the completion of harvest for the management unit will determine the timing for the Summary Report. Crops harvested in 2015, will need to be reported to the Coalition by March 1, 2016.

Crop Management Unit - Each Crop Management Unit is determined by the member. Fields can be grouped together for planning and reporting purposes as long as the crop, field practices, and nutrient planning decisions are similar.

Nitrogen Management Specialists - include Professional Soil Scientists, Professional Agronomists, Crop Advisors certified by the American Society of Agronomy (and CDFA/California CCA), or Technical Service Providers certified in nutrient management in California by the National Resource Conservation Service (NRCS); or other specialist approved by the Executive Officer.

APPENDIX II: EXAMPLE NITROGEN APPLICATION SCHEDULE

Nitrogen Application Schedule (Example)

The example application schedule includes nitrogen applications and credits (in pounds) reported on a quarterly basis which could be used as guidance to growers who may not be currently scheduling nitrogen applications. This is not a suggested addition to the template because standardization of the form creates unnecessary additional reporting documents and is not workable for all crops.

Planned					
N Applications/Credits (lbs)	Winter	Spring	Summer	Fall	Totals
Dry & Liquid N (non foliar)					
Foliar N fertilizers					
Other N fertilizers					
Manure *					
Compost *					
N carryover in soil *					
N in irrigation water (annualized) *					
Totals					

Actual					
N Applications/Credits (lbs)	Winter	Spring	Summer	Fall	Totals
Dry & Liquid N (non foliar)					
Foliar N fertilizers					
Other N fertilizers					
Manure *					
Compost *					
N carryover in soil *					
N in irrigation water (annualized) *					
Totals					

* Estimated



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November 6, 2014

Keri Yee

Keri.Yee@waterboards.ca.gov

Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Re: Comments on the Eastern San Joaquin River Nitrogen Management Plan Template.

Dear Ms. Lee,

The University of California Cooperative Extension Groundwater Hydrology program (<http://groundwater.ucdavis.edu>) provides technical support and outreach on groundwater issues specifically related to agricultural and rural regions in California. In 2012, we published the UC Davis report for the SWRCB SBX2 1 Report to the Legislature on “Addressing Nitrate in California’s Drinking Water” (<http://groundwater.ucdavis.edu>). We are actively engaged in research and extension activities to support a better understanding of the interface between agriculture and groundwater (<http://groundwater.ucdavis.edu/Publications/>). I am also a member of the Central Valley Regional Water Board (“CVRWB”) Groundwater Monitoring Advisory Workgroup (“GMAW”) and, in 2013, participated in the CDFG Nitrogen Tracking Task Force (<http://www.cdfa.ca.gov/environmentalstewardship/PDFs/NTRSTFFinalReport122013.pdf>).

The comments provided here focus on the Nitrogen Management Plan (NMP) Template and Summary Report, with a focus on the Summary Report because the relevance of many items in the NMP Template arise from the transmittal of information to the Third Party and to the Regional Water Board (RWB). I am aware that staff is not soliciting comments specifically on the Summary Report. But the NMP Template, as proposed, is a detailed planning and review (assessment) document that is intended to meet two objectives:

1. to serve as the basis for good on-farm nutrient management planning through smart record keeping where the records reflect both, the planning phase and the final assessment of actual on-farm nutrients.
2. to serve as a basis for annual reporting to and review by the Third Party, which – in some aggregated form – will report the data to the RWB. For each farm, the Summary Report will provide selected data from the NMP Template to the Third Party.

To properly meet objective 2, the NMP Template cannot be viewed in isolation from the Summary Report. Hence, I felt it was necessary to include comments on the Summary Report.

My comments are complementary and in addition to the comments submitted by my UC Davis colleague Dr. G. Stuart Pettygrove, who has extensive experience and is one of the state's leading experts in nutrient management planning, training, and review of nutrient management plans. Dr. Pettygrove's comments provide specific and important suggestions on how to potentially improve the NMP Template.

Suggestion #1: Proposed changes to the NMP Worksheet

A) With respect to the NMP Template (referred to as "NMP Worksheet" in Appendix III of the Coalition Template Submittal) I suggest that a revised worksheet clearly identifies, whether the NMP Worksheet is for a future crop (planning stage) or for an already harvested crop (assessment stage). This can be achieved by either of the following alternatives:

Alternative 1: Keep two separate worksheets for each field, one that reflects the planning stage (prior to planting) and one that reflects the assessment stage (after harvest). For this alternative, simply add an additional item immediately before current Item #1 (Crop Year, Actual) in the NMP Worksheet to identify the type of Worksheet:

1. Check one of the following check-boxes:
 - Planning Worksheet (prepared prior to planting) or
 - Assessment Worksheet (prepared after harvest)

Alternative 2: Use the same NMP Worksheet for both, planning and assessment, by providing TWO entry fields under each item, one in which the projected or planned information is entered prior to planting and a second field, where the actual information is entered after the harvest has occurred, at a point in time that presents a seamless transition to the next planning period.

For both, Alternative 1 and Alternative 2, the report time periods must be structured such that there are no gaps between planning periods or between assessment periods. Also for both alternatives, the following fields in the NMP Worksheet would need to be renamed or deleted:

- Rename Item #1 from "Crop Year, Actual" to "Crop Year (Recommended/Actual)"
- Delete Item #3 "Crop Year, Recommended"
- Rename Item #7 from "Actual Yield (lbs of N per acre)" to "Yield (lbs of N per acre)"
- Rename Item #8 from "Crop N needs to meet actual yield (lbs N per acre) to "Crop N need to meet yield (lbs N per acre)" or similar (also see comments by Dr. Pettygrove).
- Delete Item #9 "Projected Yield"
- Delete Item #10 "N needs to meet projected yield"

In either case, the Worksheets must be prepared electronically, which would much simplify the submittal of the Summary Report to the Third Party in electronic format ([CDFA Nitrogen Tracking Task Force](#)).

B) For purposes of the Summary Report, I suggest to separate Item #15 and Item #17 into two items – (a) dairy manure and dairy compost and (b) other organic material (non-dairy manure, non-dairy compost). This would facilitate a cross-check (at least at the aggregated, long-term level) against dairy manure exports reported under the RWB Dairy Order. Verifiability was a key issue for the [CDFA Nitrogen Tracking Task Force](#).

C) The nitrogen in irrigation water (Item #19) should reflect the total N applied in irrigation water, whether or not it is considered plant available. All N applied in irrigation water is part of the field N mass balance ([CDFA Nitrogen Tracking Task Force](#)). This number should be computed from the average annual nitrate concentration in irrigation water, and the total amount of irrigation water applied per acre during the crop period.

D) The N balance (Item #23) shall be computed as the difference of Item #21 (Total N available) and Item #7 (actual yield): $\#23 = \#21 - \#7$. This difference reflects unknown N fluxes and is most closely related to the mass of nitrate leaching to groundwater ([Viers et al., 2012](#); [CDFA Nitrogen Tracking Task Force](#); [Rosenstock et al., 2014](#)). For the same reason, the ratio (Item #24) shall be computed as the ratio of Item #21 and Item #7.

The NMP Template, with the modifications in terminology suggested by Dr. Pettygrove and further modification suggested above, will be a relevant and adequate basis for preparing the

Summary Report. The ESJ Water Quality Coalition is to be commended for the forward looking approach it has taken in developing the NMP Template.

Importantly, the proposed Summary Report is inconsistent with the requirements for the NMP Template and does not meet either the consensus-based recommendations reached by the [CDFA Nitrogen Tracking Task Force](#), nor does it meet the recommendations set forth by the [SWRCB Ag Expert Panel](#):

The current version of the Summary Report sets forth that, for each field ID (identified by the APNs) only the crop type, acreage and Ratio (NMP Worksheet #24) be reported to the Third Party. The Ratio is the ratio of N applied (NMP Worksheet #21) to Crop N Needs (NMP Worksheet #22).

Following the recommendations of the [CDFA Nitrogen Tracking Task Force](#) and of the [SWRCB Ag Expert Panel](#), Suggestion 2 identifies the column items from the NMP Worksheet that must be included in the Summary Report to the Third Party and to the RWB:

Suggestion 2: Revised Summary Report

First, the NMP Summary Report must be compiled from the NMP Worksheet that reflects the actual assessed values, not from the Worksheet that reflects planned, projected values (see Suggestion 1A). There is no need to report planned values. However, NMP Worksheets prepared for planning purposes must be kept on-farm for review and verification/audit purposes ([CDFA Nitrogen Tracking Task Force](#), p.20-21).

The revised NMP Summary Report shall be submitted in electronic format, except in hardship cases ([CDFA Nitrogen Tracking Task Force](#), p. 15). The revised NMP Summary Report would be the same as the originally proposed format, but with the following columns added to the five proposed columns shown on page 18 of the ESJVWQ Coalition Submittal (APN, Field ID, Crop type, Acres, Ratio):

Table 1: Additional column items from the NMP Worksheet (actual assessment, post-harvest) that need to be included into the NMP Summary Report:

Column Item	Reference in the recommendations by the CDFA Nitrogen Tracking Task Force	Reference in the recommendations by the SWRCB Ag Expert Panel	Comments
#7 Crop Yield (lbs of N per acre)	p. 18	Recommendation 5, p. IV	
Sum of #12 (dry and liquid N), # 13 (foliar N), and #14 (other N)	p. 18	Recommendation 5, p. IV	Shall be reported separately from #15 for cross-check against reported fertilizer sales at an aggregated (county, state) level (multi-year average)
#15a Available N from			Shall be reported

dairy manure and dairy compost (see Suggestion 1 above)			separately for cross-check against reported dairy manure export (RWB Dairy Order) at an aggregated (county, region) level (multi-year average). (See section on “Verifiability” in CDFA Nitrogen Tracking Task Force , p.20-21)
#15b Available N from non-dairy manure and non-dairy compost (see Suggestion 1 above)			Shall be reported for completeness.
#16 Total N applied (#12 + #13 + #14 + #15a + #15b)	p. 18	Recommendation 5, p. IV	Automatically computed under electronic submittal form
#17 N from previous legume crop			
#18a Available N residual from dairy manure and dairy compost (see Suggestion 1 above)			Shall be reported separately for cross-check against reported dairy manure export (RWB Dairy Order) at an aggregated (county, region) level (multi-year average). (See section on “Verifiability” in CDFA Nitrogen Tracking Task Force , p.20-21)
#18b Available N residual from non-dairy manure and non-dairy compost (see Suggestion 1 above)			Shall be reported for completeness.
#19 N in irrigation water (lbs of N per acre)		Recommendation 6, p. IV	Shall be reported for completeness.
#20 Total N credits (#17 + #18 + #19)	p. 18	Recommendation 5, p. IV	Automatically computed under electronic submittal form
#21 Total available N (#16 + #20)	p. 18	Recommendation 5, p. IV	Automatically computed under electronic submittal form
#23 N Balance (#21 - #7), see Suggestion 1			Automatically computed under electronic submittal form
#24 Ratio (#21 / #7), see Suggestion 1	p. 18	Recommendation 2, p. IV	Automatically computed under electronic submittal form

I appreciate the opportunity to comment on the NMP Template and Summary Report.

Regards,

A handwritten signature in black ink that reads "Thomas Harter". The signature is written in a cursive style with a large, sweeping initial 'T'.

Thomas Harter, Ph.D.
Robert M. Hagan Endowed Chair in Water Management and Policy
ThHarter@ucdavis.edu

REFERENCES:

[CDFA Nitrogen Tracking Task Force](http://www.cdfa.ca.gov/environmentalstewardship/PDFs/NTRSTFFinalReport122013.pdf), 2013, Final Report, December 2013;
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<http://groundwaternitrate.ucdavis.edu/files/139110.pdf>



November 6, 2014

SENT VIA EMAIL TO: Keri.yee@waterboards.ca.gov

Karl Longley, Chair
Central Valley Regional Water Quality Control Board
11020 Sun Center Dr #200,
Rancho Cordova, CA 95670

Dear Chair Longley and Members of the Central Valley Regional Quality Control Board,

We thank you for the opportunity to comment on the Draft Nitrogen Management Plan Template (NMPT) submitted by the East San Joaquin Coalition.

We, the undersigned organizations, have participated in the development of the Irrigated Lands Regulatory Program since 2008. Our engagement has included participation on the stakeholder group that advised on the development of waste discharge requirements, the CDFA Nitrogen Task Force in 2013, and the advisory committee that provided input the State Water Board's Expert Panel.

Through these processes, diverse stakeholders developed a shared understanding of the both the challenges involved in collecting and managing data related to nutrient use on farms, as well as the need to gather information to inform the regulatory process and the development of best practices to address groundwater impacts. Unfortunately, the NMPT and Summary Reporting requirements fail to meet the minimum standards agreed upon through those processes.

Reporting requirements to Coalition are misleading and inadequate

The most glaring problem with the NMPT is the nutrient ratio that is to be reported to the Coalition. The CDFA Nitrogen Task Force agreed that developing an understanding of potential nitrogen loss to the environment was a key information need. Yet the ratio to be reported to the Coalition is N application divided by the N need of the crop. This value has little – if any – relevance when trying to calculate the potential N loss to groundwater and when trying to reduce excessive application of N. Every other recommendation – including both the Task Force and the Expert Panel - used a basic ratio of Nitrogen applied to Nitrogen removed. Using the current NMP template, that ratio would be arrived at by dividing box #21 by box #7. Since the information is already in the template, repairing this error should be relatively simple.



The NMP summary report is also deficient in that it provides no overall figures on the amount of N applied. The ratio of N applied to N removed is of value, but only provides relative figures. In order to understand the scale of potential N loss to the environment – and thus the potential threat to groundwater - the figures that make up that ratio must also be reported, most importantly the amount of N applied. We recommend that the values in boxes 12-15, box 21 and box 7 be added to the summary report.

Finally, the CDFA Nitrogen Task Force was repeatedly told that irrigation types and timing are a key factor in the migration of nitrate to groundwater, yet neither the NMP template nor the summary report provide information about irrigation type, volume or timing.. Since information about irrigation practices is already provided in the Farm Evaluation Template (although not crop-specific irrigation information), it should be a simple matter to add that information to the NMP template and summary report.

NMP Worksheet

Given the importance that both the Expert Panel and the Task Force gave to developing our understanding of both available data and farming practices, we believe that the Nitrogen Management Plan Worksheet should include all available relevant data to help develop a robust and comprehensive picture of application and irrigation practices that impact nitrogen loss and groundwater quality.

Accordingly, the following changes and additions should be made to the NMP Worksheet:

Box 5 (Field #), should be expanded to include field location.

Additional boxes need to be added to the crop column to better understand crop N demands;

- Irrigation Type
- Rainfall (when and how much), and efforts to flush salts from the soil.
- Productive N uptake by perennials for sustained growth. This could be an “N sequestered” box

Box 7 – actual yield – we suggest amending the description to read “N removed – crop yield + non-market material removed from field” to better fit the description provided in the text.

Soil Nitrogen Credits (Estimated). We recommend including an “other N carryover” box to account for available N carryover not accounted for in categories 17 or 18.



Current box 22 (Crop Needs) - is this the same as box 8? Or is box 22 the prior year crop need and box 8 the current year? In any case, box 22 should be deleted, as this value is not relevant for reporting or for use in calculating a nutrient ratio. If this value is distinct from that in box 8, a new box can be created in the “crop” column to keep that information.

Current box 24 should be amended to calculate the appropriate nutrient ratio – that is, box 21 – total N credits and applications – divided by box 7 – N removed from the field. See explanation above.

Thank you for providing us the opportunity to comment on this document

Sincerely,

Phoebe Seaton
Leadership Counsel for Justice and Accountability

Laurel Firestone
Co-Executive Director and Attorney at Law
Community Water Center

Jennifer Clary
Water Policy Analyst
Clean Water Action



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DAVIS, CALIFORNIA 95616-8627

November 5, 2014
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-611
Sent by email to Kerri Yee, Keri.Yee@Waterboards.ca.gov

Dear Regional Board members and staff:

The comments in this letter are given in response to the Region 5 Board's email (October 6, 2014) request for public input on the Nitrogen Management Plan Worksheet, dated April 11, 2013. These are my own comments and do not represent an official UC position.

I have recently retired from a 34-year career as a soil scientist and cooperative extension specialist with UC Davis. My specialty is nitrogen use and management by California's growers and dairy producers, and I have conducted several applied research projects, workshops and short courses on this topic.

The comments herein are aimed specifically at pages 12-14 of the East San Joaquin Water Quality Coalition Template Submittal. The comments target several major concerns and several minor problems. All of the shortcomings described here can be fixed. Three main concerns are the following:

- Use of vague or inconsistent terminology. An example of a vague term is "crop N need", which in common usage has several very different meanings. Precise definitions must be provided; otherwise the metrics generated from these quantities will be useless.
- Insufficient information is provided in the NMP Summary to the coalition responsible for aggregating collected data. For example: Growers are required to calculate and report the ratio of crop N applied to crop need, but they are not required to report crop species. Aggregating ratio values of annual and perennial crop species or aggregating values of high N-requiring and low-N requiring crops will generate misleading and nearly useless average values.
- Guidelines or procedures for determining several of the important values required in the Worksheet are lacking. Some of the needed guidelines can be relatively easily produced by experts – for example the quantities "N from previous legume crop" and "N in irrigation water". Others will be more difficult, e.g., available N from residual manure/compost.

These and other problems with the NMP worksheet and summary are described in the appendix below my signature in the following pages.

Sincerely,

G. Stuart Pettygrove, PhD
Cooperative Extension Soils Specialist Emeritus
gspettygrove@ucdavis.edu

General comment

The title (top of page 12) is “Nitrogen Management Plan Worksheet”. Although this has the word “plan” in it, it apparently will be used both at the beginning of the season and at the end of the season to evaluate the immediate past performance. This needs to be clarified. Several items in the worksheet need to be more carefully worded to eliminate any confusion about what time period is being covered. More specifically:

- Reword to clarify the difference between “1. Crop Year, Actual” and “3. Crop Year, Recommended”. Are these meant to be, respectively, projected and after-the-fact values for the same crop year?
- Reword to clarify the difference between “8. Crop N Needs to meet actual yield” and “10. N Needs to Meet Projected Yield”. Are these meant to be the same quantity but (respectively), projected and after-the-fact values for the same crop year?
- For consistency, possibly there should be both planning (forecast) and actual (end of year updates) for the N application and credit items, especially inputs of N fertilizers, N in manure and other organics, and irrigation water N. Currently, it is not clear which time period these refer to.

Item 6.

We recommend that item 6 (“Crop”) be included in the NMP Summary Report and not only in the NMP worksheet. Without the ability to sort and aggregate the reported ratios by crop species, interpretation of the ratios will be severely limited, and it will be difficult to determine where follow-up is needed. We wondered if this was an oversight. Or is it the intent of the ESJWQC that growers would on the one hand be required to report detailed locations and acreages but on the other hand would not be required to report the crop species?

Item 7.

The term “Actual Yield (lbs of N per acre)” is potentially confusing. Is it crop yield, or is it crop N yield? If the latter, we suggest it be renamed “Actual N removed in the harvested crop”, with the attached explanatory phrase as follows: “In lb N/acre. Includes N in both the marketed product and any non-marketable portion of crop that is removed from the field, such as culls or shells.”

Items 8 and 10.

“Crop N Needs to meet actual yield” (item 8) and “N Needs to Meet Projected Yield” (item 10) need to be more precisely defined. The word “needs” is horribly ambiguous. Growers would take various approaches in quantifying this due simply to the ambiguity. Resulting ratios would be meaningless.

It is unclear which of the following concepts is intended: (a) the amount of N taken up by the crop at yield and quality target levels, (b) the minimum amount of N that must be applied under careful management/low rainfall situations to achieve yield and quality goals, (c) the minimum amount of N that must be applied under higher leaching loss situations to achieve yield and quality goals, (d) the average amount of N that growers apply in a county or region, (e) the amount of fertilizer N recommended by the fertilizer supplier, or (f) the minimum amount of N that must be applied to achieve yield and quality goals after taking into account soil test nitrate or other factors. Until a definition of “need” is established, it will not be possible for experts to develop a generic list of crop N needs.

Even if “need” is defined, a consensus value based on input from fertilizer suppliers – which currently is in the language of the ESJWQC template -- would destroy the credibility of the regulatory process.

Item 9.

“Projected Yield”. Clarify whether this is nitrogen yield, the counterpart to Item 7 (“actual yield”). If that is true, a suggestion is to reword it “Projected N removed in harvested crop.”

Items 7 and 9 (crop N yield, i.e., N harvest removal), page 12

An additional comment on items 7 and 9 is that neither of these are to be included in the proposed NMP Summary Report. So why are they required in the NMP Worksheet? It is potentially a significant expense to the grower to obtain samples and measure the N content of the harvested product, and in some cases this would have to be done as well for the unmarketable portion of the crop that is removed from the field.

If this is retained in the worksheet and is required in the Summary Report, guidelines will need to be developed and provided to growers for sample collection, handling, and analysis.

Item 11. Total Acres. Add wording to clarify whether this is acres planted, acres fertilized, or acres harvested.

Nitrogen Applications and Credits (page 13) is the heading for items 12-16, fertilizers and organic materials applied to the field or crop. The group of items after this (17-20) are under the heading “Soil Nitrogen Credits”. It is confusing to have two sections of inputs with the word “credit” in them. Suggest removing the word “Credits” from the first group, i.e., change “Nitrogen Applications and Credits” to simply “Nitrogen Credits”.

Item 15. Available Organic Material N.

- Perhaps reword for clarity as “Available N in applied manure and other organic amendments and fertilizers”.
- Guidelines must be developed and provided to growers for this. The guidelines should include the definition of “available” and address time of sampling and sample preservation. The latter is important, e.g., for poultry manure which can be subject to large losses of volatile ammonia.

Item 17. N from previous legume crop is subject to uncertainty. Guidelines must be developed and provided to growers for this. Peer-reviewed UC guidelines are not available, and a very wide range of recommendations for “legume N credit” are published by other states, but a provisional expert judgment on this can probably be developed.

Item 18. Available N residual from manure/compost. Guidelines must be developed and provided for this. This will be a challenge. The normal approach to crediting N from earlier manure applications is to use soil nitrate testing close to the time of crop N uptake, but the soil test value does not lend itself easily to use in a planning budget for N.

Item 19. N in irrigation water (annualized). Clarify meaning of the word “annualized”. Does this mean total for the crop season? Also: Guidelines must be developed and provided to growers for estimating this credit; however that should not be difficult to do.

Item 23. Balance. What is the point of including this in the Worksheet, given that it is not used in the NMP Summary? We recommend that it be included in the NMP Summary. This balance would be useful (together with the reported ratio of input to need) for identifying the relative importance of a high ratio value. As an example, envision two scenarios. In scenario 1 the N input is 500 lb N/acre, N need is 300. In scenario 2, the N input is 100 lb N/acre, N need is 60. In both scenarios, the reported ratio will be 1.67, which could warrant follow-up, depending on various assumptions and concerns. However in Scenario 1, the excess N is 200 lb N/acre (500 minus 300), a significant amount of N if it were eventually to enter a drinking water aquifer, while in Scenario 2, the excess N is one-fifth of that, 40 lb N/acre (100 minus 60), with an eventual impact on groundwater that will likely be quite small.

JK



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SACRAMENTO
CYRWQCB

14 NOV -3 PM 3:17

October 28, 2014

Mr. Joe Karkoski
Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670

Re: Proposed Nitrogen Management Plan Template

Dear Mr. Karkoski,

Innovative Ag Services is an agricultural consulting firm that provides agronomy services in California through a team of Certified Professional Agronomists, Certified Crop Advisors, and Technical Service Providers who are experienced and trained in Nutrient Management Plans. We have reviewed the proposed Nitrogen Management Plan Template, hereafter referred to as the Proposed Template, which is available on the RWQCB website. Thank you for requesting public comment to this important step, as it will have significant effects on agriculture.

While our team of Agronomists have compiled a comprehensive list of questions and concerns regarding the Proposed Plan Template, we would like to comment on three key points:

1. More time is needed to complete a NMP.

a. Professionalism and certification requires more time.

Within the General Order of Irrigated Lands Regulatory Program (ILRP), the RWQCB has required third party professionals in Nutrient Management Planning to develop and certify a professional document for a very diverse and large group of growers. To do this right, it will take time. As Professional Agronomists, our firm does not prepare nor certify nutrient budgets without professional standards. Site visits, review of monitoring data, yield history, soil types, laboratory data, and many other items can drastically affect a Nutrient Management Plan. Asking growers and agronomic professionals to complete a Nitrogen Management Plan within only months after approving a Nitrogen Management Plan Template places water quality and agronomic production at risk. We respectfully ask that the RWQCB give sufficient time for growers and agronomic professionals to complete this critical component of the ILRP.

b. Unknown designation of High Vulnerability Area.

Third Party Water Quality Coalitions are still working on their Groundwater Assessment Report. Many of these reports are not expected to be completed until



early next year. After such, the RWQCB will need to review and accept High/Low vulnerability areas. This will leave little to no time for growers to retain agronomic professionals to meet the additional requirements of High Vulnerability Areas.

c. Industry support and opportunity for funding require more time.

Trade Associations, Commodity Groups, Government Agencies, Professional Associations, and Professional Firms are aware of the requirements that the ILRP will place on the farming industry. These associated groups have a vested interest to assist growers, yet their assistance is limited until the RWQCB adopts a Proposed Template. It is only after the NMP Template is approved that industry support and funding can be implemented. Placing a very limited timeframe from the adoption of a Nitrogen Management Plan Template to its required completion/certification greatly limits the critical role of these supportive industry associations. Specifically, private and public grant funding to implement agronomy is being pursued and available, yet is dependent on the Nitrogen Management Plan Template. More time is needed between the adoption of a Template and the require time to complete the Nitrogen Management Plan.

2. Provide clarification and definitions to agronomic terms.

Nitrogen comes in many different forms and will change forms based on numerous environmental factors. The Proposed Template asks for the “Available Nitrogen” without providing a definition for “Available Nitrogen”. The use of this terminology is subjective in the agronomic field. Even while chemical form(s) of nitrogen may be able to define “Available Nitrogen”, additional clarifications will then be needed to determine the changes to nitrogen forms to and from that state(s). We respectfully request that the term “Available Nitrogen” be omitted from any regulatory reporting requirements as identified in the Proposed Template.

3. Provide clarification and definitions to reporting terms.

The Proposed Template identifies the “Crop Year, Recommended” as “the year/crop that an approved party would be making the nitrogen application recommendation”. The Proposed Template also identifies the “Crop Year, Actual” as the “year or season a crop is produced”. The language is vague and can be interpreted differently by RWQCB staff, growers, and agronomic consultants alike. The very diverse



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cropping systems in the California create additional challenges on how to implement this language. There are annual crops that are grown within a calendar year, while other annual crops are produced within two calendar years. Similarly, there are semi-annual crops that are produced over two calendar-year and three calendar-year periods. Further clarification is needed regarding how to handle crop failures that are not harvested as well as how to handle reporting the first year when limited data is available. As such, we respectfully ask that definitions and clarifications be made on how to the Propose Template addresses crop budgeting and reporting timeframes.

Thank you for your time and consideration. We welcome the opportunity to work with the RWQCB to improve this Proposed Template. We believe that the issues outlined in this letter should be addressed before the Template is presented to the members of The Board for their consideration of adoption. More information is needed to develop technical standards of agronomic requirements, in which Innovative Ag Services, LLC is ready and willing to address with RWQCB staff.

Additionally, we hope sufficient time will be given for growers and professional service providers alike to comply with new regulations on irrigated lands. Thank you for your time and consideration of our concerns.

Sincerely,

Warren Hutchings
Agronomist

Nathan Heeringa
Agronomist



PARAMOUNT FARMING

November 6, 2014

VIA E-MAIL

Attn: Kerri Yee
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114
c/o Keri.Yee@waterboards.ca.gov

RE: Comments on the Nitrogen Management Plan Template

Dear Ms. Yee:

Paramount Farming Company LLC and its related entities ("Paramount") appreciate the opportunity to provide comments in response to the Notice of Public Comment Period for the Nitrogen Management Plan Template, issued by the Central Valley Regional Water Quality Control Board ("Regional Board") on October 6, 2014. As specifically stated in the October 6, 2014 notice, the Regional Board is not soliciting comments on other reports or templates associated with the Long-Term Irrigated Lands Regulatory Program (ILRP) at this time therefore we defer comments on other aspects of the ILRP.

Implementing an effective, efficient and scientifically justified ILRP will take time to develop due to the complexity of, and variation in, California agriculture including, but not limited to: crops, soil types, irrigation practices, nutrient needs and irrigation and nitrogen management methods. As was identified in the Agricultural Expert Panel ("Expert Panel") Final Report dated September 9, 2014, "advances can be made immediately, however it will take many years to develop and implement a complete program. Education and knowledge transfer must be on-going."

As identified by the Expert Panel additional scientific studies, accounting for unique crops, soils and other characteristics are needed to support reporting requirements. The Expert Panel specifically identified knowledge gaps in key components of the Nitrogen Management Plan Template (NMP Template) such as appropriate A/R values and determination of nitrogen removed. Absent forgoing any nitrogen management reporting until scientific support exists to justify data needs, we believe base, high level information, such as N applied, is appropriate at this time for a nitrogen management template, recognizing growers will continue to implement their on-farm management practices. Requiring anything more increases costs at the grower and Coalition levels and would not generate consistent or meaningful data for regulatory or comparative purposes.

By limiting initial reporting requirements growers and Coalitions are also able to continue the education process in a meaningful way. As supported by the Expert Panel, this education is critical and will take time as the Coalitions continue to work with growers.

Paramount believes Coalitions and growers are committed to continuing practices that are protective of groundwater quality and identifying and changing current and future practices that are demonstrated to not be protective of groundwater quality. At this time however sufficient scientific support does not exist to support collection of certain data in the NMP Template. Paramount continues to support incorporation of recommendations of the Expert Panel in the ILRP.

If you have any questions, please contact me at the contact information listed above.

Sincerely,

Handwritten signature of Kimberly M. Brown in black ink, featuring a stylized 'K' and 'M' followed by a long horizontal flourish.

Kimberly M. Brown

Senior Director, Water Resources

cc: Mr. Darrin Polhemus, Darrin.Polhemus@waterboards.ca.gov

Ms. Dee Dee D'Adamo, Board Member, Dorene.Dadamo@waterboards.ca.gov

Mr. William D. Phillimore, wdp@paramountfarming.com

Mr. Hung Le, hungl@paramountfarming.com

Yee, Keri@Waterboards

From: John Zentner <john@zentnervineyard.com>
Sent: Thursday, November 06, 2014 2:40 PM
To: Yee, Keri@Waterboards
Cc: Bruce Houdesheldt; Carolyn Mansfield; Renee Hargrove
Subject: Draft Nitrogen Management Template

Ms. Yee,

My name is John Zentner. I own and operate a small, 5 acre premium wine grape vineyard in El Dorado County. I am providing one comment on the subject draft document:

Many wine grape growers and irrigated pasture operators apply Nitrogen fertilizer infrequently or not at all. Therefore, in order to save valuable labor hours completing a form that has no meaning I recommend that a checkbox statement be included at the very beginning of the form:

"Do you plan to apply Nitrogen fertilizer to your operation this year? Yes or No If yes, you must complete the entire form. If no, please sign and keep this form as required by the WDR."

I am not recommending a low-threat or low-vulnerability option - just the ability to not have to do all of the estimates required by the form when no Nitrogen is planned to be applied.

Respectfully,
John Zentner
Zentner Vineyard
3040 Omo Ranch Road
Fair Play, CA 95656